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UR0077

A70-23173 # Use of a monopulse laser for photographing models in ballistic studies (Ispol'zovanie monoimpul'snogo opticheskogo kvantovogo generatora dlia fotografirovaniia modelei pri ballisticheskikh issledovaniiaxh). A. N. Berezkin, Yu. A. Dunayev, E. Karnach, E. N. Kozlovskii, and V. M. Ovchinnikov (Akademiia Nauk SSSR, Fiziko-Tekhnicheskii Institut, Leningrad, USSR). *Zhurnal Nauchnoi i Prikladnoi Fotografii i Kinematografii*, vol. 15, Jan.-Feb. 1970, p. 21-25. In Russian.

Study of the possibilities of employing lasers to illuminate moving objects during shadow photography. Diagrams of the experimental arrangement are presented, and a description is given of the laser employed in the experiment, the telescopic system used to shape the beam illuminating the moving body, and the system for synchronizing the illumination pulse with the moment of arrival of the object under investigation at a given point in the photography field. Photographs are presented in which the boundaries of the flying bodies, the shock waves, and inhomogeneities in the wake of a body can be clearly seen. The possibility of using a monopulse ruby laser as an illumination source when photographing moving models in aeroballistic studies is demonstrated.

A.B.K.

4/1

REEL/FRAME
19781341

ALS

21

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DEPOSITION OF ZINC FROM ACID SULFATE SOLUTIONS ON TITANIUM CATHODES

-U-
AUTHOR--(03)--BUNDZHE, V.G., DUNAYEV, YU.D., KIRYAKOV, G.Z.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR. SER. KHIM. 1970, 20(2), 73-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TITANIUM, METAL ELECTRODE, TITANIUM HYDRIDE, ZINC PLATING,
METAL DEPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--2000/1495

STEP NO--UR/0360/70/020/001/0073/0075

CIRC ACCESSION NO--AP0125123

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO--AP0125123

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. ZN WAS DEPOSITED ON TI ELECTRODES FROM SOLNS. CONTG. ZN 60 AND H SUB2 SO SUB4 100 G-L. AT 25, 40, AND 60DEGREES AND C.DS. OF 40-4000 A-M PRIME2. FOR COMPARISON, ZN WAS ALSO DEPOSITED ON AL CATHODES. THE CURRENT EFFICIENCY ON THE AL CATHODE WAS HIGH UNDER ALL TESTED CONDITIONS, WHEREAS ON TI CATHODES A GOOD EFFICIENCY WAS OBTAINED ONLY AT SIMILAR TO 2000 A-M PRIME. ZN PPT. WAS DEPOSITED ON TI ONLY AT LOW TEMPS., BUT EVEN AT 25DEGREES, THE DEPOSITION OF ZN COULD STOP AND THE ALREADY DEPOSITED ZN BEGIN TO DISSOLVE. THIS WAS ATTRIBUTED TO THE FORMATION OF TI HYDRIDE, THE FORMATION OF WHICH IS FAVORED BY INCREASING TEMP. FACILITY: INST. KHIM. NAUK, ALMA-ATA, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STABILITY OF LEAD BASED BINARY ALLOYS IN SULFATE SOLUTION -U-

AUTHOR-(04)-DUNAYEV, YU.D., TSKHE, L.A., BUNDZHE, V.G., KIRYAKOV, G.Z.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 237-9

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--LEAD ALLOY, TIN ALLOY, BISMUTH ALLOY, SOLID SOLUTION,
CORROSION RATE, ANTIMONY ALLOY, SULFATE, AQUEOUS SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1045

STEP NO--UR/0365/70/006/002/0237/0239

CIRC ACCESSION NO--AP0138067

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--A0138067

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CORROSION OF PB-SB, PB-SN, AND PB-BI ALLOYS IN 2N H SUB2 SO SUB4 AT ROOM TEMP. WAS INVESTIGATED. TEH PHASE DIAGRAMS AND DEPENDENCES OF THE INITIAL AND STATIONARY POTENTIAL OF THE ALLOYS ON THEIR COMPN. ARE GIVEN IN FORM OF DIAGRAMS. THE CORROSION PROPERTIES OF MATERIALS DEPEND, TO A GREAT DEGREE, ON THEIR STRUCTURE; THE CORROSION RATE OF HYPEREUTECTIC ALLOYS RAPIDLY INCREASES WITH THE CONC. OF A 2ND COMPONENT, WHEREAS THE HYPDEUTECTIV ONES SHOW LITTLE CORROSION SLIGHTLY DEPENDING ON THE AMT. OF THE 2ND COMPONENT. THE CORROSION RESISTANCE OF THE PB BASED SOLID SOLNS. FOLLOWS THE TAMMANN LAW. FACILITY: INST. KHIM. NAUK., ALMA-ATA, USSR.

UNCLASSIFIED

UDC 632.95

USSR

STEPANOV, M. K., OSIPYAN, V. T., KAZHDAN, V. E., MASLIY, L. K., GRABOVSKIY,
B. S., and DUNAYEVA, I. D.

"A Method of Controlling Fleas"

USSR Author's Certificate No 263328, filed 16 Mar 62, published 26 May 70
(from RZh-Khimiya, No 3, 10 Feb 71, Abstract No 3N569)

Translation: Hexamethylenecarbamide (I) is proposed for use as a flea repellent. The substance is an oily, colorless, odorless liquid with a boiling point of 153°C/3 mm, d_4^{20} 1.0409, n_D^{20} 1.5161. Compound I is synthesized by bubbling COCl_2 at 5-10°C through a solution of hexamethylene diamine in an appropriate solvent. The preparation is stable. In 30 days of storage under conditions of intense ventilation, 20-25 percent of compound I or less was volatilized.

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UDC 546.791.4.221

USSR

DUNAYEVA, K. M., DUBROVIN, A. V., KOVAL'CHUK, V. Yu., and IPPOLITOVA, Ye. A.

"Study of the Oxidation Kinetics of Uranium Oxysulfide"

Leningrad, Radiokhimiya, Vol 15, No 6, 1973, pp 869-870

Abstract: The area of the specific surface of starting uranium oxysulfide sample has a definite effect on the oxidation rate constant indicating that the oxidation process takes place on active centers, the number of which increases with increasing specific surface. The apparent activation energy is almost independent of the specific surface. In respect to the oxygen pressure, it was found that above 0.206 atm the reaction is independent of the pressure. The oxidation process may be viewed as one being limited by the diffusion of oxygen through the layer of the reaction product.

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USSR

UDC 546.791.6-536.66

SANTALOVA, N. A., VIDAUSKIY, L. M., DUNAYEVA, K. M., and IPPOLITOVA, YE. A.

"Enthalpy of Formation of Uranium Trioxide Semihydrate"

Leningrad, Radiokhimiya, Vol XIV, No 5, 1972, pp 721-726

Abstract: The calorimetric method was used to measure the enthalpy of the reaction of two specimens of uranium trioxide semihydrate with the composition $UO_3 \cdot 0.393H_2O$ and $UO_3 \cdot 0.648H_2O$ with a solution of hydrofluoric acid. At $298.15^\circ K$ this enthalpy was -21.76 ± 0.08 and -20.83 ± 0.110 kcal/g-atom of U respectively. The enthalpy of the formation of compounds belonging to the uranium trioxide semihydrate phase from uranium trioxide and water as a function of the composition is represented by a linear equation. For a stoichiometric compound this value is -3.19 ± 0.10 kcal/g-atom of U. The published data were used to calculate the standard enthalpy of formation of uranium trioxide semihydrate from the elements. This enthalpy at $298.15^\circ K$ was -333.15 ± 0.46 kcal/g-atom of U. The method used to synthesize the uranium trioxide semihydrate and the chemical and x-ray phase analysis data are presented in connection with the existence of several versions of the semihydrate.

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USSR

UDC 546.791.6.546.66

SANTALOVA, N. A., VIDAUSKIY, L. M., DUNAYEVA, K. M., and IPPOLITOVA, Ye. A.

"Heat of Formation of Uranium Trioxide Dihydrate"

Leningrad, Radiokhimiya, Vol 13, No 4, 1971, pp 592-597

Abstract: An independent determination of the heat of formation of $UO_3 \cdot 2H_2O$ was carried out on the basis of the heat of formation of uranium hexafluoride in order to be able to compare the value obtained with that determined from the heat of the formation of a mixed uranium oxide. In the paper the experimental conditions are described in detail, followed by data of X-ray analysis and formulas used in calculation of the enthalpy. The value obtained differed from that based on mixed oxides. No systematic errors could be found, and the authors conclude that the discrepancy is due to the disagreement among the fluorine and oxygen calorimetry data.

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USSR

UDC 546.791.4.:547.29

LOBANOVA, T. S., DUNAYEVA, K. M., and IPPOLITOVA, YE. A., Chair of Inorganic Chemistry

"Study of the Complex Formation of Uranium (IV) with Acetate and Formate Ions"
Moscow, Vestnik Moskovskogo Universiteta, Vol 12, No 2, Mar-Apr 71, pp 229-231

Abstract: Uranium (IV) complexes with acetate and formate ions were studied. Tenyltrifluoroacetone and tenylacetate were placed in contact with uranium (IV), in the presence of benzene, water and monocarboxylic acid. Stability constants for the ions $[U(Comp1)_3]^{3+}$ and $[U(Comp1)_2]^{2+}$ were determined by the distribution method at 20°C and the ionic strength $\mu=2$ maintained by sodium perchlorate addition so as to decrease the possibility of the complexes being oxidized by atmospheric oxygen. The concentration of acetic and formic acids was varied in the range 0.032-2 and 0.1-2 N respectively. It was shown that no complex formation occurs in the aqueous phase. Stability constants for the complexes were determined from the graphs of F_1 plotted against the concentration of acetate and formate ions.

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USSR

UDC: 550.834

LEV, I. S., GRODZENSKIY, V. A., VISHNYAKOV, Ye. P., KUMAREV, A. A., ~~DUNA-~~
~~YEVA, L. P.~~, All-Union Scientific Research Institute of Geophysical Methods
of Prospecting

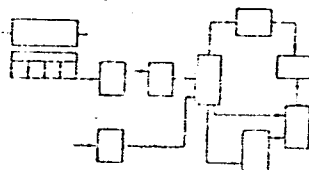
"A Statistical Seismic Signal Analyzer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obrantsy, Tovarnyye Znaki,
No 11, Apr 72, Author's Certificate No 333509, Division G, filed 20Aug70,
published 21Mar72, p 183

Translation: This Author's Certificate introduces a statistical seismic
signal analyzer which contains a magnetic drum, playback heads, a trigger
module, amplifiers and kipp oscillators. As a distinguishing feature of
the patent, the effectiveness of processing seismic data is improved by
adding a program control unit connected to a trip number counter and a
channel commutator. The commutator output is connected to the same counter
which is connected in turn to a memory device. A code pulse shaper circuit
is connected between the channel commutator and the memory device.

1/2

LEV, I. S. et al., USSR Author's Certificate No 333509



2/2

USSR

UDC 591.147.6

SHREYBERG, G. L., and DUNAYEVA, L. P., Laboratory for the Study of Nervous and Humoral Regulation, Academy of Sciences USSR, Moscow

"Effect of Serotonin on the Function of the Hypothalamus-Hypophysis Adrenal Cortex System"

Moscow, Doklady Akademii Nauk SSSR, Vol. 194, No 5, 1970, pp 1237-1240

Abstract: Serotonin (2.5-10.0 micrograms) was introduced into various nuclear formations of the hypothalamus and brain ventricle of Wistar rats through a microcannula (external diameter, 0.05-0.5 mm). In other experiments, serotonin was introduced intra-abdominally in doses of 100-200 micrograms per 100 g body weight, together with its precursor 5-hydroxytryptophan (15-20 mg/100 g), which passes through the blood-brain barrier. Five-hydroxytryptophan was also given 5 days after administration of aminazine (1-2 mg/kg). Agar-agar capsules without serotonin were implanted in the brains of control animals, or 0.02 ml physiological solution (pH, 7.3-7.4) was introduced through the cannulas or intra-abdominally. The functioning of the glandular system under study was monitored by corticosterone secretion in the blood. It was found that serotonin-sensitive structures in the central hypothalamus participate in the activation

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USSR

SHREYBERG, G. L., et al., Doklady Akademii Nauk SSSR, Vol. 194, No 5, 1970, pp 1237-1240

of the hypothalamus hypophysis adrenal cortex system. Implantation of serotonin in other regions of the hypothalamus produced a reduction in the activity of this system. The results of implantation of serotonin capsules in different regions of the hypothalamus and of injection of serotonin into different parts of the brain are discussed in detail. It is concluded that serotonin is endogenically synthesized in the brain from its precursor 5-hydroxytryptophan. Serotonin-sensitive neurons are assumed to exist at the primary capillaries of the portal region of the hypophysis. When they are excited, the corticotropin-promoting factor is formed and separates out.

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- 64 -

1/2 022

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--REDISTRIBUTION OF SILICON AND ALUMINUM DURING THE AUSTENITIZING OF
NODULAR CAST IRON -U-

AUTHOR--(02)--DUNAYEVA, S.A., PERMYAKOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--LITEINDE PROIZVOD. 1970, (1), 29-30

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--NODULAR IRON, SILICON CONTAINING ALLOY, ALUMINUM CONTAINING
ALLOY, IMPACT STRENGTH, GRAPHITIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1386

STEP NO--UR/0128/70/000/001/0029/0030

CIRC ACCESSION NO--AP0116835

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--090CI70

CIRC ACCESSION NO--AP0116835

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STUDY WAS MADE TO ELIMINATE THE CHEM. NONUNIFORMITY IN THE TITLE CAST IRON BY CONCG. SI AND AL IN ISOLATED MICROVDLS. OF THE SO CALLED RELIEF FERRITE. CYLINDRICAL SPECIMENS (DIAM. 5 MM) FROM CAST IRON (C 2.7, SI 1.6, AL 2.2, MN 0.6, P 0.04, S 0.01, MG 0.06 ST.PERCENT) AFTER GRAPHITIZATION FOR FERRITE GRAPHITIC STRUCTURE WERE AUSTENITIZED 10-60 MIN AT 830-40DEGREES, COOLED IN AIR TO OBTAIN A FERRITE PEARLITE BASE, THEN HELD IN A FURNACE AT 740DEGREES FOR 3 HR TO OBTAIN A FERRITE BASE. THE AUSTENITIZATION WAS STARTED AT GRAIN BOUNDARIES THEN PROCEEDED TOWARD THE INSIDE OF GRAINS, AND SI AL DIFFUSED IN THE SAME DIRECTION. THIS RESULTED IN LOWERED HARDNESS, AND INCREASED PLASTICITY AND IMPACT STRENGTH OF THE CAST IRON, AND IS RECOMMENDED FOR THIS PURPOSE.

UNCLASSIFIED

USSR

UDC 621.355.8+621.762

YEREYSKAYA, G. P., DUNAYEVA, T. I., and SKALOZUBOV, M. F., Novocherkassk Polytechnic Institute

"Preparation and Study of Silver Powder with a Zirconium Additive, for Use as Material for the Positive Electrode of a Chemical Source of Electricity"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLIV, No 6, Jun 1971, pp 1272-1276

Abstract: The electrochemical properties and the utilization factor K_u , of the positive electrode of a primary chemical current source, depend not so much upon the choice of material (silver oxide, silver chloride, powdered silver) as upon structural features of the initial active mass, such as porosity, particle size, specific surface, and the like. The effect of various amounts of zirconium oxide additive on performance (K_u), discharge density, and other factors, was studied. It was concluded that 0.6% zirconium additive in silver powder alters the properties of the latter, increasing the actual surface of the electrode, as well as its capacity when used in primary devices. It also tends to stabilize the structure of the electrode during cycling.

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Epidemiology

USSR

UDC 59.616.931.455(470.311)

OLSUF'YEV, N. G., DOBROKHOTOV, B. P., JUNAYEVA, T. N., KOVALEVSKIY, YU. V.,
and MESHCHERYAKOVA, I. S., Tularemia Laboratory and Laboratory of Medical
Zoology, Division of Natural Focus Infections, Institute of Epidemiology and
Microbiology, Academy of Medical Sciences USSR, Moscow

"Experience of Long-Term Study of a Natural Meadow-Field Tularemia Focus in
Southern Moscow Oblast"

Moscow, Zoologicheskii Zhurnal, Vol 51, No 9, 1972, pp 1425-1429

Abstract: Records were kept of rodent and tick densities, human tularemia out-
breaks, and epizootics in Stupinskiy and part of Podol'skiy Rayon since 1938
(when the 1st human tularemia outbreak was recorded) until 1971. Human outbreaks
followed periodic rodent density increases until 1952, after which time no
cases were reported due to a vaccination program. The principal rodent
(*Microtus arvalis*, *Micromys minutus*, *Apodemus agrarius*, *Arvicola terrestris*) and
tick (*Dermacentor pictus*, *Ixodes ricinus*, rarely *I. trianguliceps*) densities
fluctuated more or less synchronously over about 4-year periods, but maximum
densities decreased with time, particularly after 1963, probably due to improve-
ments in agricultural procedures and consequent reduction of rodent and tick

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USSR

OLSUF'YEV, N. G., et al., Zoologicheskii Zhurnal, Vol 51, No 9, 1972, pp 1425-1429

habitat. Epizootics continued to be detected however during moderate rodent density increases after 1967. Thus the tularemia focus continued to maintain itself despite agricultural innovations, though outbreaks were highly localized. It is suggested that tularemia agent can survive long periods not only in ticks but also by means of direct transfer from diseased to healthy rodents. Straw stacks left in fields during winter provide concentration areas for rodents and thus help to maintain the focus.

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- 6 -

USSR

UDC 594(28): 616.981.455

DUNAYEVA, T. N., Laboratory of Tularemia, Department of Natural Focus Infections, Institute of Epidemiology and Microbiology, Academy of Medical Sciences USSR, Moscow

"The Role of Freshwater Molluscs in the Circulation of Tularemia Pathogens in Natural Foci"

Moscow, Zoologicheskiy Zhurnal, Vol 51, No 3, 1972, pp 445-449

Abstract: The molluscs *Limnaea stagnalis* and *Planorbis corneus* placed in the water with concentrations of 10, 100, and 1,000 microbes/cc were not infected with tularemia. The molluscs were frequently infected at concentrations of 10,000/cc and up. When the molluscs consumed the tissue of animals which had died of tularemia, the number of bacteria per living specimen ranged from 100,000 to 1 million cells. Molluscs grown in water containing animals dying of tularemia but not ingesting the corpses had an infection of 1,000 to 10,000 cells each. The effects of temperature on infection were examined and in general the infection increased with increasing temperature. Tularemia bacteria fail to reproduce in molluscs and their number in a specimen declines rapidly. It appears that molluscs do not act as a host for tularemia reproduction and therefore do not sustain infections in natural bodies of water.

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USSR

UDC 911.3.616.981.455(571.12)

DUNAYEVA, T. N., DOBROKHOTOV, B. P., VORONTSOVA, T. A., BRIKMAN, D. I., and KOVALEVSKIY, Yu. V.

"An Attempt to Define the Distribution of Tularemia in Northern Rayons of Tyumenskaya Oblast"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of works) Vyp. 5(15). Saratov, 1970, pp 173-181 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.97)

Translation: Zoological, parasitological, bacteriological, and epidemiological research conducted during 1967 field trips provide evidence about the wide distribution of tularemia in the northern rayons of Tyumenskaya Oblast, all the way to shore areas of the mouth of the Ob River, the foothills of the polar Urals, and the Pur River basin. According to the high percentage of natural immunity among the local population, one can judge the significant level of epidemiological activity of the foci. A discussion is presented of the reasons for the non-correlation of skin allergy test results with tularemia incidence, and the reaction of agglutination with blood serum in the population of the North. Tularemia was first established among reindeer.

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Epidemiology

USSR

UDC 616.981.455-092.9-022.14

DUBAYEVA, T. N., Institute of Epidemiology and Microbiology imeni Gamaleya,
Academy of Medical Sciences USSR

"Mixed Infection During Experimental Tularemia in Rabbits"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971,
pp 125-130

Abstract: In rabbits inoculated with tularemia bacteria combined with the pathogens of listeriosis or pseudotuberculosis, the disease all followed their characteristic courses except in a few cases where the infection process was aggravated, as manifested by a loss of weight, prolongation of the tularemia carrier state, and death. Experiments in which the animals were inoculated with the pathogens of tularemia and pseudotuberculosis simultaneously or at different intervals showed that the cause of death was pseudotuberculosis. Marked pathological changes - hepatization and numerous necrotic nodules - were found in the lungs of all dead rabbits. The lungs of two dead animals contained both pathogens, while tularemia bacteria alone were found in one animal and the pseudotuberculosis bacillus alone in two.

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USSR

UDC 616.981.455-078.73

DUNAYEVA, T. N., VORONTSOVA, T. A., and MESHCHERYAKOVA, I. S., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Some Features of the Seroallergic Examination of Persons for Tularemia"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 4, Apr 71, pp 12-16

Abstract: A skin allergy test with tularia, an agglutination test, and the passive hemagglutination test with 264 inhabitants (natives and arrivals from elsewhere) or Nadymkiy Rayon, Yamalo-Nentsk National District, who had not been immunized against tularemia, yielded positive results in 24.2, 34.9, and 42.8% of cases, respectively. Coinciding positive results in all three tests were obtained for 54 persons. All positive results in the allergy test were regarded as diagnostically valid. Coinciding positive results in the two serological reactions (the allergy test may be negative in persons with tuberculosis despite a past infection with tularemia), or positive results in either serological reaction at titers $\geq 1:40$ resulted in a retrospective diagnosis of tularemia for 99 persons (37.4% of cases) excluding in the agglutination test cross-reactions due to brucellosis (two such cross-reactions were observed).
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USSR

DUNAYEVA, T. N., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
Vol 48, No 4, Apr 71, pp 12-16

Use of all three reactions made it possible to establish more precisely the ratio of persons with immunity to tularemia in the population and to eliminate nonvalid positive results obtained at low serum dilutions. A predominance of positive results in serological reactions over those in the allergy test is typical for inhabitants of northern regions. It is due to a lowered allergic sensitivity of the skin caused by vitamin C deficiency

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USSR

UDC 599.325.1:616.981.455

~~DUNAYEVA, T. N.~~ Tularemia Laboratory of the Department of Infections with
~~Natural Foci~~, Institute of Epidemiology and Microbiology, Academy of Medical
Sciences USSR

"Characteristics of the Course of Tularemia in Blue Hares in Mixed Infections"

Moscow, Zoologicheskii Zhurnal, Vol 49, No 12, Dec 70, pp 1864-1868

Abstract: *Lepus timidus* rabbits were used in experiments to determine the effect of mixed infections on the course and lethality of tularemia. For this purpose the animals were first subcutaneously infected with cultures of *Listeria* and *erysipelas* bacteria in doses of 100 million cells. Within four, nine, and 50 days the animals were subcutaneously infected with minimum lethal doses of tularemia bacteria. All of the rabbits died. It was noted, however, that the death of the animals occurred at a time considerably later than that normally caused by tularemia. A sharp change in the course of the infection was also noted and the intensity of septicemia and bacteremia were considerably decreased. Tularemia antibodies were found in the animals. Experimental data tend to confirm the premise that the prolonged course of tularemia in rabbits under natural conditions may be the result of development of the

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USSR

DUNAYEVA, T. N., et al, Zoologicheskii Zhurnal, Vol 49, No 12, Dec 70,
pp 1864-1868

disease on a background of some mixed infections such as pasteurellosis, pseudotuberculosis, brucellosis, listeriosis, and others, none of them individually as acute as tularemia, and which are usually accompanied by the formation of protective immunological reactions in the organism.

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UDC 616.31.455-036.21

USSR

OLSUF'YEV, N. G., and DUNAYEVA, T. N.

Prirodnaya Ochagovost', Epidemiologiya, i Profilaktika Tulyaremii (Natural Foci, Epidemiology, and Prophylaxis of Tularemia), Moscow, "Meditsina," 1970, 272 pp

Translation:

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USSR

OLSUF'YEV, N. G., and DUNAYEVA, T. N., Prirodnaya Ochagovost', Epidemiologiya, i Profilaktika Tulyaremi (Natural Foci, Epidemiology, and Prophylaxis of Tularemia), Moscow, "Meditsina," 1970, 272 pp

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2/2

USSR

UDC: 591.615+616.9-036.21

OLSUF'YEV, N. G., DOBROKHOTOV, B. P., DUNAYEVA, T. N., PCHELKINA, A. A., RODIONOVA, I. V., ARSEN'YEV, V. P., and PETROV, V. G., Tularemia Laboratory and Vectors Laboratory, Division of Infections with Natural-Foci, Institute of Epidemiology and Microbiology, Academy of Medical Sciences USSR, Moscow

"The Effect of Sanctuaries on Natural Foci of Infections"

Moscow, Zoologicheskii Zhurnal, Vol 49, No 11, Nov 70, pp 1697-1704

Abstract: The Priokako-Terrasnyy Game Preserve in the southern part of Moskovskaya oblast has a varied fauna whose species composition and numbers are similar to those in natural forest biocenoses of the past. Wild ungulates and small mammals, particularly rodents, are very abundant. Studies conducted in 1968 and 1969 disclosed the presence of a great number of adult Dermacentor pictus and Ixodes ricinus ticks feeding on the ungulates. I. trianguliceps and I. agronophorus were less numerous. Microscopic examination revealed a number of microorganisms in the ticks: tularensis in D. pictus, tickborne encephalitis virus in I. ricinus and D. pictus, and Erysipelothrix rhusiopathiae, Listeria monocytogenes, and Pasteurella pseudotuberculosis in the rodents. Sanctuaries such as game preserves tend to maintain natural foci of infections because of the

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USSR

OLSUF'YEV, N. G., et al, *Zoologicheskiy Zhurnal*, Vol 49, No 11, Nov 70, pp 1697-1704

relative constancy of the many populations of wild mammals and the large numbers of *Ixodes* ticks.

2/2

U/2 021
 UNCLASSIFIED
 TITLE--CONTROLLED ELECTROLUMINESCENT INDICATORS ON A SEIGNETTE CERAMIC
 PROCESSING DATE--11DEC70
 BASE -U-
 AUTHOR--(33)-ARTIPGV, B.L., DUNAYEVA, V.A., SAVELYEV, G.A.
 D
 COUNTRY OF INFO--USSR
 SOURCE--IZV. LENINGR. ELEKTRUTEKHN. IN-TA (BULLETIN OF Leningrad
 REFERENCE--RZH-ELEKTRONIKA I YEYE PRIMENIYE, NO 4, APRIL 1970, ABSTRACT NO
 DATE PUBLISHED-----70
 SUBJECT AREAS--PHYSICS, MATERIALS
 TOPIC TAGS--ELECTROLUMINESCENCE, CERAMIC MATERIAL
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAME--3008/1527
 STEP NO--UR/3074/70/000/040/0102/0107
 CIRC ACCESSION NO--AR0138526
 UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AR0138526

UNCLASSIFIED

PROCESSING DATE-

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. A CONTROLLED INDICATOR IS DESCRIBED IN WHICH THE ELECTROLUMINESCENT AND CONTROL ELEMENT ARE TECHNOLOGGICALLY UNITED IN A SINGLE WHOLE. A SEIGNETTE CERAMIC WAFER, WHICH IS ALSO THE BASIC INDICATOR, IS USED AS THE CONTROL ELEMENT. THE CHARACTERISTICS OF THE CONTROL OF SUCH AN INDICATOR ARE PRESENTED.

UNCLASSIFIED

USSR

UDC 621.383.292/52

SOLTANOV, U.B., ALEKSANDROV, I.R., ~~DUNAYEVSKAYA, N.V.~~, KLIMIN, A.I., LEPILIN, V.A., SMIRNOV, V.I.

"Use Of Silicon Multiplier Elements In Photoelectron Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory
(Electronics Technology. Scientific-Technical Collections. Electron Beam And Photo-
electric Devices), 1970, Issue 1(15), pp 58-61 (from RZh--Elektronika i yeye
primeneniye, No 2, February 1971, Abstract No 2A243)

Translation: The phenomenon is investigated of cathode amplification in silicon p-n structures developed for hybrid photomultipliers. The phenomenon consists of the fact that during bombardment of a crystal with a shallow lying p-n junction by an electron stream with a power $U_a \cdot I_a$ in the circuit of a backward-biased junction, the current $I = aI_a$ ($a \gg 1$) appears. The diffusion p-n structures with the depth of occurrence < 1 micrometer is investigated, as well as junctions obtained by the method of ion implantation which are characterized by better reproducibility

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USSR

SOLTAMOV, U. B., et al. Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory, 1970, Issue 1(15), pp 58-61

of results. The dependences obtained for $a(U_a)$ are presented. At a number of diffusion junctions the anomalous effect is detected of cathode amplification with the coefficient "a" considerably exceeding the limit which is determined by the theory of impact ionization. Using as an example models of a photomultiplier with silicon photomultiplier elements, the use of this phenomenon in photoelectron devices is shown. 6 ill. 8 ref. N.S.

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Masers

USSR

UDC 621.383.292

VIL'DGRUBE, G.S., DUNAYEVSKAYA, N.V., PODCKSINA, M.D., RONKIN, ZH.M.,
DALINENKO, N.K.

"Photomultiplier For Observation Of Coherent Radiation"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory
(Electronic Technology. Scientific-Technical Collection. Electron Beam and
Photoelectric Devices), 1970, Issue 2(16), pp 3-5 (from REh--Elektronika i yeye
primeneniye, No 4, April 1971, Abstract No 4A253)

Translation: The construction is described and the principal parameters are presented of the FEU [photomultiplier]--84 with multialkali photocathodes, intended for observation of the coherent radiation signals of a laser; the FEU-84 has the dimensions and basing of the FEU-15 and FEU-16. The spectral response of the photocathode at a wavelength of 700 nm amounts to 80 ± 270 microampere/lm. The multiplier system contains 12 louvered dynodes of CuAlMg alloy. The limiting output current is 5 ma in a static regime and 0.8 a in a pulsed. The anode sensitivity is 100 a/lm at a voltage of 1250--1400 v. The number of noise pulses at a plateau of the counter characteristic curve does not exceed $3 \div 7 \cdot 10^3 \text{ sec}^{-1}$. The sensitivity threshold is $3-8 \cdot 10^{13} \text{ lm/hz}^{-1/2}$. 2 ill. 2 ref. N.S.

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USSR

UDC 621.383.292

AYNEUND, M.R., VIL'DSRUBE, G.S., DJMAYEVSKAYA, N.V., SEMENOVA, V.B.

"Miniature Channel Photomultipliers"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory
(Electronic Technology. Scientific-Technical Collection. Electron Beam And
Photoelectric Devices), 1970, Issue 5(17), pp 3-5 (from RZh--Elektronika i yeye
primeniye, No 4, April 1971, Abstract No 4A251)

Translation: The construction is described and the principal parameters are presented of miniature channel photomultipliers with head-on and lateral photocathodes. The length of the devices is 40 mm with diameters of 15 and 10 mm, respectively. The anode sensitivity of the specimens amounts to 1000 a/lm.
Summary.

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USSR

UDC 53.07/.08+53.001.5

SOLTAMOV, U. B., ALEKSANDROV, I. R., DUNAYEVSKAYA, N. V., KLIMIN, A. I.,
LEPILIN, V. A., SMIRNOV, V. I.

"The Use of Silicon Multiplying Elements in Photoelectron Devices. (Brief Note)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektronoluch. i fotoelektr. pribory
(Electronic Engineering. Scientific-Technical Collection. Electron Ray and
Photoelectric Devices), 1970, No 1(15), pp 58-61 (from RZh-Fizika, No 1, Jan 71,
Abstract No 1A260)

Translation: The phenomenon of cathode amplification in silicon pn-structures is
investigated. The use of this phenomenon in photoelectron devices was shown in
mockups of photomultipliers with silicon multiplying elements. Authors abstract.

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USSR

UDC 539.1.075:621.383

VIL'DGRUBE, G. S., DUNAYEVSKAYA, N. V.

"New Louver-Type Photomultipliers for Spectrometric Scintillator Equipment"

Khar'kov, Monokristally, Stsintillyatory i Organicheskiye Lyumino-
fory -- Sbornik (Monocrystals, Scintillators, and Organic Lumino-
phores -- Collection of Works), No 5, 1970, pp 319-327 (from
Referativnyy Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, No
12, 1970, Abstract 12.32.1560)

Translation: The results of research on the natural amplitude resolution of louver-type photomultipliers are presented. These results show that this parameter is practically the same for any system, and for the best specimens comprises 5% (standardized with respect to the brightness of a NaI (Tl) crystal). A report is given on the parameters of new louver-type photomultipliers being produced in experimental or series lots (FEU-70, FEU-81, FEU-81a, FEU-82, FEU-49b, FEU-1a), intended for operation in spectrometric scintillation equipment. 6 figures, 10 bibliographic entries.

1/1

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USSR

D

UDC 535.215.12:621.372:41

VOROBAYCHIKOV, E. S., DUNAYEVSKIY, G. Kh., Siberian Physicotechnical Institute
imeni V. D. Kuznetsov, Tomsk University

"Illuminated Semiconductor in Open Resonator"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 2, 1970, pp 135-136

Abstract: One of the most acceptable optical and IR receiver circuits in terms of inertia and sensitivity is a circuit using a photoresistor with superhigh-frequency bias. The article suggests that an open-type resonator be used for the creation of such a receiver in the millimeter pumping range. The most convenient resonators are those containing concave mirrors. A description is given of changes observed experimentally in the power reflected from a resonator formed by a concave and a plane mirror in which an illuminated semiconductor sample has been placed.

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USSR

UDC 621.771

POLUKHEIN, V. P., YEFIMENKO, S. P., NIKOLAYEV, V. A., POLUKHEIN, P. I.,
SOLOGUB, V. L., and DUBAYEVSKIY, V. I.

"On the Question of Optimal Conditions for Operating the Rolls of Cold Rolling Mills"

Moscow, Plasticheskaya Deformatsiya Me. allow i Splavov, "Metallurgiya"
Publishing House, No 64, 1970, pp 53-63

Translation: The article gives recommendations for situating the rolls on the stands, evaluates the degree of built-up metal danger, and offers steps to restore working rolls damaged during the operating process. A new generalized criterion of hardness is proposed which makes it possible to evaluate conditions of roll manufacture and causes of service failures in them. Four illustrations and two tables.

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1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ILLUMINATED SEMICONDUCTOR IN OPEN RESONATOR -U-
AUTHOR-(02)-VOROBAYCHIKOV, E.S., DUNAYEVSKIY, G.KH. D
COUNTRY OF INFO--USSR
SOURCE--TOMSK, IZVESTIYA VYSSHIKH UCHEBNIKH ZAVEDENIY, FIZIKA, NO 2, 1970,
PP 135-136
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--OPEN RESONATOR, OPTIC MIRROR, IR RECEIVER, PHOTO RESISTOR,
OPTIC PUMPING

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1446 STEP NO--UR/0139/70/000/002/0135/0136
CIRC ACCESSION NO--AP0125080
UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125080

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ONE OF THE MOST ACCEPTABLE OPTICAL AND IR RECEIVER CIRCUITS IN TERMS OF INERTIA AND SENSITIVITY IS A CIRCUIT USING A PHOTORESISTOR WITH SUPERHIGH FREQUENCY BIAS. THE ARTICLE SUGGESTS THAT AN OPEN TYPE RESONATOR BE USED FOR THE CREATION OF SUCH A RECEIVER IN THE MILLIMETER PUMPING RANGE. THE MOST CONVENIENT RESONATORS ARE THOSE CONTAINING CONCAVE MIRRORS. A DESCRIPTION IS GIVEN OF CHANGES OBSERVED EXPERIMENTALLY IN THE POWER REFLECTED FROM A RESONATOR FORMED BY A CONCAVE AND A PLANE MIRROR IN WHICH AN ILLUMINATED SEMICONDUCTOR SAMPLE HAS BEEN PLACED. FACILITY: SIBERIAN PHYSICOTECHNICAL INSTITUTE IMENI V. D. KUZNETSOV, TOMSK UNIVERSITY.

UNCLASSIFIED

USSR

UDC 539.1.074.3

12

BORISOV, A. A., BUGORSKIY, A. P., BUSHNIN, Yu. A., DEREVSHCHIKOV, A. A.,
DUNAYTSEV, A. F., ZHIL'CHENKOV, V. D., MATULENKO, Yu. A., MESHCHANIN, A. P.,
MIKHAYLOV, Yu. V., NURUSHEV, S. B., SEN'KO, V. A., SMIRNOV, V. V., SMIRNOV,
Ye. V., SISKIN, V. V., SOLOV'YEV, L. F., and SOLOV'YANOV, V. L., Institute
of High-Energy Physics, Serpukhov

"A Hodoscopic Installation for Investigation of the Elastic Scattering of
High-Energy Particles"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 73, pp 49-53

Abstract: A description is given of a hodoscopic installation, developed at
the Institute of High-Energy Physics, for investigation of the elastic scat-
tering of high-energy particles within the pulse range of 30-60 gigaelectron
volts/sec. The range of dispersion angles covered by the installation is
0-29 millirads with an angular resolution of ± 0.17 millirad. The total
solid angle is 39 microsteres. The pulse is determined to within $\pm 0.22\%$.
The resolving time is 35 nanosec. The dead time is 50 microsec. The pulse
pass band of the spectrometer is 8%. The statistics-setup is up to 10^6 per
hour. The installation is electrically coupled to a "Minsk-22" computer,
which stores and processes the information during the experiment. The
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USSR

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BORISOV, A. A., et al., Pribory i Tekhnika Eksperimenta, No 3, May/Jun 73, pp 49-53

obtained results are immediately printed out in the form of tables and graphs, and also appear on the oscillograph screen. Monitoring equipment has been developed, which keeps track of proper operation of the hodoscopes. The first results have been obtained on the scattering of π^- -mesons on nuclei at a pulse of 50 gigaelectron volts/sec and of protons within the initial-pulse range of 30-60 gigaelectron volts/sec. 3 figures. 2 tables. 3 references.

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USSR

UDC: 51:621.391

GADALOV, V. V., KOSTIN, V. B., DUNAYTSEVA, G. V.

"Concerning the Problem of Optimizing the Process of Developing Radio Electronic Systems With Coordination of Cost, Time and Engineering Parameters"

Probl. sistemotekhniki--sbornik (Problems of Systems Analysis--collection of works), vyp. 1, n.p., "Sudostroyeniye", 1972, pp 65-76 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V603)

Translation: The problem is reduced to a problem in linear programming with bilateral restrictions on the variables.

1/1

USSR

UDC 51

GADALOV, V. V., KOSTIN, V. B., and DUNAYTSEVA, G. V.

"Optimizing the Process of Developing Electronic Circuits With Tie-Ins to Cost, Time, and Technical Parameters"

V sb. Probl. sistemotekhniki (Problems in System Engineering--collection of works) "Sudostroyeniye," 1972, pp 65-76 (from RZh--Matematika, No 10, 1972, Abstract No 10V603)

Translation: The problem reduces to a linear programming problem with two-sided limits on the variables.

1/1

- 80 -

1/2 045 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--HEAT TRANSFER BY AN INCOMPRESSIBLE FLUID FLOW IN A THERMALLY
INSULATED CHANNEL FOR NONSTATIONARY CONDITIONS AT THE INLET -U-
AUTHOR-(02)-DUNDUCHENKO, V.O., NAZARCHUK, M.M.

COUNTRY OF INFO--USSR

D

SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, DOPOVIDI, SERIIA A
FIZIKO-TEKHNICHNI I MATEMATICHNI NAUKI, VOL. 32, APR. 1970, P. 373-376
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TRANSFER, INCOMPRESSIBLE FLUID, FLUID FLOW, LAPLACE
TRANSFORM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1808

STEP NO--UR/0441/70/032/000/0373/0376

CIRC ACCESSION NO--AT0125420

UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0125420

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF LAPLACE TRANSFORMS TO THE SOLUTION OF THE PROBLEM OF HEAT TRANSFER BETWEEN AN INCOMPRESSIBLE FLUID FLOW AND INSULATED CHANNEL WALLS, IN THE CASE WHERE THE TEMPERATURE AT THE CHANNEL INLET VARIES WITH TIME. THE PHYSICAL PROPERTIES OF THE MEDIUM ARE ASSUMED TO BE INDEPENDENT OF TEMPERATURE. THE ANALYSIS IS PERFORMED FOR THE ONE DIMENSIONAL CASE.
FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, INSTITUT TEKHNIČNOI TEPLOFIZIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 669.183.218.5

AKINFLYEV, V. I., DUNETS, A. M., and PANTELEYEVA, R. I.

"Sulfur Exchange in the Bath-Gas Phase System in an Open-Hearth Furnace With Blowing of Powdered Materials in a Stream of Oxygen Through the Metal and Without Blowing"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 48-52

Translation: The exchange of sulfur between bath and gas phase in a 10 T open-hearth furnace is studied during the period of melting and finishing in melts with blowing of iron ore concentrate and oxygen through the bath and without blowing.

The characteristics of participation of the gas phase in the desulfuration of the metal used in the work were not the concentration of sulfur in the combustion products, but rather its relative quantity (in relationship to the mass of metal), carried away by the combustion products from the working space per unit time. This quantity was determined for the period of melting and finishing of melts and for the blowing period in experimental melts. The combustion products were taken for analysis using a special device developed for the purpose.

It was established that desulfuration of the gas phase during the period

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USSR

AKINFIYEV, V. I., et al., *Proizvodstvo Chernykh Metallov*, No 75, Metallurgiya Press, 1970, pp 48-52

of melting in most cases occurred more intensively than during the period of finishing. Worsening of desulfuration of the bath by the furnace atmosphere during the finishing period is explained not only by the decrease in activity of sulfur during this period, but also by the increase in basicity of the slag. The rate of desulfuration of the bath by the gas phase during blown melts differs slightly from its values during standard melts. 3 figures; 8 biblio. refs.

2/2

- 24 -

USSR

UDC 669.046.5

MAKSIMOV, Yu. M., AKINFIYEV, V. I., ~~DIKETS, A. M.~~ and PROGONOV, V. V.

"Intensification of Metal Desulfuration by Blowing With Dust-Like Lime in an Oxygen Stream"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 130-132

Translation of Abstract: Data on test heats with separation of limestone from the charge are given, during which the metal desulfuration process ran successfully in the case of a high rate of lime feeding into the bath. Data are presented on determining the relation between the rates of metal desulfuration and CaO feeding by the method of correlation analysis. Test results on the possibility of controlling the correlation of desulfuration and decarburization rates by varying the CaO concentration in the oxygen stream are presented. 1 figure, 2 references.

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USSR

UDC 669.183.218.5

AKINFIYEV, V. I., ~~DUNETS, A. M.~~, and PANTELEYEVA, R. I.

"Sulfur Exchange in the Bath-Gas Phase System in an Open-Hearth Furnace With Blowing of Powdered Materials in a Stream of Oxygen Through the Metal and Without Blowing"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 48-52

Translation: The exchange of sulfur between bath and gas phase in a 10 T open-hearth furnace is studied during the period of melting and finishing in melts with blowing of iron ore concentrate and oxygen through the bath and without blowing.

The characteristics of participation of the gas phase in the desulfuration of the metal used in the work were not the concentration of sulfur in the combustion products, but rather its relative quantity (in relationship to the mass of metal), carried away by the combustion products from the working space per unit time. This quantity was determined for the period of melting and finishing of melts and for the blowing period in experimental melts. The combustion products were taken for analysis using a special device developed for the purpose.

It was established that desulfuration of the gas phase during the period

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USSR

AKINFIYEV, V. I., et al., *Proizvodstvo Chernykh Metallov*, No 75, Metallurgiya Press, 1970, pp 48-52

of melting in most cases occurred more intensively than during the period of finishing. Worsening of desulfuration of the bath by the furnace atmosphere during the finishing period is explained not only by the decrease in activity of sulfur during this period, but also by the increase in basicity of the slag. The rate of desulfuration of the bath by the gas phase during blown melts differs slightly from its values during standard melts. 3 figures; 8 biblio. refs.

2/2

- 24 -

USSR

UDC 533.6.011.6

IVANOV, V. V., DUNIN, I. L., and MEDVEDEV, G. G., (Novosibirsk)

"Boundary Layer of a Transparent Gas on a Radiating Surface"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, Jan-Feb 72, pp 107-110

Abstract: The process of heat transfer in a laminar, boundary layer of a transparent gas flow over a flat plate with a given heat flux on its surface is investigated. In this case the effect of radiation on convection appears only through boundary conditions. A system of differential equations of motion for a boundary layer is written and solved by an analytical method of solution for transfer problems developed by one of the authors and generalized for determining heat transfer in boundary layer. A comparison of the results obtained with available data, shows a good agreement. It is stated in the conclusion that the method presented here can be used for the solution of the nonlinear problem of heat transfer, when the energy equation of a system of boundary layer equations contains dissipative terms.

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USSR

UDC 533.6

IVANOV, V. V. and DUNIN, I. L.

"Investigation of Heat Transfer in the Boundary Layer With Account Taken of Radiation of the Surface"

Moscow, Energetika i Transport, No 2, 1972, pp 167-172

Abstract: The nonlinear problem of heat transfer in the boundary layer of a transparent compressible gas, when the heat of friction is transferred by convection to the surface of a solid situated in a streamlined flow, and is then removed by radiation to the surrounding medium, is solved by a new method, the method of linearizing functions, which permits effective utilization of standard solutions of linear problems with high exactness of the final results. A bilateral evaluation of the calculation error is made. A specific numerical example is presented, and a comparison is made with the results of other authors. 3 figures. 1 table. 10 references.

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- 12 -

Plant Pathology

USSR

UDC 632.938

DUNIN, M. S., GRIGOR'YEV, M. F., and BUDANOV, V. Ye., Moscow Branch of the All-Union Scientific Research Institute of Plant Growing Mikhnevo Moscow Region

"Change in the Immunological Characteristics of Plants Under the Influence of a Multiple Infection"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 3, May/Jun 73, pp 425-430

Abstract: A study was made of the effect of the simultaneous infection of two strains of wheat by the root rot *Fusarium culmorum* and the brown rust *Puccinia recondita*. Five groups were studied: a) control, b) one exposed to the rust, c) one exposed to the rot, d) one having the rot exposed to the rust, and e) one having the rust exposed to the rot. Group d) had a significantly lower resistant to rust than group b). Group e) showed a slightly greater susceptibility to rot than group c).

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USSR

UDC 633.11+582.285.2

DONIN, M. S., academician Moscow Order of Lenin Agricultural Academy imeni
~~K. A. Timiryazev~~ and BUDANOV, V. YE., Moscow Department of VIR All-Union
Scientific Research Institute of Plant Growing

"Comparative Investigation of Antigenically Active Substances in all Kinds of
Wheat and Races of Brown Rust"

Moscow, Vestnik Sel'skokhozyaystvennoy Nauki, No 10, 1972, pp 9-18

Abstract: With increasing number of chromosomes from diploid to hexaploid, the resistance of all types of wheat to brown rust pathogen decreases. One notable exception is the T. timopheevi Zhuk wheat strain, which is tetraploid and yet displays a high immunity to that pathogen. The serological and immunoelectrophoretic properties of experimentally inoculated wheat are the same as those of naturally infected wheat. The similarity of these properties displayed by globulins obtained from P. recondita Rob. ex Desm. uredospores and by globulins obtained from leaves of wheat susceptible to this pathogen makes it possible to utilize serodiagnosis, electrophoresis, and immunoelectrophoresis for a quick evaluation of the resistance of any wheat strain to brown rust. T. timopheevi Zhuk is most resistant and T. vavilovi Jakutz ($2n=42$) most susceptible to brown rust fungus races 20, 52, and 143.
1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--OSCILLATIONS OF ACTIVITY LEVEL IN SIMPLE CLOSED NEURON CHAINS -U-
AUTHOR--DUNINBARKOVSKIY, V.L. D
COUNTRY OF INFO--USSR
SOURCE--BIOFIZIKA 15(2): 374-378. ILLUS. 1970
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--NEURON, OSCILLATION, MODEL

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605007/F08 STEP NO--UR/0217/70/015/002/0374/0378
CIRC ACCESSION NO--AP0139931
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139931

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OSCILLATORY ACTIVITY IN CHAINS CONSISTING OF 2 AND 3 NEURONS ARE CONSIDERED. THE PERIODS OF THESE OSCILLATIONS EXCEED SEVERAL FOLD THE TIME CONSTANT OF THE NEURONS. THIS PROPERTY MAKES THE MODEL DIFFERENT FROM OTHER KNOWN MODELS OF PERIODIC ACTIVITY, IN WHICH THE OSCILLATION PERIOD IS MAINLY DETERMINED BY THE TIME PARAMETERS OF NEURONS (THE DELAY VALUE, TIME CONSTANT OF FATIGUE, ETC.). THE CASE IS ALSO CONSIDERED WHEN NEURON POOLS RATHER THAN SINGLE NEURONS, ARE THE ELEMENTS OF THE CHAIN. THE POSSIBLE NERVOUS SYSTEM MECHANISM WAS DISCUSSED. FACILITY: INST. PROBL. INFORM. TRANSM., ACAD. SCI. USSR, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.357.7.035.4:669.128(088.8)

BABENKO, B. A., DUNISHCHEV, P. A., MITRYAKOVA, A. V., CHECHETKINA, V. A., and SHILOVSKIYA, V. P., Saratov Polytechnical Institute

"A Process for the Reduction of Oxidized Chloride Electrolyte for Iron Plating"

Author's Certificate No 346389, filed 25 Dec 70, published 22 Aug 72 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L316P)

Translation: The process is patented for the reduction of oxidized chloride electrolyte of iron plating during its purification by electrolysis. It is improved in that in order to increase the speed of the reduction, the process is carried out with the application of ultrasonic vibrations having frequencies of 18-22 kHz and an intensity of 0.8-1.5 watts/cm² for a ratio of the anode to cathode surface of 3:1 and D_a 10-30 amps/decimeter². The application of the ultrasonic vibrations speeds up the process of the reduction of the oxidized chloride electrolyte during the iron plating 7 to 10 fold.

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USSR

DUNSKIY, V. F., Professor, Doctor of Technical Sciences

"A Symposium on Aerosols"

Moscow, Zashchita Rasteniy, No 3, 1971, p 57

Abstract: A symposium on the application of aerosols in agriculture was held on 3-4 Nov 70 in Moscow. It was organized by the Scientific Council of the State Committee on Science and Technology, Council of Ministers USSR and by the Department of Plant Protection of the All Union Academy of Agricultural Sciences imeni V. I. Lenin. More than 100 specialists from 35 agencies participated in the symposium. Prof. A. G. Amelin, Chairman of the Scientific Council on Aerosols, pointed out the importance of eliminating crop losses caused by pests, plant diseases, and weeds, and for developing and diversifying methods for the application of pesticides. Because of the imperfection of the methods used, large amounts of chemicals in short supply are lost, or when carried away by the wind, they often cause damage to neighboring fields. Prof. N. A. Fuks outlined the present state of development of the science of aerosols. He pointed out

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USSR.

DUNSKIY, V. F., Zashchita Rasteniy, No 3, 1971, p 57

the advantages of using self-propelled sprayers that move on an air cushion. Prof. S. I. Eydel'shteyn, A. A. Zakomyrdin, and V. M. Tsetlin reviewed applications of aerosols in medicine, veterinary science, and sanitation. They pointed out the necessity of expanding the production of manual aerosol cylinders, because cylinders of this type can also be used in plant growing when hot-houses, barns, storage buildings, and small sections must be sprayed for insects. Prof. V. F. Dunskiy reported on mathematical methods that have been developed for calculating the amount of pesticide or herbicide carried by the wind into neighboring fields after surface dispersion or dispersion from aircraft. Problems related to the automation of spraying were discussed in a number of reports. Although work in this field is just beginning, tests with equipment that has been developed showed that considerable amounts of pesticides can be saved. K. A. Krishtof reported progress in the development of an electrostatic sprayer, by means of which uniform spraying of both

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DUNSKIY, V. F., Zashchita Rasteniy, No 3, 1971, p 57

the upper and lower surfaces of leaves is obtained with a small amount of liquid, while no liquid is carried by the wind onto neighboring fields or deposited on the ground under the plants. An experimental model of a sprayer of this type has already been constructed and is undergoing tests. In reports by A. I. Sidorov and others, information was given about new "gamma" pesticide cartridges for the extermination of insects in barns and about thickened emulsions to reduce wind dispersion of pesticides. N. V. Nikitin and V. A. Sanin told about the design, construction, and experimental application of microvolume sprayers which produce drops of a uniform, controlled size. Production models of this equipment are already being tested. Yu. G. Logachev et al reported results of tests of aircraft equipment for dusting with granulated chemicals. For humidifying the air or chemical treatment in enclosed rooms, the conventional process of dispersion by high-dispersity sprayers has been replaced by a procedure producing only very small droplets. K. P. Kutsenskiy told about a study of the mechanism of toxic action of a highly

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DUNSKIY, V. F., Zashchita Rasteniy, No 3, 1971, p 57

disperse condensed aerosol on insects. This study has been continued for a number of years at the Institute of Kinetics and Combustion, Siberian Branch of the Academy of Sciences, Novosibirsk.

4/4

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Inventions & Discoveries

USSR

UDC 63:576.8:578.038

DUNSKIY, V. V., MINAYEVA, L. A., FILIPPOV, A. V., and SHUMILOV, V. A., All-Union Institute of Plant Pathology, B. Vyazemy, Moscow Oblast

"A Highly Sensitive Trap for Microbiological Studies of the Atmosphere"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

Translation: The concentration of spores of phytopathogenic fungi at the onset of a disease is usually calculated in units per tens of cubic meters of air. It is necessary to be able to detect spores promptly among other particles suspended in the air.

Various types of gravity traps are now used for this purpose. Despite their extreme simplicity, they have a common disadvantage - low sensitivity (1). There are also the inertial types of traps (2). One of them, the L-1, is intended to trap spores (or other particles 5μ m in diameter) and measure the concentration of the particles. Another trap, the L-2, makes it possible to determine the diurnal change in concentration of these particles in the air.

However, it is sometimes necessary (e.g., when forecasting plant diseases) not only to trap spores but to determine their viability. The gravity and inertial traps show only the total concentration of particles of a certain type. This drawback can be overcome by using a previously described method (3)

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DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

whereby air is pumped directly through the fascicles of live plants. The spores present in the air are "filtered" by the plants and settle on them. After a brief exposure the plants are placed in a medium conducive to the growth of phytopathogenic organisms. The presence of infectious spores is determined from the symptoms of disease (spots, pustules, etc.) visible to the naked eye. However, this method, like the others, is not very sensitive because of the brevity of exposure caused, first, by the rapid drying of the leaves by the air passing through them and, second, by the fact that the flow rate of the air through the plants is limited by their mechanical strength.

We devised a method whereby the spores in the air can be concentrated and then allowed to settle in a special chamber on moist plant leaves, i.e., under conditions favorable for the growth of phytopathogenic organisms. The spores are concentrated in a cyclone dust separator. When using the cyclone, the volume of air from which the spores are removed can be increased hundreds and thousands of times without running the risk of the plants drying or suffering injury, and the plants in the chamber can be moistened from time to time.

Based on the suggested method, we designed and built a highly sensitive trap consisting of a cyclone separator capable of removing spores 10 μ m or more in diameter from the air. The separator is connected by a pipe to a

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DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973,
pp 290-291

centrifugal fan (capacity 360 m³/hour) powered by an electric motor (0.4 kv). Air enters through an inlet tube at about 20 m/sec. The suspended particles settle in a chamber under the outlet tube. Air free from spores is expelled through a ventilator. In a hermetically sealed metal chamber connected to the separator is a screen on which whole plants or leaves resting on water are set. Distilled water is poured into the space between the bottom of the chamber and the screen to help maintain high humidity in the chamber and supply a drum sprayer. The latter, driven by an electric motor (50 v, 3000 rpm), produces and maintains drops of moisture on the leaves in the chamber. Water is fed the drum sprayer by a centrifugal pump (capacity 200 ml/min) through a jet nozzle via a pipe line with a filter. The drum sprayer and pump operate intermittently with a timer in order to prevent the spores from being washed from the leaves in the presence of too much moisture.

A readily removable, transparent, hermetically sealing hatch in the front of the chamber permits the plants to be changed. Live spores settling downward from the outlet pipe of the separator strike the wet leaves where they germinate and form spots.

Trials of the new device along with the L-1 and L-2 traps to find spores of the causative agent of late blight of potato showed that the new device

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DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973,
pp 290-291

detected the presence of spores in the air in 15 of 18 cases. During the same period of time the L-1 and L-2 traps detected the presence of conidia in only 3 cases and it was impossible to tell whether the spores were live or dead.

The results of the trials justify our recommending the new device as a means of detecting promptly and judging the viability of phytopathogenic organisms in the air.

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USSR

UDC 621.396.677.7

DUPLENKOV, D. A. and LISITSYN, V. P.

"Emission From the Open End of a Rectangular Waveguide Into a Uniform, Plasma Half-Space"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute), 1972, vyp. 119, pp 16-24 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 B44)

Translation: A formula is obtained for the normalized conductivity of a radiating aperture in single-mode approximation. This formula is used for calculating the parameters of a waveguide unit where the unit is designed to be used in the diagnosis of plasma. Original article: five illustrations and five bibliographic entries. N.S.

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USSR

UDC: 8.74

BELONozhko, P. A., BOYKO, Ye. I., DUPLISHCHEV, A. M., SERYY, Ye. A., editorial staff of "Avtomatika i Vychisl. Tekhnika" AN LatvSSR

"A Device for Solving Difference Equations"

Riga, Ustroystvo dlya resheniya raznostnykh uravneniy (cf. English above), 1972, 13 pp, ill. bibl. of 2 titles (manuscript deposited in VINITI, No 5197-72 Dep. from 8 Dec 72) (from RZh-Kibernetika, No 7, Jul 73, abstract No TV586 Dep. by the authors)

Translation: An analog-digital complex can be used to study digital automatic control systems most completely. However, such a system is an extremely complicated technical device which is not always accessible to the researcher. The paper describes a device which has been developed and technically realized to be used jointly with an analog computer to simulate the operation of a digital filter described by a linear difference equation. The device incorporates step switches and can be used jointly with the MPT-9 analog computer to solve linear difference equations. Attachment to the given type of model and the order of the equations to be solved are not unique.

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USSR

UDC 615.371:576.851.49].074

SINILOVA, N. G., PERSHINA, Z. G., DUPLISHCHEVA, A. P., and IVANOV, K. K.,
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of
Medical Sciences USSR

"Biochemical Composition of Preparations From Original Sh. flexneri 550
Cultures and Mutants With Increased Radioresistance"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971,
pp 102-107

Abstract: Analysis of the basic chemical composition of preparations from
Sh. flexneri 550 cultures and mutants obtained by repeated gamma irradiation
failed to disclose any differences between them with respect to nitrogen,
phosphorus, and nucleic acids. However, cells of the mutants contained
smaller amounts of proteins and carbohydrates but more lipids than did cells
of the original culture. The biochemical composition (according to the
above indices) of the antigens isolated from the original cultures and mu-
tants was very similar. All the preparations from the mutants differed
markedly from the original cultures in qualitative and quantitative compo-
sition of carbohydrates.

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USSR

UDC 681.326.77:681.327.66

DURANDIN, K. P., and YEFREMOV, V. D., Leningrad Polytechnical Institute
imeni M. I. Kalinin

"A Device Which Makes Choices According to Priorities"

USSR Author's Certificate, No 279171, Filed 18 Jun 69, Published 11 Nov 70
(from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya
Tekhnika, No 8, 1971, Abstract No 8B305 P)

Translation: A device which makes choices according to priorities is suggested. It contains a unit which selects the channel with the highest priority and a unit for sequential (cyclic) choice of a channel. In order to simplify the device and to increase its pseed of operation, the outputs of the unit which selects the high-priority channel are connected to the corresponding number of the channel and to the inputs of the binary magnetic keys of the unit for cyclic choice of a channel. One of the outputs of the latter is connected with the input of the following key on the ring.

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USSR

UDC 547.26'118

YAKOVA, Ye. G., DURANSHIN, I. Ya., MURATOVA, A. A., and PUDOVIK, A. N.,
Kazan State University imeni V. I. Ul'yanov-Lenin

"Infrared Spectral Study of the Reaction of Dialkylphosphoric Acids with Tin
Tetrahalides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 1003-1008

Abstract: In examining the IR spectra of dimethyl- and diethylphosphonate complexes as formed with chlorinated and brominated tin, it was established that the reaction occurs at the position of the oxygen in the phosphoryl group. The structures were confirmed by spectrum analysis. It was also shown, that in this reaction chelated compounds are formed with the liberation of hydrochloric acid.

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1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--KINETICS OF ELECTRODE PROCESSES IN ELECTROLYTE SOLUTIONS OF
VARIABLE COMPOSITION -U-
AUTHOR--(03)-DURDIN, YA.V., KRAVTSOV, V.I., MALEV, V.V.
COUNTRY OF INFO--USSR
SOURCE--VSTN. LENINGRAD. UNIV., FIZ., KHIM. 1970, (4), 80-99
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTRODE REACTION, ELECTROLYTE, MASS TRANSFER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1313 STEP NO--UR/0054/70/000/004/0080/0099
CIRC ACCESSION NO--APO116773
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116773

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS EXTENSIVE REVIEW CONCNS. ON EFFECTS OF SUPPORTING ELECTROLYTE ON THE RATE OF ELECTRODE REACTION THROUGH AFFECTING MASS TRANSFER IN THE DIFFUSION AND DIFFUSE LAYERS UNDER THE CONDITIONS WHEN A SIMULTANEOUS CHEM. REACTION IN THE FLUID VOL. CAN BE NEGLECTED. IT ALSO DEALS WITH MUTUAL EFFECTS OF THE STATE OF METAL IONS IN THE SOLN. AND THE RATE OF ELECTRODE PROCESS, BY NEGLECTING MIGRATION OF IONS IN THE SOLN., CHANGES IN COMPN. OF THE DOUBLE LAYER, AND CHANGES OF THE ACTIVITY COEFFS.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--LIMITING CURRENTS ON A ROTATING DISK ELECTRODE IN TRICHLOROACETIC
ACID SOLUTIONS. II. SOLUTIONS WITH VARYING SUPPORTING ELECTROLYTE
AUTHOR--(02)--SVETASHOVA, YE.S., DURDIN, YA.V.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKIMIYA 1970, 6(4), 480-3
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROLYTE, PLATINUM ELECTRODE, CHLORINATED ORGANIC COMPOUND,
POTASSIUM CHLORIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0659 STEP NO--UR/0364/70/006/004/0480/0483
CIRC ACCESSION NO--AP0124331
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--30OCT71
CIRC ACCESSION NO--AP0124331
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION BETWEEN THE LIMITING CURRENT AND THE SUPPORTING ELECTROLYTE CONC. WAS STUDIED ON A ROTATING PT DISK ELECTRODE IN SOLNS. OF KCL CONTG. HCL, CCL SUB3 CO SUB2 H, AND ALLYL ALC. AT HIGH CONCNS. OF THE SUPPORTING ELECTROLYTE, THE LIMITING CURRENT IS DUE TO THE DISCHARGE OF H SUB3 O PRIME POSITIVE ONLY, THE RELATIVE CONC. OF CCL SUB3 CO SUB2 PRIME NEGATIVE BEING LOW. BY DECREASING THE SUPPORTING ELECTROLYTE CONC., AN ELEC. FIELD IS FORMED IN THE DIFFUSION LAYER, INHIBITING ACCESS OF THE ANION TO THE ELECTRODE SURFACE. IN THE BINARY SOLN. CONC. RANGE OF THE ACIDS, THE LIMITING CURRENTS IN SYSTEMS WITH AND WITHOUT ALLYL ALC. ARE PRACTICALLY EQUAL; THE EXTRAPOLATED VALUE OF THE LIMITING CURRENT IS IN AGREEMENT WITH THE VALUE CALCD. FROM THE EQUATION OF LEVICH. AT EXCESS CONCNS. OF THE SUPPORTING ELECTROLYTE, THE RATIO OF THE LIMITING CURRENT DUE TO THE REDN. OF CCL SUB3 CO SUB2 PRIME NEGATIVE AMTS. TO 20PERCENT, AND IN CONC. REGIONS APPROACHING BINARY SOLNS. IT FALLS TO SIMILAR TO 3PERCENT, IN AGREEMENT WITH THE VALUE CALCD. FROM THE THEORY OF CONVECTIVE DIFFUSION. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANGVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 517.53

ARZHANYKH, I. S., and DURDYEV, KH., Physicotechnical Institute of the Academy of Sciences Turkmen SSR

"On Certain Generalizations of a Complex Variable"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, No. 3, 1970, pp 21-25

Abstract: The laws of composition for rings in the theory of complexes developed by I. S. Arzhanykh are formulated. The structure of the theory of complexes is formulated in the following manner: let x_0, x_1, \dots, x_g be real variables and

$\epsilon_1, \epsilon_2, \dots, \epsilon_g$ be certain elements satisfying the commutative and associative laws of composition

$$\epsilon_i \epsilon_j = \sum_{k=1}^g \gamma_{ij}^k \epsilon_k$$

where γ_{ij}^k ($k=0, 1, \dots, g$; $i, j=1, 2, \dots, g$)

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ARZHANYKH, I. S., and DURDYEV, KH., Izvestiya Akademii Nauk Turkomenskoy SSR, Seriya Fiziko-Tekhnicheskikh, Khimicheskikh i Geologicheskikh Nauk, No. 3, 1970, pp 21-25

are real numbers. Distributiveness is assumed to be satisfied. The conjugate complex \bar{x} and the characteristic $\chi[x] = x\bar{x}$ are introduced to carry out the division operation. Division in a ring of complexes is possible only on those complexes where the characteristic is different from zero. The conjugate complexes and characteristics are calculated for the rings $K_{-1} + K_{-1}$, $K_{-1} + K_{+1}$, $K_{-1} \times K_{-1}$, $K_{-1} + K_0$, $K_{-1} \times K_{+1}$, and $K_{-1} \times K_0$.

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USSR

UDC: 621.317.757

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GUREVICH, V. E., AGAPOV, G. V., BORUKHOVICH, A. P., ~~DUPETS, Ye. Ya.~~, RABI-
NOVICH, G. V., Leningrad Electrical Engineering Institute of Communications
imeni Professor M. A. Bonch-Bruyevich

"An Analyzer of the Correlation Characteristics of a Pulse-Code Signal"

Moscow, Otkrytiya, Izobreneniya, Promyshlennyye Obratzy, Tovarnyye Znaki,
No 9, Mar 72, Author's Certificate No 331322, Division G, filed 6 Nov 69,
published 7 Mar 72, p 134

Translation: This Author's Certificate introduces: 1. An analyzer of the correlation characteristics of a pulse-code signal in systems for data transmission by uniform codes. The analyzer contains a controllable delay unit, a coincidence circuit, a source of synchronizing pulses and a pulse counter. As a distinguishing feature of the patent, the device is designed for separate measurement of the correlation factor of two signal trains spaced by the same time interval but located in different places of the code groups. Connected between the output of the coincidence circuit and the input of the pulse counter is an additional coincidence circuit whose controlling input is connected through an additional controllable delay unit to the

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GUREVICH, V. E. et al., USSR Author's Certificate No 331322

output of the source of synchronizing pulses. 2. A modification of this analyzer distinguished by the fact that the effect which the degree of channel loading has on the result is eliminated by connecting a silent signal code group recognition unit to the input of the device. The output of the recognition device is connected through a channel time separation device to the inputs of threshold channel accumulators of a predetermined number of pulses and to the inputs of channel coincidence circuits. The channel time separation device is controlled from the source of synchronizing pulses. The controlling inputs of the channel coincidence circuits are connected to the potential outputs of the corresponding channel accumulators, and the output signals from the coincidence circuits are fed to the input of the silent signal control group counter, the input of each channel accumulator being connected through an inverter to the reset circuit of this accumulator. The pulse outputs of the channel accumulators are connected to the input of the counter for the total number of silence intervals.

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USSR

UDC 519.281

RAYBMAN, N. S., SHPUNT, M. I., OVSEPYAN, F. A., DURGARYAN, I. S.

"Information Measure of Determinacy and Its Use in Identification of Objects of Control"

Tr. I Vses. simpoziuma po statist. probl. v tekhn. kibernet. Identifik i apparatura dlya statist. issled. (Works of the First All-Union Symposium on Statistical Problems in Technical Cybernetics. Identification and Equipment for Statistical Investigation), Moscow, "Nauka", 1970, pp 126-136 (from RZh-Matematika, No 10, Oct 70, Abstract No 10V109)

Translation: The problem of quantitatively evaluating the degree of isomorphism of the mathematical model of an object-original is discussed. The quantitative estimate of the degree of isomorphism proposed, the information measure of determinacy, is based on the fundamental notions of information theory. Let a random quantity X "act" on the input of a one-dimensional inertialess object and the random quantity Y "act" on the output. A certain distribution of the values of Y corresponds to each fixed X . In this case it is proposed that the following quantity be used as a relative information measure of determinacy:

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RAYBMAN, N. S., et al, Tr. I Vses. simpoziuma po statist. probl. v tekhn. kibernet. Identifik i apparatura dlya statist. issled., Moscow, "Nauka", 1970, pp 126-136

$$q_X\{Y\} = I_X\{Y\}/H\{Y\}, \quad (1)$$

where $I_X\{Y\}$ is the quantity of information on Y contained in the input quantity X and $H\{Y\}$ is the unconditional entropy of the quantity Y . Calculation of the information measure of determinacy by formula (1) involves a large number of calculations in practice. It is shown in the work that under certain constraints on the unconditional and conditional probability density of the quantity Y it is possible to express the information measure of determinacy in terms of more simple characteristics of the object; in particular, in terms of the measure of determinacy based on dispersion methods for random quantities. Such a measure of determinacy was introduced by N. S. Raybman (Avtomatika i Telemekhanika, 1963, 24, No 9). One can similarly introduce an information measure of determinacy for static multidimensional and dynamic objects. Examples of calculating the measure are given. Yu. Shinakov.

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Acc. Nr. **AT0045326**

Abstracting Service: **5-70**
CHEMICAL ABST.

Ref. Code
U90020

DURBARYAN S. G.

90910k Isomerization of active centers in the anionic polymerization of vinyltrimethylgermane. Nametkin, N. S.; Durbarvan, S. G.; Tikhonova, L. I.; Filippova, V. G. (Inst. Neftekhim. Sin. im. Topchieva, Moscow, USSR). Dokl. Akad. Nauk SSSR 1970, 190(1), 114-17 [Chem] (Russ). Me₃GeCH:CH₂ (I) polymd. slowly in heptane in the presence of BuLi at 35-45°. Thus, after 1150 hr at 3.41 mole/l. I concn. and 0.01 mole/l. BuLi concn., only 57% conversion was obsd. After an initial induction period, the polymn. rate was proportional to I concn. and the square root of the initiator concn. Addn. of butadiene to the reaction system after 300 hr did not cause it to polymerize, indicating the low activity of the I carbanions. The polymer chain growth is apparently complicated by deactivation of the active centers by a hydride transfer from the end of the growing chain to give LiH. This was confirmed by observation of C:C absorptions in the ir spectra of the polymer and by Br uptake corresponding to 2.2% double bonds.

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1/2 023 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PRESENCE OF CRITICAL MIXING TEMPERATURES DETERMINED FROM DATA ON
THE TEMPERATURE DEPENDENCE OF THE INTRINSIC VISCOSITY OF
AUTHOR--(04)-KHODZHEVANOV, F.F., NAMETKIN, N.S., DURGARYAN, S.G., SEMENOV,
O.B.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 283-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--THERMAL EFFECT, MATERIAL MIXING, CYCLOHEXANE, SILANE,
CHLORINATED ORGANIC COMPOUND, DEOXYRIBONUCLEIC ACID, PHOSPHATE ESTER,
MOLECULAR STRUCTURE, FLUID VISCOSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/1356 STEP NO--UR/0062/70/000/002/0283/0289
CIRC ACCESSION NO--AP0135030
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135030

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRINSIC VISCOSITIES AND THEIR TEMP. COEFFS. WERE DETD. FOR POLY(VINYLTRIMETHYLSILANE) IN DECAHYDRONAPHTHALIENE, CYCLOHEXANE, 1,2,4,ME SUB3 C SUB6 H SUB3, CHCL SUB3, C SUB6 H SUB6, AND ME SUB3 SICH:CH SUB2. VISCOSITY VARIATIONS OF THE POLYMER (PREPD. WITH ETLI CATALYST) WERE INTERPRETABLE BY THE PATTERSON-TAGER THEORY ON THE BASIS OF EXISTENCE OF UPPER AND LOWER CRITICAL TEMPS. OF MIXING FOR THE POLYMER SOLVENT COMPONENTS. A SIMILAR ANAL. OF VISCOSITY IN SOLNS. OF DNA AND DEOXYRIBONUCLEOPROTEIN (DNP) WAS MADE. DNP SOLN. SHOWED AN ANOMALOUS 3 FOLD RISE IN VISCOSITY PRIOR TO CHANGE OF THE SPIRAL FORM TO THE SPHERICAL ONE, EITHER CAUSED BY DISSOCIATION OF THE PROTEIN FROM THE DNA AND INCREASED ASYMMETRY REFLECTING THE CONFORMATION CHANGE, OR PERHAPS AS A RESULT OF CHANGE IN THE SUPRAMOLECULAR STRUCTURE OF DNP. FACILITY: INST. NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019
UNCLASSIFIED
PROCESSING DATE--30OCT70
TITLE--COPOLYMERIZATION OF ALLYTRIMETHYL OR ALLYLDIMETHYLPHENYLSILANES
WITH ACRYLONITRILES -U-
AUTHOR--(04)--NAMETKIN, N.S., KOZHUKHOVA, I.N., FILIPPOVA, V.G., DURGARYAN,
S.G.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMCL. SOEDIN., SER. B 1970, 12(3), 180-2
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COPOLYMERIZATION, ORGANIC SILANE, ACRYLONITRILE, CHEMICAL
KINETICS, BENZENE DERIVATIVE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0671
STEP NO--UR/0460/70/012/005/0180/0182
CIRC ACCESSION NO--AP0124343
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--30OCT7

CIRC ACCESSION NO--A0124343

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE COPOLYMN. KINETICS OF H SUB2 C:CHCH (I) WITH ME SUB3 SICH SUB2 CH: CH SUB2 (II) OR ME SUB2 PH SICH SUB2 CH:CH SUB2 (III) WAS STUDIED IN BULK OR KCONME SUB2 SOLN. IN THE PRESENCE OF BZ SUB2 O SUB2. THE DEPENDENCE OF THE COPOLYMER COMPN. ON THE COMPN. OF THE STARTING MONOMER MIXTS. WAS ESTABLISHED. THE REACTIVITY RATIOS (R) IN THE THE I-II COPOLYMN. WERE 3.98 FOR I AND 0.1 FOR II AND IN THE I-III COPOLYMN. 2.24 FOR I AND 0.20 FOR III. THE REACTIVITY FACTORS (Q) AND POLARITY FACTORS (E) WERE 0.036 AND 02.7 FOR II, AND 0.070 AND 0.30 FOR III, RESP. FACILITY: INST. NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 547.833.6.9

GYUL'BUDAGYAN, L. V., MARGARYAN, N. A., and ~~DURGARYAN, V. G.~~, Yerevan State University

"New Derivatives of 4-Quinaldinol. XVII. 2-Methyl-3-(3-chlorobuten-2-yl-1)-4-hydroxyquinoline-6-carboxylic acid and Some of Its Reactions"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1681-1682

Abstract: Following reactions are reported. Cyclization of ethyl ether of 2-(3-chlorobuten-2-yl-1)-3-(p-carbethoxyanilino)-crotonic acid by heating it in vaseline oil to 245° yields 2-methyl-(3-chlorobuten-2-yl-1)-4-hydroxy-6-carbethoxyquinoline (I), m.p. 270°. A solution of 3.2 g (I) in 100 ml alcohol containing 2 g NaOH is heated for 30 min, the alcohol is removed, 10 ml of water is added to the residue, filtered, the pH is brought to 6-6.5, yielding crystalline 2-methyl-3-(3-chlorobuten-2-yl-1)-4-hydroxyquinoline-6-carboxylic acid (II), m.p. 314-316°. To 3.2 g of (I) 10 ml of phosphorus oxychloride is added, the mixture is heated for 3 hrs. excess phosphorus oxychloride is removed, ice water is added and the mixture neutralized to yield 2-methyl-3-(3-chlorobuten-2-yl-1)-4-chloro-6-carbethoxyquinoline (III), m.p. 102-103°. To a heated solution of (III) in alcohol, alcoholic NaOH is added, refluxed for 2 hrs, the alcohol is evaporated, water is added, and neutralized to yield
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GYUL'BUDAGYAN, L. V., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1681-1682

2-methyl-3-(3-chlorobuten-2-yl-1)-4-chloroquinoline-6-carboxylic acid (IV), m.p. 162. To obtain 1-(2-methyl-4-hydroxy-6-carboxyquinolinyl-3)butanone-3, m.p., 272-273°, (II) was dissolved in sulfuric acid and heated to 50° until all HCl formed has been removed. The mixture was then diluted with water, neutralized, and the product precipitated. Analogously 1-(2-methyl-4-chloro-6-carboxyquinolinyl-3)butanone-3 was obtained from (IV).

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UDC 615.371:576.851.45].036.8:612.112.9

DURIKHIN, K. V. and ZAPLATINA, S. I., Rostov-Na-Donu Anti plague Institute

"Some Characteristics of the Plasmacyte Reaction in Macaca Rhesus Monkeys Vaccinated With Live Plague Vaccine (Strain EV)"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 135-140

Abstract: Macaca rhesus monkeys vaccinated enterally with live plague vaccine strain EV were used to determine the feasibility of using the plasmacyte reaction as one of the criteria of immunological rearrangement. The animals were immunized with a bacterial suspension prepared from lyophilized EV vaccine, or the same strain washed from an agar culture in physiological solution. The immunizing dose of the preparation was 100 billion cells. Lymph smears obtained from mesenteric and inguinal lymph nodes and the number of young and differentiated cells of the plasmacyte series were counted. At the same time the antibody level was determined in the passive hemagglutination reaction. Studies showed that one of the characteristics of the plasmacyte reaction to immunization with plague vaccine is the predominance of small differentiated forms of cells of the plasmacyte series. There is no relationship between the

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DURIKHIN, K. V., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, Vol 48, No 6, Jun 71, pp 135-140

number of plasma cells in the lymph nodes of vaccinated animals and the level of serum antibodies indicating the nonspecific character of the cytological criterion. The newly proposed method of evaluating the extent of proliferation of cellular elements of the plasmacyte series maybe used to assess the dynamics of serum antibody production. The currently used method of assessing the results of a plasmacyte reaction on the basis of the number of plasma cells is questioned.

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USSR

UDC 615.371.015.13

LEVI, M. I., BASOVA, H. N., and DURIKHIN, K. V., Moscow Municipal Disinfection Station and Central Institute of Epidemiology

"Relationship Between the Dose of Soluble Antigen and the Plasma Cell Reaction in a Regional Lymph Node After Primary Immunization (A Mathematical Model)"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 19-25

Abstract: The dose of soluble antigen injected into the organism determines the plasma cell reaction in a regional lymph node. The accumulation of cells of the plasmacyte series is directly proportional to the square of the logarithm of the dose of antigen injected. The main elements of the primary immune response of animals to the injection of soluble antigen (logarithm of the antigen dose, duration of stay at the injection site, accumulation of plasma cells, specific rate of removal of antigen from the injection site, modulus of transition from antigen to plasma cells) can be related by fairly simple equations, which make up the suggested mathematical model. The differences between the organism's response to injection of the same soluble antigen in one place and in different places can be explained by the quantitative patterns of the plasma cell reaction. In an experiment with white rats, injection of Past.

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LEVI, M. I., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,
No 10, 1972, pp 19-25

pestis capsular antigen in sorbed form or mixed with incomplete Freund's
adjuvant markedly decreased the specific rate of absorption of the antigen from
the injection site and increased proportionately the number of plasma cells in
the regional lymph nodes.

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UDC 615.372:576.851.45].036.8

DURIKHIN, K. V., and SUCHKOV, Yu. G., Rostov-on-Don Antiplague Institute

"The Effect of the Injection Site of Adsorbed Water-Soluble Antigen (Fraction I of Pasteurella pestis) on the Antibody Level in the Blood Serum of White Rats"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 70, pp 49-52

Abstract: Rats were injected in an extremity with P. pestis antigen. The injected leg was amputated one or 17 days later. Investigation of the antibody level up to 2-1/2 months later showed that it was substantially higher in experimental animals than in controls (intact rats). Local antibody formation thus appears to play an important role in maintaining the titer at a relatively constant level for some time after a single inoculation. Another series of experiments showed that significant immunological rearrangement requires the retention of antigen at the injection site for more than 24 hours. Revaccination resulted in appreciable antibody formation in animals in which the injection site was excised 17 days later but had no statistically significant effect when the amputation was performed 24 hours later.

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1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--STRUCTURAL FUNCTIONAL DISTINCTIONS OF THE MECHANISMS OF SELECTIVE
REACTIORS OF THE BRAIN -U-
AUTHOR--DURINYAN, R.A.
COUNTRY OF INFO--USSR
SOURCE--PAGES 40-46 VESTNIK AKADEMII MEDITSINKIKH NAUK SSSR, VOL 25, NO 3,
1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BRAIN, PHYSIOLOGY, CYBERNETICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0987 STEP NO--UR/0243/70/025/003/0040/0046
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UNCLASSIFIED

PROCESSING DATE--20NGV70

CIRC ACCESSION NO--AP0130033

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. AT PRESENT WE HAVE SEVERAL APPROACHES TO INVESTIGATE THE BRAIN, AMONG WHICH WE CAN MENTION THE FOLLOWING: THE BRAIN AS THE ORGAN OF THINKING OR MENTAL FUNCTIONS (PSYCHOLOGICAL ASPECTS); THE BRAIN AS A "COMPUTER" (CYBERNETIC ASPECTS); THE BRAIN AS AN ANALYZER OF INFORMATION AND REGULATOR OF FUNCTIONS OF THE ORGANISM (PHYSIOLOGICAL ASPECTS). THERE ARE NO SUBSTANTIAL DIFFERENCES BETWEEN THESE APPROACHES; THEY MERELY INDICATED THE PRIMARY DIRECTION OF INVESTIGATION. OBVIOUSLY, MENTAL AND REGULATORY PROCESSES WOULD BE IMPOSSIBLE WITHOUT ANALYTICAL SYNTHETIC AND SO CALLED COMPUTER FUNCTIONS OF THE BRAIN. ON THE OTHER HAND, THE BRAIN DOES NOT REQUIRE COMPUTER FUNCTIONS PER SE, MERELY AS A MEANS OF OBTAINING THE FUNCTION OF OPTIMUM ADAPTIVE EFFECT TO ENVIRONMENTAL CONDITIONS.

UNCLASSIFIED

1/2 020

UNCLASSIFIED

PROCESSING DATE--02 OCT 70

TITLE--CATALYTIC DECOMPOSITION OF HYDROGEN PEROXIDE IN THE PRESENCE OF COPPER IONS -U-

AUTHOR-(03)-VOROBYEVA, T.P., BERDNIKOV, V.M., DURMALIS, A.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 100-6

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DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PROPULSION AND FUELS

TOPIC TAGS--TETRANITROMETHANE, HYDROGEN PEROXIDE, CHEMICAL DECOMPOSITION, COPPER, IRON, METAL CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0758

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PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107300

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CATALYTIC DECOMP. OF H SUB2 O
SUB2 BY CU ION IS INITIATED BY FE (III) IMPURITIES; CU IONS (ESP. CU
PRIME3 POSITIVE) PARTICIPATE IN CHAIN PROPAGATION AND CHAIN TERMINATION
STEPS OF THIS DECOMP. C (NO SUB2) SUB4 INHIBITS H SUB2 O SUB2 DECOMP.
IN THE PRESENCE OF CU.

UNCLASSIFIED

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DURMISHIDZE, S.V.

Plant Biochemistry

28 May 71

USSR

"Our Green Sanitation Workers"
Moscow, Pravda, 31 Jan 71, p. 3

19

727 (ENVIRONMENT SCIENCE)

Abstract: This article reviews and discusses the work of the Georgian Institute of Plant Biochemistry, headed by Academician S. V. Durmishidze. They have studied the qualities for more than 100 higher plants. Some of these plants are capable of removing on their leaves for cleaning the air, whereas others, such as the field poplar, have the ability of harmful hydrocarbons and derivatives, are capable of removing significant quantities of them. It has been established that plants can capture aldehydes, ketones, organic acids, alcohols, ethers, and aromatic compounds of ether oils. This shows that plants do have the necessary fermentation systems to break down aromatic hydrocarbons. Research is now being carried out to find if plants can remove such compounds as benzene and benzopyrene from the air.

In a quote, Director of the Georgian Institute of Geography E. Z. Dzhidzhi, mentions the universality of air pollution, the great hope that plants can still have a major duty to cut down on emissions from industrial units. Director of the Georgian Institute of Pharmacology and Chemistry V. S. Asatiani stated he was

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Pravda, 31 Jan 71, p. 3

pleased with Durmishidze's work, and hoped that they would also investigate plant processes with a view of cancerogenic substances. Director of the Georgian Institute of Botany N. N. Kelmshvili pointed out that, despite the clear findings of Durmishidze's research, researchers of Tbilisi, who are engaged in a good deal of planting, are planting the wrong kinds of trees. He gives the example of planting a Chief from which plants ventilation systems and causes allergic reactions; he proposes that the maple, with its strong air-cleaning features, should be planted much more widely.

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