

1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--AMPLITUDE FREQUENCY CHARACTERISTICS OF SEMICONDUCTOR SOURCES OF THE
SPONTANEOUS RADIATION -U-

AUTHOR--(03)-ZARGARYANTS, M.N., POPOV, YU.V., UTENKOV, B.I.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, OPTIKO-MEKHANICHESKAYA PROMYSHLENNOST', NO 2, FEB 70,
PP 10-13

DATE PUBLISHED----FEB 70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FREQUENCY CHARACTERISTIC, RADIATION SOURCE, SEMICONDUCTOR
CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1583

STEP NO--UR/0237/70/000/002/0010/0013

CIRC ACCESSION NO--AP0118566

UNCLASSIFIED

2/2 020

CIRC ACCESSION NO--AP0118566

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0-
OF THE INERTIAL PROPERTIES
RADIATION. A SATISFACTORY
RESULTS WITH THE CALCULATED

ABSTRACT. A THEORETICAL EVALUATION WAS MADE
OF SEMICONDUCTOR SOURCES OF THE SPONTANEOUS
COINCIDENCE WAS OBTAINED OF THE EXPERIMENTAL
ONES.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PURIFICATION AND USE OF WASTE WATERS FROM TEXTILE PLANTS IN
IRRIGATION -U-
AUTHOR--(02)-KOVALEVA, N.A., UTENKOVA, G.A. *U*
COUNTRY OF INFO--USSR
SOURCE--TEKST. PROM. (MOSCOW) 1970, 30(3), 78-80
DATE PUBLISHED-----70
SUBJECT AREAS--AGRICULTURE, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--WATER PURIFICATION, INDUSTRIAL WASTE, CROP IRRIGATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/0411 STEP NO--UR/0342/70/030/003/0078/0080
CIRC ACCESSION NO--AP0122591
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0122591

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PURIFICATION OF WASTE WATERS FROM CERTAIN TEXTILE INDUSTRIES CAN BE CARRIED OUT BY USING IT IN THE IRRIGATION OF HAY CULTURES. THUS, THE TOTAL WASTE WATER PRODUCTION OF A PLANT, AMOUNTING TO 6500 M³ PER DAY, WAS DISTRIBUTED OVER AN AREA OF 320 HA. THE FEED WATER HAD AN AV. COMPN. (MG-L.) OF SUSPENDED MATTER 150-300, EVAPN. RESIDUE 450-700, N 80-130, HCO SUB3 PRIME NEGATIVE 100-240, CL PRIME NEGATIVE 70-100, SO SUB4 PRIME2NEGATIVE 120-180, CA PLUS MG 50-57, K SUB2 O 10-12, NA SUB2 D 100-140, P SUB2 O SUB5 8-10, AND CR 0-1.6. THE PH WAS 7-8. THE DRAINED WATER HAD GREATLY IMPROVED PROPERTIES, E.G. BOD 3.0-4.0 (VS. 31.2) MG-L. COLITITER 2-6 (VS. 0.4), AND IT WAS COMPLETELY FREE OF COLOR AND ODR. FACILITY: TSENT. NAUCH. ISSLED. STA. SEL'SKOKHOZ. ISPOLZ. STOCHNYKH VOD, KUPAVNA, USSR.

UNCLASSIFIED

1/2 036
 UNCLASSIFIED
 TITLE—EFFECT OF PENETRATING RADIATION ON THE ACTIVITY OF SUCCINATE
 DEHYDROGENASE IN ANIMAL TISSUES —U—
 AUTHOR—(02)—SATKHOZHINA, E.A., UTESHEV, A.B.
 PROCESSING DATE—30OCT70
 COUNTRY OF INFO—USSR
 SOURCE—RADIOBIOLOGIYA 1970, 10(1), 105-8
 DATE PUBLISHED—70
 SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS—IONIZING RADIATION BIOLOGIC EFFECT, SUCCINATE DEHYDROGENASE,
 ANIMAL PHYSIOLOGY, LIVER, SPLEEN, KIDNEY, BRAIN, HEART
 CONTROL MARKING—NO RESTRICTIONS
 DOCUMENT CLASS—UNCLASSIFIED
 PROXY REEL/FRAE—3001/1846
 CIRC ACCESSION NO—AP0127256
 STEP NO—UR/0205/70/010/001/0105/0108
 UNCLASSIFIED

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CIRC ACCESSION NO--AP0127256
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--300CT70

ABSTRACT. MALE WHITE RATS AND GUINEA PIGS WERE IRRADIATED WITH 900 R AT 72 R-MIN AND SUCCINATE DEHYDROGENASE (I) ACTIVITIES WERE MEASURED AFTER THE INCUBATION OF LIVER, SPLEEN, KIDNEY, BRAIN, AND HEART TISSUES AT 37DEGREES FOR 30 MIN, 6-48 HR AFTER IRRADN. PENETRATING RADIATION SUPPRESSED I ACTIVITY IN ALL ORGANS EXCEPT THE LIVER AND SPLEEN, REACHING MAX. DEPRESSION WITHIN 12 HR IN THE RAT, AND WITHIN 48 HR IN THE GUINEA PIG. FACILITY: INST. BIOL. FIZ., PUSHCHINO, USSR.

UNCLASSIFIED

USSR

UDC 615.214.32

BABICHEV, V. A., UTESHEV, B. S., KUDRYASHOV, V. M., BEREZINA, T. A.,
Department of Pharmacology, II Moscow Medicinal Institute imeni N. I.
Pirogova

"Immunodepressive Action of Cytosine Arabinoside"

Moscow, Farmakologiya i Toksikologiya, Vol 36, No 4, Jul/Aug 73, pp 473-476

Abstract: The effect of the antimetabolite cytosine arabinoside (CA) on sheep erythrocyte stimulated primary immunological response in normal mice and in the system of syngenic transmission in lethally irradiated animals with a parallel study of the antibody producing cells and cell precursors was investigated. SVA mice (18-20 gm) were injected intravenously with 5% sheep erythrocytes (5×10^8 cells), sacrificed after 4 days, the spleens isolated and the primary antibody (AB) forming cells determined by the method of Jerne and Nordin. CA, upon injection (500 mgm/kg) 48 hours after immunization, produced a maximum immunodepressive effect (16 AB-producing cells per 10^6 nucleated spleen cells versus 203 AB-producing cells in the control -- no injection). CA injected 24 hours after or 24 hours before immunization, reduced AB-producing cells to 89 and 126 cells per 10^6 nucleated spleen cells. Injection of CA (100 mgm/kg) at 24, 48, and 72

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USSR

BABICHEV, V. A., et al., *Farmakologiya i Toksikologiya*, Vol 36, No 4, Jul/Aug 73, pp 473-476

hours after immunization prevented almost completely AB-producing cells (4 AB-producing cells per 10^6 spleen cells). Spleen cells from the rats injected at 24, 48, and 72 hours with CA were injected into recipient rats and the effect of CA on the population of precursor cells of the primary immunological response was studied. Recipients demonstrated 6 hemolytic foci (corresponding to 1 precursor cell) compared with controls which contained 20 hemolytic foci. The number of plaque-forming cells in experimental recipients in the whole spleen was about 128, those in the control about 516. It was concluded that experimental and control animals' proliferative possibilities of U-cells are realized in the organs of lethally irradiated recipients to the same degree. Whether CA elicits the lowering of proliferative possibilities of all nucleus containing cells or only that of precursor cells is the subject of further studies.

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USSR

UDC 615.37.015.45:612.112.94

YARVELOV, B. N., PINEGIN, B. V., and ~~LEDESHEV~~, B. S., Chair of Microbiology and Pharmacology, Second Moscow Medical Institute imenn N. I. Pirogov

"Capacity of Antibody-Forming Cells Cultured in vitro to React With a Specific Antigen"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 10, 1971, pp 68-69

Abstract: The capacity of mouse immune lymphoid cells cultured in Hottinger's broth or Eagle's medium to produce rosettes was studied. Despite the preservation of a substantial number of direct and indirect plaque-forming cells in the culture, the lymphoid cells completely lost their capacity to form rosettes when incubated with sheep erythrocytes. After cultured cells were transplanted to normal syngenic recipients (intravenous injection), the number of rosette-forming cells in the spleens of the recipients failed to exceed the background level. Thus, antibody-forming cells grown on Eagle's medium or Hottinger's broth proved to be incapable of reacting with a specific antigen and producing rosettes. The phenomenon is thought to be related to some changes in the surface membranes of antibody-forming cells cultured in vitro.

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UTESHEV, B.S.

JFANS 04767
225 1971

UDC: 616-097.612.017-11/12
ACTIVATION OF DNA SYNTHESIS IN LYMPHOID CELLS OF THE SPLEEN IN THE INDUCTIVE PHASE OF THE PRIMARY IMMUNOLOGICAL RESPONSE

Article by G.F. Nakafayeva, V.A. Babichov, B.S. Uteshev, Second Moscow Medical Institute, Inst. N.I. Pirogov, Moscow, Vechnik Akademii Vsesoyuznaya Meditsinskaya Nauka SSSR, No 11, 1971, pp 67-73]

It is a known fact that splenic cells are subject to transformation and proliferation under the influence of antigenic stimulation (Nehrbell and Mite). However, until recently the kinetics of this process had not been sufficiently investigated.

Most autoradiographic works dealing with the role of cell division in immunity have been performed on models using isolated cell systems. In cultures of lymphoid cells (Dutton and Nicholl) of lymphocyte cultures in vitro (Capalbe et al.), the cellular "events" that unfold in response to an antigen in the "closed system" of diffusion chambers have been investigated in vivo (Lymphoid cells respond to antigen by a rise in the car index and mitotic coefficient). The authors assume that the time of generation of immunocompetent cells is shortened under the influence of antigenic stimulation, but caution is needed in interpreting the data mentioned above in view of the multifactor nature of the immunological systems chosen by the researchers.

When investigating cell division in the terminal centers of lymphatic tissue in the course of in vivo immunogenesis, Shooler, Nossal, and Varkala, as well as Hanna demonstrated proliferation of large pyrenophilic cells which incorporated H³-thymidine intravenously under the influence of antigen. On the other hand, V.P. Gusev, who used a tritium label in vitro, discovered that in the spleen of immunized mice DNA synthesis is activated first in the small lymphocytes which the authors distinguished in a special group of pyrenophilic lymphocytoid cells.

In this connection it seemed interesting to investigate the kinetics of proliferative processes in a heterogeneous population of lymphoid cells of the spleen throughout the inductive phase of the primary immunological response.

USSR

UDC 612.017.1.014.2

PERSHIN, S. B., KHALATYAN, N. A., PINEGIN, B. V., and UTESHEV, B. S., Second
Moscow Medical Institute imeni Pirogov

"Kinetics of Rosette-Forming Cells in Primary and Secondary Immunological
Responses"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971,
pp 83-88

Abstract: The kinetics of rosette-forming spleen cells was studied in mice
inoculated and 5 weeks later reinoculated with sheep erythrocytes. The number
of these cells increased slightly during the first two days and exponentially
during the next four days, after which they decreased slowly only to increase
again on day 11. In the secondary immunological response, the rosette-forming
cells increased more rapidly than in the primary response, the peak occurring
on day 4 after the second injection of the antigen. A statistically signifi-
cant relationship was noted between the number of rosette-forming cells and
the size of the primary sensitizing dose of antigen in the secondary immuno-
logical response. These findings are discussed in the light of Sercarz and
Coons' hypothesis on the development of immunocompetent cells.

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ИТЕШЕВ, В. С.

MEDICINE

LITERATURE SURVEY

50: JPRS 56038
27 JAN 72

UDC 612.017.1:612.111.3

THE ROLE OF MACROPHAGES IN INDUCTION OF ANTIBODY SYNTHESIS
(Article by N. V. Pinagin, and Uzhinsky, Second Moscow Medical Institute, Izvestia of the USSR Academy of Medical Sciences, 1971, pp 73-83)

Many investigators believe that interaction between different types of cells is a mandatory prerequisite for induction of antibody synthesis. Types of immunization of populations of antibody-producing cells following antigen-antigenic cells of the thymus and precursor cells originating from bone marrow (Matsuda and Miller, 1965; Miller and precursor cells originating from the bone marrow (Matsuda and Miller, 1965; Miller and precursor cells originating from the bone marrow) to begin the complex cycle of morphological and biochemical changes, leading to production of antibodies (Miller and Gindoff, 1970). A number of researchers believe that in addition to the above two types of cells, to induce an antibody response, it is necessary for another group of cells, to induce an antibody response. It is necessary for another group of cells, to induce an antibody response perhaps they are macrophages (Hunter and Coppleston, 1968; Hunter and Coppleston, 1970; Langerman et al., 1970; Uchida, 1970; Dupiton et al., 1970). In the opinion of these authors, a three-component system is involved in initiating antibody synthesis, and probably each participant performs specific functions.

The present survey dealt with analysis of the literature which shows the role of macrophages in induction of antibody synthesis following immunization with both corpuscular and soluble antigens. However, in view of the very large quantity of information on this subject, we shall briefly submit only a few of the main issues which, in our opinion, illustrate the most graphically the significance of these cells in formation of the immunological response.

The Role of Macrophages in Absorbing Antigenic Material

Corpuscular and soluble antigens reach the cell through phagocytosis, pinocytosis, and micropinocytosis -- raphocytosis, bacteria cells, histiocytes, macrophages, and leukocytes have the greatest capacity for these processes (Bessia, 1961). Neutrophils and macrophages play an important part in respect to removing foreign agents from the body. Cain (1964) found that E. coli in split at about the same rate in macrophages and in granulocytes. However, in the former case, the splitting of mitogenic material is not associated with decrease in its immunogenicity. Macrophages also remove the excess cellular elements to capture antigen (Roberts, 1964).

USSR

UDC 615.272.7.015.46

PERSHIN, S. B., PINEGIN, B. V., UTESHEV, B. S., and KHALATYAN, N. A., Chairs of Microbiology and Pharmacology, Second Moscow Medical Institute imeni N. I. Pirogov

"The Effect of Nucleic Acid Metabolism Inhibitors on the Population of Antibody-Forming Cells in Secondary Immunological Response"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 15, No 4, Jul/Aug 71, pp 46-52

Abstract: Experiments with mice have revealed that during the secondary immunological response, nucleic acid inhibitors (aurantin and mitomycin C) depress the growth of antibody-forming cells, especially in the early stages of immunogenesis. Populations of indirect plaque-forming and rosette-forming cells are depressed to a greater degree than populations of direct plaque-forming and rosette-forming cells. This is a specific characteristic of the secondary immunological response, which is absent in the primary response. 5-Fluorouracil depresses populations of both direct and indirect plaque-forming cells. However, direct plaque-forming cells are more sensitive to this immunodepressant than indirect plaque-forming and rosette-forming cells. The rosette-forming cells are most sensitive to auranine and least sensitive to 5-fluorouracil and mitomycin C.

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1/2 025 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF INHIBITORS OF NUCLEIC ACID AND PROTEIN SYNTHESIS AND CELL
DIVISION OF THE PRIMARY IMMUNOLOGICAL RESPONSE -U-
AUTHOR-(04)-UTESHEV, B.S., PINEGIN, B.V., BABICHEV, V.A., LEVASHEV, V.S.
COUNTRY OF INFO--USSR *u*
SOURCE--VESTN. AKAD. MED. NAUK SSSR 1970, 25(1), 62-70
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--NUCLEIC ACID, PROTEIN, CELL PHYSIOLOGY, IMMUNOLOGY,
BIOSYNTHESIS, CHLORAMPHENICOL, ANTIBODY, SPLEEN, MITOSIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0362 STEP NO--UR/0248/70/025/001/0062/0070
CIRC ACCESSION NO--AP0127943

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF INHIBITORS OF DNA BIOSYNTHESIS, E.G., 5,FLUOROURACIL (I), AMETHOPTERIN (II) OR 9,AZAGUANINE, OF RNA BIOSYNTHESIS, E.G., AURANTHIN OR ETHIONINE, OF PROTEIN BIOSYNTHESIS, E.G., CHLORAMPHENICOL (III), AND OF CELL DIVISION, E.G., COLCHICINE (IV) ON THE PRIMARY IMMUNE RESPONSE WAS DETD. ALL INHIBITORS OF DNA OR RNA BIOSYNTHESIS WERE STRONG IMMUNODEPRESSANTS; THE MAX. EFFECT OCCURRED AFTER TREATMENT DURING EARLY STAGES OF IMMUNOGENESIS. ANTIBODY FORMING CELLS WERE RELATIVELY STABLE TOWARD III. IV CAUSED A MARKED DROP IN ANTIBODY PRODUCING CELLS IN THE SPLEEN; HOWEVER, WITH COMPLETE INHIBITION OF MITOSIS, ANTIBODY BIOSYNTHESIS STILL OCCURRED. THUS, ANTIBODY PRODUCING CELLS CAN EVIDENTLY FORM BY TRANSFORMATION OF NONPRODUCING CELLS AS WELL AS BY MITOSIS.
FACILITY: II MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 022
 UNCLASSIFIED
 TITLE--IMMUNODEPRESSIVE PROPERTIES OF 5-FLUOROURACIL IN A LYMPHOID CELL CULTURE -U- PROCESSING DATE--13NOV70
 AUTHOR--(04)--UTESHEV, B.S., PINEGIN, B.V., BABICHEV, V.A., TORCHENSKIY, G.A.
 COUNTRY OF INFO--USSR
 SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 969-71
 DATE PUBLISHED--70
 SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
 TOPIC TAGS--RNA, PROTEIN SYNTHESIS, LYMPHATIC SYSTEM, ENZYME ACTIVITY, GLOBULIN, ANTIBODY, URACIL
 CONTROL MARKING--NO RESTRICTIONS
 DOCUMENT CLASS--UNCLASSIFIED
 PROXY REEL/FRAE--1004/1100
 CIRC ACCESSION NO--AT0115119
 STEP NO--UR/0020/70/190/004/0969/0971
 UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0115119

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 5,FLUOROURACIL (5,FU) INDUCED DEFECTS IN RNA MOLS. AND DISREPTED PROTEIN SYNTHESIS AT THE TRANSLATION LEVEL IN LYMPHOID CELLS, INDICATING INHIBITION OF ADAPTIVE ENZYME SYNTHESIS. PROTEINS WITH ANTIGEN STRUCTURES LACKING ENZYMIC ACTIVITY WER FORMED. THE GLOBULINE SHOWED DECREASED AFFINITY. THE NO. OF ANTIBODY FORMING CELLS DID NOT DECREASE AFTER 24 HR INCUBATION WITH 5 FU, INDICATING THAT THE HALF LIFE FOR INFORMATIONAL RNA IN THESE CELLS IS SEVERAL DAYS. THREE DAYS INCUBATION WITH 500 MG 5 FU-ML DID NOT SIGNIFICANTLY AFFECT THE NO. OF THESE CELLS, BUT AT 1000 AND 500 MG-ML, 5,FU DECREASED THE NO. OF ANTIBODY FORMING CELLS BY 35.0 AND 57.2PERCENT, RESP., DURING PROLONGED INCUBATION.

FACILITY: II.

MOSK. MED. INST. IM. PIROGOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--KINETICS OF ANTIBODY FORMING CELLS IN THE CULTURE OF LYMPHOID CELLS
OF THE SPLEEN -U-
AUTHOR--(04)-PINEGIN, B.V., URESHEV, B.S., BABICHEV, V.A., KORSHUNOV, V.M.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 4,
PP. 68-72
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTIBODY, CELL CULTURE, LYMPHATIC SYSTEM, SPLEEN, CULTURE
MEDIUM, HEMOLYSIS, AGAR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/1673 STEP NO--UR/0016/70/000/004/0066/0072
CIRC ACCESSION NO--AP0106419
UNCLASSIFIED

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CIRC ACCESSION NO--AP0106419
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT. THE AUTHORS DESCRIBE THE KINETICS OF ANTIBODY FORMING CELLS IN CULTURING LYMPHOID CELLS IN VITRO. SUSPENSION OF LYMPHOID CELLS OF THE SPLEEN WAS GROWN IN GLASSES ON 10 PERCENT AGAR WITH THE USE OF HOTTINGER BROTH AS A NUTRIENT MEDIUM. THE NUMBER OF ANTIBODY FORMING CELLS WAS DETERMINED BY THE METHOD OF LOCAL HEMOLYSIS IN AGAR BY JERNE AND NORDIN'S METHOD. IN CULTURING UNDER THE MENTIONED CONDITIONS OF THE CELLULAR SUSPENSION OF THE SPLEEN OBTAINED FROM MICE ON THE 4TH DAY AFTER THE IMMUNIZATION, ANTIBODY FORMATION WAS OBSERVED FOR AT LEAST 16 DAYS. DURING THE FIRST DAY OF CULTURING THERE WAS A MARKED REDUCTION OF THE NUMBER OF ANTIBODY FORMING CELLS HOWEVER, THEIR NUMBER INCREASED AGAIN ON THE 7TH DAY, AND REMAINED CONSIDERABLE UP TO THE 16TH DAY, EXCEEDING THEIR NUMBER IN THE SPLEEN OF IMMUNIZED ANIMALS MANY TIMES.

UNCLASSIFIED

1/2 017
UNCLASSIFIED
PROCESSING DATE--04DEC70
TITLE--THE IMMEDIATE AND REMOTE RESULTS OF VAGOTOMY IN DUODENAL PEPTIC
ULCER -U-
AUTHOR--(04)-UTESHEV, N.S., PAKHOMOVA, G.V., BYCHKOVA, T.I., SEMENOV, V.V.
COUNTRY OF INFO--USSR
SOURCE--KHIRURGIYA, 1970, NR 6, PP 35-39
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--DUODENUM, SURGERY, NERVE TISSUE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605005/D01 STEP NO--UR/0531/70/000/006/0035/0039
CIRC ACCESSION NO--AP0139710
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0139710
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT. AT THE N. V. SKLIFOSOVSKY INSTITUTE 75 PATIENTS WITH COMPLICATIONS OF DUODENAL PEPTIC ULCERS WERE SUBJECTED TO VAGOTOMY AND ANTRECTOMY. VAGOTOMY WAS PERFORMED SUBDIAPHRAGMATICALLY. SECTION OF THE VAGUS NERVES IN THE IMMEDIATE VICINITY TO THE LESSER CURVATURE OF THE STOMACH WAS ACHIEVED BY PRESERVATION OF HEPATIC AND INTESTINAL BRANCHES OF THE VAGUS NERVES. THE EXPERIENCE OF TREATMENT HAS SHOWN THAT THE PATIENTS REQUIRE FOR TWO-THREE POSTOPERATIVE DAYS CONSTANT ASPIRATION FROM THE STOMACH FOR THE RESTORATION OF ITS TONE. OUT OF 75 PATIENTS IN 3 THERE WAS OBSTRUCTION OF THE ANASTOMOSIS FOR 14 DAYS, WHICH NORMALIZED UNDER THE INFLUENCE OF CONSERVATIVE MEASURES. THE REMOTE RESULTS WERE STUDIED IN 40 PATIENTS. AN ANALYSIS OF THESE DATA HAS SHOWN THAT AT PERIODS FROM 3 MONTHS TO 4 YEARS AFTER VAGOTOMY WITH ANTRECTOMY THERE OCCUR NO PRONOUNCED CHANGES IN THE FUNCTION OF THE LIVER, PANCREAS AND SMALL INTESTINE. A PERSISTENT ACHYLIA WAS NOTED AFTER THE EXAMINATION OF THE GASTRIC SECRETION. THERE WERE SEEN NOT SIGNS OF THE DUMPING SYNDROME, THE DEVELOPMENT OF PEPTIC ULCERS OR DIARRHEA IN THE GROUP OF PATIENTS.

FACILITY: 1-YA KHIRURGICHESKAYA KLINIKA POMOSHCHI INENI N. V. SKLIFOSOVSKOGO, MOSKVA.

UNCLASSIFIED

USSR

YEFIMOV, A. B., MALYY, V. I., UTESHEV, S. A., Moscow

"Loss of Stability of a Cylindrical Shell on Longitudinal Impact"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 1, January-February 1971, pp 20-23

Abstract: The forms of loss of stability of a cylindrical shell on longitudinal impact of an infinite mass moving with a velocity V against the end of the shell are studied in this paper. Equations are derived which define the bending of the shell during the linear stage of loss of stability. It is pointed out that the bends develop with time as the superposition of two types of waves. The amplitudes of the wave of the first type oscillate with time, that is, they remain limited, and the amplitudes of the second type waves increase exponentially with time leading to loss of stability of the shell. However, all of the waves of the second type do not make a significant contribution to the stability loss process since the amplitude of the wave which has the maximum growth rate overtakes the others and becomes predominant. The predominant wave is axisymmetric.

Equations are derived which define the characteristics of the predominant stability loss wave without restrictions on the impact velocity. After

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YEFIMOV, A. B., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 1, January-February 1971, pp 20-23

comparing the equations neglecting inertial reduction, that is, the effect of the inertia of the shell elements in the radial direction on the propagation of the longitudinal compression wave, and the equations with and without restrictions on impact velocity it is concluded that these factors have little effect on the form of stability loss. It is pointed out that it is known that in the case of a static load on a cylindrical shell the shape of the stability loss remains indeterminate in the linear approximation. In the case of an impact load on the end of the shell, the loss of stability with small bends occurs in axisymmetric form. Further development of the bends is not described by the linear equations of the shells. When the bends reach a magnitude on the order of h , significant membrane stresses occur in the shell. Together with the occurrence of nonlinear effects, the form of the stability loss has to lose its axisymmetric nature. When the bends increase to the point that the nonlinearity becomes the defining factor, the shell assumes the form of isometric bending of a cylindrical surface. The relations obtained in this paper for calculating the wavelength in the linear stage of stability loss give values which are 12% and 10% lower than the experimental values obtained by Lindberg and Herbert.

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UTEVSKIY, L.M.

General metallurgy

DEVELOPMENT OF MARTENSITIC CONVERSION DURING DEFORMATION AND THE MECHANICAL PROPERTIES OF TRIP STEEL
UDC 669.15.016.225

Article by O. P. Nekudova, H. Utevskiy, V. N. Zaporozhchikay, M. A. Kozlov, F. Morkvichay, Central Scientific Research Institute of Ferrous Metallurgy, Leningrad, U.S.S.R. (Submitted in Russian, *Metallurgiya*, Moscow, 1971, Vol. 34, No. 3, 1972, submitted in English, pp 1075-1081)

A study was made of the interrelation of martensitic conversion during deformation and the structure and mechanical properties of trip steel having different inclination toward the formation of deformation martensite. The effect of the warm work hardening and the test temperature on the capacity for conversion, the structure and mechanical characteristics of trip steel were investigated. The characteristic features of the fine structure of this steel explaining the causes of severe hardening during warm work hardening, the increase in the strain hardening coefficient during subsequent tensile testing are described.

A great deal of experimental material accumulated in the Soviet Union and abroad on the laws of martensitic conversions in various alloys and under various conditions have provided a scientific basis for creating a new class of structural steel -- metastable austenitic complexly alloyed steel (trip steel in the English terminology) hardened by warm work hardening and having high strength with very high plasticity. The latter is insured by the martensitic conversion during plastic flow (tearing): the shear mechanism of the conversion causes relaxation of the peak stresses, and the formation of the carbide martensite in the work hardened austenite -- serves local hardening preventing premature necking and rupture. The extraordinary combination of strength and plasticity which cannot be obtained by other known methods of thermal and thermo-mechanical treatment has in recent years attracted the attention of many researchers to this new class of steel [1-6].

The most complete and efficient utilization of trip steel as a structural material is possible only under the condition of sufficiently comprehensive study of the phase transformations, the structural changes and mechanical behavior of the steel -- in connection with the role of such important factors as the peculiarities of the composition (the position of the

Handwritten notes:
1075-1081
Metallurgiya
Moscow, 1971

H₁ point, the inclination toward carbide formation, the capacity for 100 or 1000% martensitic conversion, and so on), the conditions of initial hardening, thermomechanical treatment (temperature, degree of work hardened, the deformation divisibility, subsequent aging, and so on) and, finally, the deformation conditions (the temperature and rate conditions primarily).

This article contains a discussion of the results of some studies performed on trip steel of compositions close to those proposed in [1]. Studies were made of the peculiarities of the structural state of the initial work hardened austenite, the interrelation between the kinetic picture of the ferrite to conversion and the formation of the properties during mechanical testing and the peculiarities of the structure of the final conversion products arising as a result of these tests.

Experimental Procedure and Material

A study was made of two groups of steel -- with 0.3 and 0.5 percent C in which the resistance of the austenite to martensitic conversion varied by variation of the manganese content known for its very sharp effect on the position of the H₁ and H₂ points. With sufficiently strict repetition of the composition with respect to the other alloying elements (Cr, Ni, Mo, Si) the manganese content varied in the steel with 0.3 percent C from 1.4 to 2.7 percent, and in the steel with 0.5 percent C, from 1.4 to 3.4 percent (Table 1). In order to compensate for the effect of the carbon on the position of the H₁ point, the nickel content in the group of steels with 0.5 percent C was reduced.

Table 1
Chemical composition of the investigated steel, percent by weight

NV	C	Mn	Cr	Ni	Mo	Si
1	0.32	1.40	9.30	7.70	4.0	2.0
2	0.32	1.40	9.10	7.70	4.1	2.0
3	0.33	2.35	8.70	7.80	4.1	2.0
4	0.33	2.35	8.50	7.80	4.0	2.0
5	0.33	1.75	9.60	7.80	4.1	2.0
6	0.33	1.75	9.35	7.80	4.1	2.0
7	0.54	1.93	9.20	6.80	4.25	2.0
8	0.54	2.72	9.45	6.80	4.25	2.0
9	0.56	2.72	9.25	6.85	4.25	2.0
10	0.56	3.43	9.25	6.85	4.25	2.0
11	0.57	3.43	9.15	6.60	4.25	2.0

The steel was made in a vacuum induction furnace. The ingots (10 kg) were forged into 10 x 20 mm bars -- billets under warm work hardening; the billets were subjected to water quenching from 1,150° C and work hardening by rolling at temperatures of T_v from + 20° to 650° with a different degree of reduction for partial reduction of about 10 percent. Samples were cut from

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UNCLASSIFIED

PROCESSING DATE--02OCT70

TITLE--SELECTION OF A METHOD FOR THE QUANTITATIVE EVALUATION OF THE
CHEMICAL STABILITY OF FIBERS, SUCH AS POLY(VINYL ALCOHOL) FIBERS -U-
AUTHOR--(03)-PEREPEL'KIN, K.YE., UTEVSKIY, L.E., CHEREYSKIY, Z.YU.

COUNTRY OF INFO--USSR

u

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD), 1970, 43(2) 391-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL STABILITY, POLYVINYL ALCOHOL FIBER, CHEMICAL
DECOMPOSITION, SULFURIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1992/0303

STEP NO--UR/0080/70/043/002/0391/0395

CIRC ACCESSION NO--AP0111497

UNCLASSIFIED

2/2 009

CIRC ACCESSION NO--AP0111497

UNCLASSIFIED

PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0-
AND RAPID QUANT. METHOD OF
ALC.) (I) FIBERS CONSISTED OF
30PERCENT H⁺ SUB2 SO SUB4.
KINETIC METHOD AS IT WAS UNAFFECTED BY A VARYING DIFFUSION COEFF. AND
HEATING RATE.

ABSTRACT. THE MOST SENSITIVE, REPRODUCIBLE,
EVALUATING THE ACID RESISTANCE OF POLY(VINYL
DEGRADATION TIME OF I FIBERS IN
THE METHOD PROPOSED WAS SUPERIOR TO THE

UNCLASSIFIED

I/2 009 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SELECTION OF A METHOD FOR THE QUANTITATIVE EVALUATION OF THE
CHEMICAL STABILITY OF FIBERS, SUCH AS POLY(VINYL ALCOHOL) FIBERS -U-
AUTHOR-(03)-PEREPELKIN, K.YE., UTEVSKIY, L.E., CHEREYSKIY, Z.YU.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD), 1970, 43(2) 391-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL STABILITY, POLYVINYL ALCOHOL FIBER, CHEMICAL
DECOMPOSITION, SULFURIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1992/0303

STEP NO--UR/0080/70/043/002/0391/0395

CIRC ACCESSION NO--AP0111497

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NJ--AP0111497

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOST SENSITIVE, REPRODUCIBLE, AND RAPID QUANT. METHOD OF EVALUATING THE ACID RESISTANCE OF POLY(VINYL ALC.) (I) FIBERS CONSISTED OF DETG. THE DEGRADATION TIME OF I FIBERS IN 30PERCENT H. SUB2 SO SUB4. THE METHOD PROPOSED WAS SUPERIOR TO THE KINETIC METHOD AS IT WAS UNAFFECTED BY A VARYING DIFFUSION COEFF. AND HEATING RATE.

UNCLASSIFIED

USSR

UTEVSKIY, S. O.

UDC 669.71.051

"Operating Experience of the Department of Technical Information, Inventions, and Rationalization of the Volkhov Aluminum Plant"

V sb. Nauchno-tekhn. inform. v tsveta. metallurgii (Scientific and Technical Information in Nonferrous Metallurgy -- Collection of Works), Moscow, 1970, pp 57-59 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G139 by S. KRIVONOSOVA)

Translation: The department's functions include the organization of technical information, patent, and rationalization work, scientific and technical propaganda, and management of the technical library. One hundred thirty one abstracters are employed at the plant. They are specialists in metallurgy, chemistry, power engineering, etc. "Information Days" are arranged. The introduction into industry of rationalization suggestions and inventions based on data taken from technical information is encouraged.

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172 036

TITLE--CU METABOLISM AND THE SIGNIFICANCE OF THIS
PATHOGENESIS OF EPILEPSY -U-

UNCLASSIFIED

PROCESSING DATE--09OCT70
TRACE ELEMENT IN THE

AUTHOR--UTIN, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVRUPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,
VOL 70, NR 5, PP 721-727

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--COPPER, METABOLISM, TRACE ELEMENT, EPILEPSY, ACCIDENT, LIVER,
PSYCHOSIS, BLOOD CHEMISTRY, NERVE TISSUE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY KEEL/FRAME--1994/1135

STEP NO--UR/0246/70/070/005/0721/0727

CIRC ACCESSION NO--AP0115154

UNCLASSIFIED

272

036

CIRC ACCESSION NO--AP0115154
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--09OCT70

STUDY OF THE CU CONTENT IN THE BIOLOGICAL FLUIDS (WHOLE BLOOD, SERUM AND FORMED ELEMENTS, CSF), EXCREMENTS (URINE, DIURNAL FECES), AS WELL AS IN THE LEVEL OF THE POST MORTEM EXAMINATIONS. THE RESULTS INDICATE A SIGNIFICANT VARIABILITY IN THE LEVEL OF THE CU CONTENT IN THE ORGANISM OF EPILEPTIC PATIENTS WHICH CORRELATES WITH CONVULSIVE AND PSYCHOTIC PAROXYSMS AND THE GRAVITY OF THE DEVELOPMENT OF EPILEPSY. BALANCE INVESTIGATIONS AND A STUDY OF THE POST MORTEM MATERIALS DISPLAY A DEFICIENCY OF THIS TRACE ELEMENT IN EPILEPSY, A PARTICULAR CU HUNGER OF THE MAIN CU DEPOT, IN THE LIVER AND NERVOUS TISSUE (ESPECIALLY OF THE BRAIN AND SPINE) AND A TENDENCY TO A HIGH CU CONTENT IN THE BLOOD AND CSF DURING AND AFTER CONVULSIVE SEIZURES. THE AUTHOR DISCUSSES THE MECHANISM OF CU PARTICIPATION IN THE PATHOGENEISS OF EPILEPSY.
FACILITY: KAFEDRA PSIKHIATRII I BIOKHIMII SAMARKANDSK MED. INST.

UNCLASSIFIED

USSR

UDC 626.024:616.21-008

SHAPARENKO, B. A., GULYAR, S. A., ZHURBA, A. N., and ~~UTKIN, A. A.~~, Otorhinolaryngology Department, Donetsk Medical Institute, and Medical Physiology Division, Donetsk Department, Central Experimental Design Bureau for Special Equipment

"Dynamics of Functional Shifts in the Otorhinolaryngological Organs of Scuba Divers"

Kiev, Zhurnal Ushnykh, Nosovykh, i Gorlovykh Bolezney, No 4, Jul/Aug 70, pp 79-82

Abstract: Thirteen scuba divers working at a depth of 13 to 15 meters (water temperature 17 to 21°C) were examined at 30-min intervals for 3 hours. The data obtained revealed functional shifts in the ear, nose, and throat which varied according to certain external factors. A lowering of the ambient temperature caused temporary constriction and then dilatation of the blood vessels in the nasal mucosa and lymphoid tissue of the nasopharynx. Increased secretion of the mucous glands and impaired nasal breathing resulted in obstruction of the eustachian tubes and deterioration of hearing. These shifts were less pronounced in a control group of eight scuba divers who wore a "Sadko" water suit made of thin rubber with a wool lining.

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1/2 027

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--APPLICATION OF VOLTERRA'S METHOD TO THE SOLUTION OF MIXED BOUNDARY
VALUE PROBLEMS FOR THE WAVE EQUATION -U-

AUTHOR--(02)-MIKHAYLOV, V.N., UTKIN, A.I.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDKOSTI I GAZA,
JAN.-FEB. 1970, P. 143-147.

DATE PUBLISHED--70

U

SUBJECT AREAS--MATHEMATICAL SCIENCES, PHYSICS

TOPIC TAGS--VOLTERRA EQUATION, VOLTERRA OPERATOR, CAUCHY PROBLEM, WAVE
EQUATION, MIXED BOUNDARY VALUE PROBLEM, AERODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1454

STEP NO--UR/0421/70/000/000/0143/0147

CIRC ACCESSION NO--AP0112448

UNCLASSIFIED

2/2 027

CIRC ACCESSION NO--AP0112448

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS SHOWING THAT BY FORMAL APPLICATION OF VOLTERRA'S FORMULA DESCRIBING THE SOLUTION OF THE CAUCHY PROBLEM FOR THE WAVE EQUATION WITH THREE INDEPENDENT VARIABLES TO PROBLEMS IN AERODYNAMICS (SUCH AS FLOWS PAST WINGS AND THE INTERFERENCE BETWEEN WINGS AND BODIES OF REVOLUTION) MAKES IT POSSIBLE TO REDUCE THREE DIMENSIONAL MIXED BOUNDARY VALUE PROBLEMS FOR THE WAVE EQUATION TO TWO DIMENSIONAL INTEGRODIFFERENTIAL EQUATIONS AT THE SURFACE. IN THE CASE WHERE THE SURFACE HAS A SHARP BEND, THE VOLTERRA FORMULA IS NO LONGER VALID. A MODIFICATION OF THE FORMULA TO INCLUDE THE CASE OF A SHARP BEND IS PRESENTED. THE DISCREPANCY BETWEEN THE ACTUAL VALIDITY REGION OF THE WAVE EQUATION AND THAT EMPLOYED IN THE VOLTERRA METHOD IS ANALYZED.

UNCLASSIFIED

1/2 012

UNCLASSIFIED

PROCESSING DATE—20NOV70

TITLE—SYNTHESIS OF SORBIC ACID FROM KETENE AND CROTONALDEHYDE. VIII.
THERMAL ISOMERIZATION OF A POLYESTER OF 3-HYDROXYHEXENOIC ACID AND ITS

AUTHOR—(C4)—PULYANSKIY, N.G., UTKIN, B.N., KOZCVA, G.YA., BALAKIN, V.S.

COUNTRY OF INFO—USSR

SOURCE—ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 1095-100

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—ISOMERIZATION, POLYESTER RESIN, DEPOLYMERIZATION, CARBOXYLIC ACID

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—3004/1955

STEP NO—UR/0080/70/043/005/1095/1100

CIRC ACCESSION NO—AP0132216

UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--A0132216

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPOLYMN. OF THE TITLE
POLYESTER (H. G. POLYANSKII ET AL., 1966) OVER NaOH, KOH, OR Ba(OH) SUB2
AT SIMILAR TO 180DEGREES GAVE GREATER THAN OR EQUAL TO 69PERCENT
TRANS-TRANS-ISCHEMER OF MECH:CHCH:CHCO SUB2 H (I). THE REACTION MIXT.
ALSO CONTAINED ACCH, PIPERYLENE, ACETONE, CROTONALDEHYDE, AND CO SUB2.
AL SUB2 O SUB3, NA SUB2 SO SUB4, OR K SUB3 (FE(CN) SUB6) WERE NOT ACTIVE
AS THE CATALYSTS.

UNCLASSIFIED

1/2 012

TITLE--SYNTHESIS DE

UNCLASSIFIED

USSR

UDC: 621.373.421

~~IRUKIN~~ G. M., KHRUNOV, A. V., Moscow Power Engineering Institute

"Frequency Stabilization of a Self-Excited Microwave Oscillator"

Moscow, Pribory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 150-152

Abstract: The paper describes a self-excited microwave oscillator in which frequency stability is improved by using a narrow-band filter connected in the external feedback circuit of the microwave amplifier. While several types of oscillators use high-Q resonators for frequency stabilization, the proposed system differs in that the stabilizing cavity is a bridge device containing a gas with resonance absorption. With the proper tuning, this bridge device becomes a band filter whose average frequency and passband depend on the parameters of the absorption line of the gas.

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USSR

UDC: 621.373.072.6(088.8)

UTKIN, G. M., KHRYUNOV, A. V., Moscow Power Engineering Institute

"A Self-Excited Oscillator"

USSR Author's Certificate No 278775, filed 30 Jun 69, published 26 Nov 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D349 P)

Translation: A self-excited oscillator is proposed which contains an amplifier with an additional two-channel filter connected in series with the band filter in the positive feedback circuit. To improve the frequency stability of the self-excited oscillations, one of the channels of the additional filter consists of an absorbing cell (e. g. filled with ammonia) connected in series with an attenuator, while the other channel is made up of a phase shifter connected in series with an attenuator. V. P.

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172 031

TITLE--THEORY OF SELF EXCITED OSCILLATORS WITH A THREE DIMENSIONAL
STRUCTURE -U-
AUTHOR--LTKIN, G.M. UNCLASSIFIED PROCESSING DATE--20NOV70

COUNTRY OF INFO--USSR

u

SOURCE--RAEIOTEKHNIKA I ELEKTRONIKA, VOL. 15, APR. 1970, P. 741-749.
DATE PUBLISHED--APR70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS
TOPIC TAGS--TUNNEL DIODE, ELECTRONIC OSCILLATOR, STANDING WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1670

STEP NO--UR/0109/70/015/000/0741/0749

CIRC ACCESSION NO--AP0118648

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0118648

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DERIVATION OF SHORTENED EXPRESSIONS (IN THE APPROXIMATION OF SLOWLY VARYING STANDING WAVES) DESCRIBING SELF EXCITED OSCILLATORS CONSISTING OF A CAVITY CONTAINING DISTRIBUTED NONLINEARITIES SUCH AS TUNNEL DIODES, PARAMETRIC DIODES, AND A NONEQUILIBRIUM MEDIUM. ATTENTION IS GIVEN TO THE CONDITIONS FOR SELF EXCITATION AND STABILITY OF SINGLE MODE AND MULTIMODE OSCILLATIONS, THEIR ENERGY CAPABILITIES, AND THE INTERACTION OF ASYNCHRONOUS, MULTIPLE, AND COMBINATION FREQUENCIES. THE RESULTS DEMONSTRATE A STRONG INFLUENCE OF THE DISTRIBUTION OF MULTIPLE AND COMBINATION FREQUENCY OSCILLATIONS ON THE EXCITATION, EXISTENCE, AND SYNCHRONIZATION OF OSCILLATIONS IN AUTONOMOUS AND NONAUTONOMOUS REGIMES.

UNCLASSIFIED

-USSR

BORODOVSKIY, P. A., BULDYGIN, A. F., UTKIN, K. K.

UDC 621.373.58

"Series Operation of Gunn Diodes in a Coaxial Resonator"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 954-958

Abstract: An experimental study was made of the operation of two decimeter-band Gunn diodes manufactured from a single n-GaAs crystal included in series in a coaxial resonator with spacing between them much less than the wavelength of the generated oscillations. On series operation of the Gunn diodes, the output power is equal to the sum of the powers generated by these diodes on inclusion of them one at a time. With defined tuning of the coaxial resonator, nonsinusoidal microwave oscillations were observed the period of which was approximately equal to the drift time of the domains arising alternately in the series-connected Gunn diodes. Oscillograms of these oscillations are presented, and the amplitudes of the microwave oscillations are shown as functions of the resonator length and bias voltage. The nonsinusoidal nature of the oscillations at the microwave resonator output arises from the significant content of the harmonic corresponding to the drift frequency of the domain. On tuning the resonator, the amplitude of this harmonic changes which leads to variation of the shape of the oscillations observed at the resonator output. Excitation of the subharmonic oscillations in the resonator is facilitated as

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BORODOVSKIY, P. A., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV,
No 8, 1972, pp 954-958

a result of the external negative resistance of the diode with the traveling domain and also the negative resistance at a frequency half the drift frequency of the domain as a result of the parametric effect. With appropriate selection of the microwave resonator and the degree of its coupling to the load it is possible to achieve effective series operation of Gunn diodes with noticeably different parameters at moderate bias voltages.

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- 99 -

AP0049429

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:
4R0363

104760a Compositional heterogeneity of calcium-vanadium-bismuth iron garnet single crystals. Utkin, N. I.; Ursulyuk, N. D.; Mikhail'chenkov, A. G.; Zuev, V. A. (USSR). 1970. Akad. Nauk SSSR, Neorg. Mater. 1970, 6(1), 104-7 (Russ).
 The reasons for the influence of the cooling rate of the melt on the compn. of Ca-V-Bi Fe garnet single crystals, and consequently, also on their properties, were investigated. To grow these garnet crystals that are homogeneous in compn., the crystn. must be carried out at melt cooling rates not > 1.5 degree/hr. This also increases the reproducibility of the compn. of the single crystals and improves the magnetic and ultrahigh-frequency properties.
 S. A. Mersol

REEL/FRA
19801267

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UTKIN, N. M., URSULYAK, D. N., MIKHAIL'CHENKOV, A. G., and SUZEV, V. A.
"Inhomogeneity of Composition of Single Crystals of Calcium-Vanadium-Bismuth
Ferrogarnet"

GDC 383.35:548.55

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 104-107

Abstract: It was demonstrated earlier that when growing single crystals of calcium-vanadium-bismuth ferrogarnet by the method of static spontaneous crystallization from solution in a melt of lead oxide, the cooling rate of the melt V_{cool} has an essential effect on the composition and on the most important parameter -- the ferromagnetic resonance band width $2\Delta H$. On decreasing the cooling rate, the molecular composition of the single crystals $(Bi_{1-x}Ca_x)_2(Fe_{1-x}V_x)O_{12}$ growing from charges of the same initial composition $(CaCO_3, 32.9 \text{ mole } \%; Fe_2O_3, 35.9 \text{ mole } \%; V_2O_5, 5.3 \text{ mole } \%; Bi_2O_3, 7.1 \text{ mole } \%; \text{ and } PbO, 13.8 \text{ mole } \%)$ varies toward an increase in the content of calcium and vanadium which for $V_{cool} \approx 1.5 \text{ deg/hour}$ reaches the limit. The results of these investigations are tabulated. The established nature of the dependence of saturation magnetization $4\pi M_s$ and $2\Delta H$ on the composition of the calcium-vanadium-bismuth ferrogarnet agrees with the earlier results. However, for single crystals of $Bi_{1-x}Ca_xV_xFe_{1-x}O_{12}$ grown at $V_{cool} < 1.5 \text{ deg/hour}$, a continuing drop in the value of $2\Delta H$

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UTKIN, N. N., et al, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 104-107
with a decrease in their crystallization rate is characteristic. This law is also observed for single crystals of constant composition obtained from various initial charges.

In order to discover the causes of the effect of the cooling rate of the melt on the composition of single crystals of calcium-vanadium-bismuth ferrogarnet and, consequently, their properties, some samples were subjected to microradiography using the electron probe microanalyzer JXA-3A. It was discovered that in order to grow single crystals of calcium-vanadium-bismuth ferrogarnet with a homogeneous composition, the crystallization process must be carried out with melt cooling rates of no more than 1.5 deg/hour. This also promotes improved reproducibility of the single crystal composition and improved magnetic and super-high-frequency properties. It is pointed out that the more homogeneous composition arises from the fact that the diffusion processes and convection fluxes insure a favorable ratio of ferrite-forming components in the layer of the melt near the surface of the growing single crystals.

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- 51 -

UTKIN, O. B.
STANDBY

MFA

697037
ACCESSNR: 17200074
FILMNR: F072/003250/002
CLASSIF: 1
DOWNGRAD: 1
TEXT:
AUTHOR: UTKIN, O. B.
NACHAPEJAN, L. A.
ZAKHAROV, V. P.

BABAYAN, E. A.
DMORYAKOVSKIY, V. A.
SANEK, X. Y.
TEXT EXCLUDED

702763
ACCESSNR: A02029247
FILMNR: F072/000350/003
CLASSIF: 0
DOWNGRAD: 0
TEXT:

ATTACHED
ENCLOSURE

MFA

TITLE: CHEMILUMINESCENCE ASSOCIATED WITH LIPID PEROXYL FORMATION IN
BIOLOGICAL MEMBRANES VI EFFECT OF CARCINOGENIC HYDROCARBONS ON
LUMINESCENCE AND ACCUMULATION OF PEROXIDES IN MITOCHONDRIA -U-
AUTHOR: IAKHELICHYAN, E. YE. UTKIN, O. B. / OLEG BORISOVICH
VLADIMIROV, YU. A.

TOPIC TAGS: -OX- CHEMILUMINESCENCE, LIPID, ORGANIC PEROXIDE, FREE
RADICAL, CELL MEMBRANE, ALDEHYDE, CARCINOGEN, HYDROCARBON, IRON,
MITOCHONDRIA, PHOSPHATE, POTASSIUM CHLORIDE, ETHYL ALCOHOL
SOURCE: UR 0217/71/016/005/0045-0992 SOURCE: RUSFIZIKA 1971 16<5>

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TRANS/AVAIL: COVER TO COVER TRANSLATION
OFFLINE ADDRESS/DATE
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LINES: 100 1/17/00

UDC 669.721.018.9(088.8)

USSR

RYABUKHOV, S. I., KIMSTACH, G. M., PIRYAZEV, V. P., UTKIN, S. Ye., and
MAYBORODA, M. V.

"Device for Production of Magnesium Alloy"

USSR Author's Certificate No 268450, Filed 3G/12/66, Published 8/09/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G189 P)

Translation: A device suggested for the production of an Mg alloy includes an induction furnace with a rotating mechanism and a mold. To decrease the expenditure of Mg and improve the properties of the alloy, the device is equipped with a replaceable mold, hermetically placed on the crucible of the induction furnace. A steel plate which is melted during the process of melting the alloy is placed between the induction furnace and the mold in order to decrease the free surface over the melt and eliminate cold surfaces which would condense the Mg from its vapors.

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USSR

UDC 669.71.018.9.4(088.8)

KIMSTACH, G. M., KORYAKIN, G. I., UTKIN, S. Ye., SOTNIKOVA, A. T.,
YEFIMOVA, A. Ya., and PROTALOV, V. M.

"Method of Refining Aluminum Alloys"

USSR Author's Certificate No. 265451, Filed 8/07/68, Published 23/06/70,
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract
No.1 G159 P).

Translation: In order to achieve simultaneous removal of gas inclusions
and nonmetallic impurities and to increase the effectiveness of refining,
the alloy is treated with hexachloroethane with a layer of liquid
refining flux on the surface of the bath.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--PREPARATION OF REFINED SECONDARY ALUMINUM ALLOYS IN A MACHINE
CONSTRUCTION SHOP -U-
AUTHOR-(05)-KIMSTACH, G.M., UTKIN, S.YE., ZHELEZNVAKOV, L.R., KORYAKIN,
G.I., YEFIMOVA, A.YA. u
COUNTRY OF INFO--USSR
SOURCE--LETEINOE PROIZVOD. 1970, (1), 10-11
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALUMINUM ALLOY, SECONDARY METAL, MAGNETIC SEPARATION, METAL
REFINING, TECHNICAL STANDARD/(U)AL4 ALUMINUM ALLOY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1380 STEP NO--UR/0128/70/000/001/0010/0011
CIRC ACCESSION NO--AP0116829
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116829

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ALLOYS WERE PREPD, FROM AL TURNINGS (GRADE AL4) IN 2 STAGES: PRELIMINARY TREATMENT AND REMELTING. THE PRELIMINARY TREATMENT CONSISTED IN SEPN. FROM DIRT ON SCREENS, DRYING IN DRUMS AT 300-50DEGREES, AND MAGNETIC SEPN. FROM IRON IMPURITIES. THEN THE TURNINGS WERE REMELTED IN AN INDUCTION CRUCIBLE FURNACE. AT 740DEGREES, 1.5PERCENT FLUX (KCL 47, NA CL 30, AND NA SUB3 AIF SUB6 23WT.PERCENT) WAS ADDED, AFTER MELTING OF WHICH C SUB2 CL SUB6 WAS ADDED (IN 0.1PERCENT AMTS. FOR A TOTAL AMT. 0.7-0.8PERCENT). BEFORE TAPPING LIQ. FLUX (KCL 47.5, NA CL 47.5, AND NA SUB3 AIF SUB6 5 WT.PERCENT) IN THE AMT. 2.5PERCENT OF THE METAL WAS ADDED INTO THE LADLE. THE RESULTING MIXING DURING POURING RESULTED IN EFFICIENT REFINING FROM IMPURITIES AND GASES, SO THAT THE RESULTING METAL CORRESPONDED TO GOST STDS. FOR THE ORIGINAL AL4 METAL AND CONTAINED GASES 0.10-0.12 CM PRIME3-100G WITH COMPLETELY PORE FREE TEXTURE. AUTOMOBILE CYLINDER BLOCKS CAST WITH THE ADDN. OF 20PERCENT OF THIS SECONDARY METAL WERE OF THE SAME QUALITY AS THOSE CAST FROM 100PERCENT PRIMARY ALLOY AL4.

UNCLASSIFIED

USSR

UDC: 62-55

YEMEL'YANOV, S. V., UTKIN, V. I., ITKIS, Yu. F., and LEYBOVICH, A. V.

"Centralized Control of a Combination of Dynamic Objects"

USSR Author's Certificate No. 282479, filed 10 Sept 68, published 17 Feb 71 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No. 12, 1971, Abstract No. 12A153P)

Translation: The invention may be used in automatic control of a combination of dynamic objects with varying characteristics: for example, for simultaneous control of the temperature in several zones of multisectional heaters and seasoning ovens. The known method of centralized control of a combination of dynamic objects uses a central regulator of the relay type which is, in turn, connected to each of the controlled objects. In this method, however, the sequence of connections of the controlled objects to the central regulator is inefficient from the viewpoint of rapid action. The proposed method differs in that, at each moment of time, control is exerted only over those objects in which a comparison signal (formed from a signal representing the difference between the object and the derivatives of the signal or the inner coordinates of the object replacing them) has the greatest value of
1/2

USSR

UDC: 62-55

YEMEL'YANOV, S. V., et al, USSR Author's Certificate No. 282479

corresponding comparison signals for the other objects. This permits increasing the speed of action of the system.

2/2

- 31 -

USSR

UDC 62-50

YEMEL'YANOV, S.V.; UTKIN, V.I.; TARIN, V.A.; KOSTYL'NVA, N.Ye.; SHUBLADZE, A.M.; YEZEROV, V.B.; DUBROVSKIY, Ye.N.

"Theory of Systems with Variable Structure" (book)

Teoriya Sistem s Peremennoy Strukturoy [English version above], Moscow, Nauka Press, 1970, 592 pp

Annotation: This book presents a new division in the theory of automatic control -- the theory of systems with variable structure (VSS) belonging to the class of nonlinear automatic control systems. A broad range of problems is covered. The problems of control of objects with constant and variable parameters in the mode of free motion and with external perturbing forces are studied. Considerable attention is given to solution of the problem of stability of the systems in question. Methods are suggested for controlling objects with many controlled quantities. Methods are presented for synthesis of adaptive systems with variable, simple solutions. The capabilities of methods

1/9

USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

from the theory of systems with variable structure with incomplete information on the state of the system are studied. Problems related to the application of variable structure systems in problems of filtration are analyzed; a qualitative comparison of linear optimal filters and filters with variable structure is presented.

181 figures; 137 biblio. refs.

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USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

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USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

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USSR

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USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

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USSR

UDC 629.783.014.525(47)

BALAYEV, N. F., GRODZOVSKIY, G. I., DANILOV, Yu. I., ZAKHAROV, V. M.,
KRAVTSEV, N. F., KUZ'MIN, R. N., MAROV, M. Ya., MOROZOV, P. M.,
NIKITIN, V. Ye., PEROV, S. P., PETUNIN, A. N., UTKIN, V. M., and
SHVIDKOVSKIY, Ye. G.

"Scientific Data on the Flight of Automatic Ionospheric "Yantar"
Laboratories"

Uch. zap. Tsentr. Aerogidrodinam. in-ta (Scientific Notes of the
Central Aerohydrodynamic Institute) 1971, Vol 2, No 2, pp 58-65
(from Referativnyy Zhurnal, Raketostroyeniye, No 11, Nov 71,
Abstract 11.41.87 Resune)

Abstract: Launches of automatic ionospheric "Yantar" laboratories
with gaseous plasma-ionic engines up to 100-400 km altitudes were
conducted with the aid of geophysical rockets, for the purpose of
studying prospects of controlled flight, in upper layers of the
atmosphere. Performance of gaseous plasma-ionic engines under iono-
spheric conditions was studied. Parameters characterising the
ion jet-ionospheric plasma interaction, as well as parameters of
neutral atmosphere were measured. Scientific data on conducted ex-
periments is presented. 8 figures, 1 table, 11 references.

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SECOND SERIES DRUGS IN THE TREATMENT OF PATIENTS WITH CHRONIC
DESTRUCTIVE PULMONARY TUBERCULOSIS -U-
AUTHOR-(03)-FEDOROVA, I.YE., UTKIN, V.V., RUDDY, N.M.
COUNTRY OF INFO--USSR
SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 136-138
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TUBERCULOSIS, LUNG, ANTITUBERCULAR DRUG, CHEMOTHERAPY, DRUG
RESISTANCE
CENTRCL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1597 STEP NO--UR/0475/70/000/004/0136/0138
CIRC ACCESSION NO--AP0127088
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127088

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE USE OF SECOND SERIES DRUGS (ETHIONAMIDE, CYCLOSERINE AND OTH.) INCREASED THE EFFICIENCY OF CHEMOTHERAPY OF CHRONIC DESTRUCTIVE TUBERCULOSIS IN CASE OF BACTERIOLOGICAL OR CLINICAL RESISTANCE TO THE MAIN DRUGS. SIDE EFFECTS WITH SECOND SERIES PREPARATIONS WERE OBSERVED IN 50.3PERCENT OF CASES, INCLUDING 16PERCENT OF UNCONTROLLED SIDE EFFECTS. THE PRESENCE OF GASTROINTESTINAL PATHOLOGY WORSENS THE TOLERANCE OF ETHIONAMIDE. RESISTANCE OF TUBERCULOUS MYOBACTERIA TO ETHIONAMIDE WAS SEEN IN 26.7PERCENT, TO CYCLOSERINE, IN 5.8PERCENT. FACILITY: TSENTRAL'NYI INSTITUT TUBERKULEZA.

USSR

UDC 621.391.833.44:621.317.757(088.8)

u
MAKHORIN, YE. G., SKVORTSOV, V. S., LITKIN, YU. I.

"Analyzer of the State of an Exchange Network by Discrete Relations"

USSR Author's Certificate No 218209, Filed 20 Mar 67, Published 26 Jan 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D31P)

Translation: An analyzer containing a circuit for recording received signals with a "third" solution is proposed. In order to decrease the probability of false isolation of a "network busy" signal in the presence of noise at the analyzer input, the output of the recording circuit with a "third" solution is connected via the channel to the input of the counter which counts the number of distorted characters. The output of this counter is connected via the coincidence circuit to the output of the device and, simultaneously, it is connected via the forbidden circuit, a waiting time delay line and a delay line amounting to the time of entry into synchronism, to the unlocking input of the gate and to the input of the analysis time delay line. The output of the latter is connected simultaneously to the blocking input of the gate, the clearing input of the counter, the second input of the comparison circuit and the recording input of the forbidden circuit. The starting input of the device is connected to the input of the delay line for the time of entry into synchronism.

1/1

USSR

UDC: 621.372.061

BELOZEROV, Yu. S., UTKIN, Yu. S.

"On Analysis of a Nonlinear Two-Loop System for Phase Automatic Frequency Control"

Tr. Gor'kov. politekhn. in-ta (Works of the Gor'kiy Polytechnical Institute), 1970, 26, No 7, pp 26-31 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A101)

Translation: Transient and steady-state conditions are investigated in a two-loop phase automatic frequency control system with nonlinear amplifier in the "memory" loop. An error signal is sent to the input of the "memory" loop from the phase AFC loop through a second amplifier. The law is found for the change in frequency of the tuned oscillator under the effect of the "memory" loop in nonlinear and linear modes of operation. Two illustrations, bibliography of two titles. N. S.

1/1

USSR

UDC 338.247:621.318.1

FROLOV, G. I., and UTKIN, YU. V., Institute of Physics imeni L. V. Kirenskiy, Siberian Department of Academy of Sciences USSR

"Effect of Temperature on Dynamic Characteristics of Single-Crystal Ferrite Films"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 36, No 6, 1972, pp 1178-1180

Abstract: The article describes results of a study of pulsed magnetization reversal in single-crystal manganese ferrite films in the -180 to $+200^{\circ}$ C temperature range. It was found that a change in the temperature from -180 to $+200^{\circ}$ C decreases the magnetization reversal time by more than an order of magnitude in both the easy and the hard direction. The article considers the effect of temperature on threshold remagnetization fields and the resultant redistribution of the contribution of various remagnetization mechanisms.

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1/2 017 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--POSSIBLE USE OF SODIUM, CALCIUM, AND COPPER, II CHLORIDES IN THE
PRODUCTION OF COPPER, I CHLORIDE -U-
AUTHOR--(03)-UTKINA, I.N., KUNIN, T.I., SHUTOV, A.A. *u*
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(3), 437-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SODIUM, CALCIUM, CHEMICAL PRODUCTION, COPPER CHLORIDE,
SOLUBILITY, THERMAL EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0622 STEP NO--UR/0153/70/013/003/0437/0439
CIRC ACCESSION NO--AT0137707
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--04DEC70

DIRC ACCESSION NO--AT0137707

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. IN G-L. OF CUCL IN A SOLN. CONTG. 100 G NA₂CO₃-L. IS 25 AT 25DEGREES AND 70 AT 95DEGREES; IN A SOLN. CONTG. 300 G NA₂CO₃-L. THESE VALUES ARE 225 AND 350. SIMILARLY, IN A SOLN. CONTG. 100 G CaCl₂ SUB2-L., THE VALUES ARE 25 AND 60 G-L., AND IN 500 G CaCl₂ SUB2-L., THEY ARE 345 AND 430 G CUCL-L. CONSEQUENTLY, BECAUSE OF THE LARGE DIFFERENTIAL IN THIS TEMP. RANGE, NA₂CO₃ AND CaCl₂ SUB2 MAY BE USEFULLY APPLIED IN THE PRODN. OF CUCL. HOWEVER, FOR SOLNS. CONTG. 200-600 G CUCL SUB2-L., THE INCREASE IN SOLY. OF CUCL IS ONLY 20-23 G-L. ON INCREASING THE TEMP. FROM 25 TO 95DEGREES.
FACILITY: IVANOV. KHIM.-TEKHNOLOG. INST., IVANOVO, USSR.

UNCLASSIFIED

USSR

DUBNISHCHEV, Yu. N., LOKHMATOV, A. I., KOSHCHHEYEV, L. N., STOLPOVSKIY, A. A.,
UTKIN, Ye. N.

UDC: 621.373:535.06 (1)

"Measuring the Linear Velocity of Motion of a Body by Using the Optical Doppler Effect"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

Abstract: Shown in the figure is a diagram of a device developed at the Institute of Automation and Electrometry of the Academy of Sciences of the USSR, Siberian Department, for using the Doppler shift of light to measure local linear velocity. The device uses a cadmium laser on $0.44 \mu\text{m}$ with 5 mW of output power. A light beam from the laser 1 operating in the fundamental mode passes through iris 2 and is incident on beam splitter 3. One of the split beams passes through iris 4 and is focused by lens 5 onto the surface of disc 6 whose local linear velocity is to be measured. The disc revolves with angular velocity ω . The second split beam is focused by an identical lens 7 onto the surface of a polished glass plate 8 which reflects it through the same lens back to a photodividing plate where it acts as a reference beam, recombining with the signal beam scattered by

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USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

disc 6. The signal and reference beams are trimmed by iris 9 and interfere on the cathode of photomultiplier 10. The Doppler difference frequency from the load of this tube is sent through high-frequency filter 11 and clipper amplifier 12 to a tracking filter made up of phase detector 13, low-frequency filter 14, DC amplifier 15 and frequency-controlled oscillator 16. The signal from the oscillator is sent to spectrum analyzer 17 and digital frequency meter 18. The readings of the meter are proportional to the linear velocity of the disc in the region where the incident beam is focused. The Doppler spectrum of the signal can be analyzed on the spectrum analyzer. The proposed device has an accuracy of 0.2% and can be used for noncontact measurement of the linear velocity of mechanical motion in rolling mills, paper-making machines, etc.

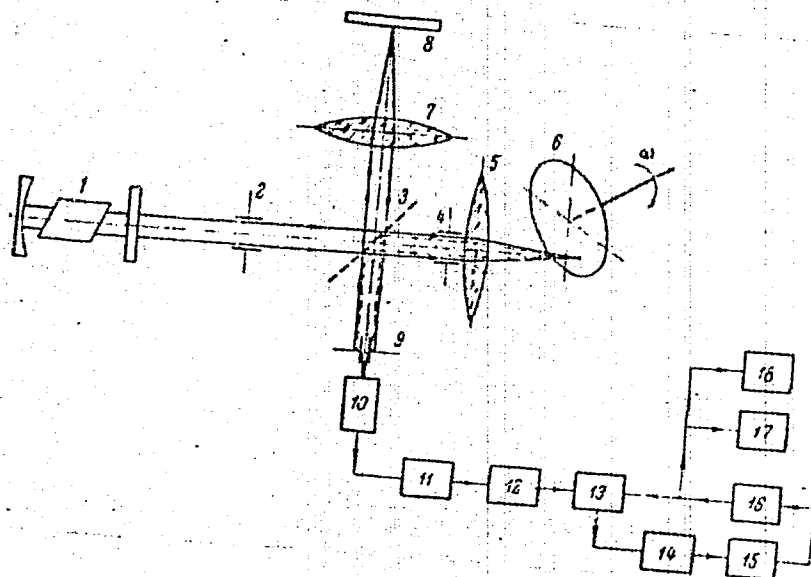
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USSR

DUBNISHCHEV, Yu. N. et al., Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 587-588

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USSR

UDC 546.45*226-162.32:542.336

VASIL'YEV, V. G., YERSHOVA, Z. V., UTKINA, O. N., and CHEBOTAREV, N. T.

"Dehydration of Beryllium Sulfate Tetrahydrate"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, Vyp 3, 1972, pp 625-630

Abstract: The mechanics of the dehydration of $\text{BeSO}_4 \cdot 4\text{H}_2\text{O}$ were followed at temperatures of 25 - 340°C and pressures of 1 - 760 torr by thermogravimetry, x-ray, and differential thermal analysis. The hydrated salt can lose one, two, three, or four of the water molecules resulting in the formation of the tri-, di-, monohydrate, or anhydride, respectively. Solid solutions such as $\text{BeSO}_4 \cdot \text{H}_2\text{O} + \text{BeSO}_4$ were present under certain conditions. The structure of the tri- and tetrahydrate changes for the di- and monohydrate impeding the overall dehydration reaction. The heats of dehydration for the reactions $\text{BeSO}_4 \cdot 4\text{H}_2\text{O} \longrightarrow \text{BeSO}_4 \cdot 2\text{H}_2\text{O}$; $\text{BeSO}_4 \cdot 4\text{H}_2\text{O} \longrightarrow \text{BeSO}_4 \cdot 3\text{H}_2\text{O}$; and $\text{BeSO}_4 \cdot 4\text{H}_2\text{O} \longrightarrow \text{BeSO}_4 \cdot \text{H}_2\text{O}$ are equal to 25.8, 13.5, and 15.0 kcal/mole respectively.

1/2

USSR

VASIL'YEV, V. G., et al., Zhurnal Neorganicheskoy Khimii, Vol 17, Vyp 3,
1972, pp 625-630

Energies of activation for the same reactions are 8.6, 15.0, and 18.4 and
kcal/mole as determined from thermogravimetry and 9.0, 14.0, and 19.5 kcal/
mole as determined from differential thermal analysis.

2/2

USSR

UDC: 669.71.053.21

LEONT'YEV, L. I., MATYASH, V. G., DAVYDOV, A. D., KASHIN, V. V., UTKOV,
V. A., IVANOVA, S. V.

"Reducibility of Highly Basic Bauxite Sinters"

Vosstanovimost' Vysokoosnovnykh Boksitovykh Aglomeratov [English version above], Sverdlovsk, 1973, 9 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G155DEP, by the authors).

Translation: The extraction of moist limestone from blast furnace charges significantly improves the technical and economic indicators of the blast furnace process. The possibility is demonstrated of producing a bauxite sinter with basicity 6.0, allowing complete elimination of limestone in the process of blast furnace melting of bauxites, in order to produce a slag which can be used for the production of Al_2O_3 . The peculiarities of the reduction of the sinter of various compositions under equilibrium and kinetic conditions are studied. Reduction of bauxite sinter with basicity 1.3-6.0 under kinetic and equilibrium conditions has shown that as the basicity increases, reducibility improves. This agrees with the nature of the change of phase composition of sinters: as basicity increases, the content of difficultly reducible

1/2

USSR

Leont'yev, L. I., Matyash, V. G., Davydov, A. D., Kashin, V. V. Utkov, V. A.,
Ivanova, S. V., Vosstanovimost' Vysokoosnovnykh Boksitovykh Aglomeratov,
Sverdlovsk, 1973, 9 pp. (2)

hercynite decreases, while the share of more easily reducible ferrites and
aluminoferrites of Ca increases.

2/2

- 90 -

USSR

UDC: 669.71.046.44

UTKOV, V. A., DAVYDOV, A. D., KASHIN, V. V.

"Strength of Highly Basic Bauxite Sinter"

Prochnost' Vysokoosnovnogo Boksitovogo Aglomerata [English version above], Sverdlovsk, 1973, 14 pp (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G152DEP, by the authors).

Translation: The mechanical properties of sinters of various basicities produced from bauxite with grain sizes 0-10 mm are studied. The minimum of strength with basicity 1.7-1.8, characteristic for ordinary iron ore sinter, is not discovered in bauxite sinter. The strength properties are rather high throughout the entire range of basicity studied, from 1 to 6. As phase analysis shows, there is practically no bicalcium silicate in the bauxite sinters. Bauxite sinters are very slightly damaged during heating and reduction. The influence of storage conditions on the strength of highly basic bauxite sinter is studied.

1/1

USSR

UDC 669.71.48

MILLER, V. YA., IVANOV, A. I., UTKOV, V. A.

"Agglomeration of Finely Dispersed Moist Clay Material"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSR (Works of the Metallurgy Institute. Urals Branch of the USSR Academy of Sciences), 1970, vyp. 22, pp 92-95 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G194)

Translation: Agglomeration of red sludge is possible if its moisture content is less than 26%. Drying (to 14-17% moisture) can be realized by hot return. During agglomeration the red sludge is close to iron hydroxide ores (fine limonite, brown chromite, and ocherous ores). The agglomerates are distinguished by high reducibility, sufficient strength, and resistance to deterioration with a 35-40% content of return and 5-6% coke. There are 4 tables and an 8-entry bibliography.

1/1

USSR

UDC 669.295.046.44

UTKOV, V. A., KUDINOV, B. Z., YAKOVLEV, V. A., TRUNOV, G. Z., KASHIN, V. V.,
REMPER', P. S.

"Dilatometry of Titanium-Vanadium Agglomerate"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSSR (Works of the Institute of
Metallurgy. Urals Branch of the USSR Academy of Sciences), 1970, vyp. 22,
pp 140-142 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G228)

Translation: The compositional and grain size characteristics of Kachkanarskiy
concentrates determine its capacity for agglomeration. The ore has a high
Fe content and low SiO₂ content. The ore composition is the following (in %):
Fe 59.9, FeO 26.0, SiO₂ 5.4, TaO 2.0, V₂O₅ 0.66, TiO₂ 3.3, MgO 2.6, S 0.004.
The content of fractions in the concentrate is as follows (in %): +0.1 mm
23.3, +0.074 mm 15.7, -0.074 mm 61. This arises from the necessity for fine
crushing of the ore. The temperature level of the sintering process is raised
as a result of less development of the low-melting phases based on Ca, Si, and
Fe oxides and also as a result of the presence of Ti and V oxides. The
agglomerate is inclined toward crack formation as a result of internal stresses
arising during cooling of the formed and hardened mass. There are 2 tables.

1/1

1/2 011

TITLE--PHASE COMPOSITION AND STRENGTH OF HIGHLY BASIC MANGANESE SINTERS
UNCLASSIFIED PROCESSING DATE--18SEP70
-U-

AUTHOR--(03)-UTKOV, V.A., MOLEVA, N.G., MILLER, V.YA.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL 1970, (1), 3-6

DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--SINTER, MANGANESE, IRON ORE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0169

STEP NO--UR/0370/70/000/001/0003/0006

CIRC ACCESSION NO--AP0054965

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054965
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE COMPN. OF MN CONC. AND ORE WAS
FE 2.4 AND 3.1, MN 26.7 AND 19.3, CAO 8.0 AND 0.4, SID SUB2 15.8 AND
19.6, MGO 2.4 AND 2.2, AL SUB2 0 SUB3 2.0 AND 4.4PERCENT, RESP.
EIGHT, 10, KG SINTERS WERE PREPD. IN CRUCIBLES. HIGHLY BASIC SINTERS WITH
STRENGTH COMPARABLE TO THOSE FROM FE ORE WERE PREPD. BY THE ADDN. OF FE
ORE. THE BINDING PHASES IN THE HIGHLY BASIC LOW FE AND HIGH FE SINTERS
WERE HAUSMANNITE AND CA FERRITE, RESP.

UNCLASSIFIED

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UNCLASSIFIED
TITLE--SULFUR VULCANIZATION OF RUBBERS -U- PROCESSING DATE--13NOV70
AUTHOR--(05)-BLOKH, G.A., UTLENKO, YE.V., YUTILOV, YU.M., NAZMEYEV, A.A.,
KISINA, L.I. u
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 263,133
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZITSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--SULFUR, -VULCANIZATION, RUBBER, BENZIMIDAZOLE, CHEMICAL PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1477 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0128876
UNCLASSIFIED

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CIRC ACCESSION NO--AA0128876

UNCLASSIFIED

PROCESSING DATE--13NOV70

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

ABSTRACT: SULFUR VULCANIZATION OF RUBBERS
WAS AIDED BY THE INTRODUCTION OF 0.1-5 WT. PERCENT BENZIMICAZOLINE
ACCELERATORS (I) (K EQUALS ALKYL, ARYL, ARYLOXY, ALLYL, FURYL,
FURYLALKYLENE).

UNCLASSIFIED

USSR

UDC: 621.396.6-181.48

MAL'TO, V. I., SHADURSKIY, G. P., KAYBANOV, S. G., UPLIK, A. P., RYSEVETS,
V. A.

"Organization of Preventive Inspection of Photorepeaters"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, pp 99-100 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V264)

Translation: A structure is proposed for the organization of services in an enterprise for carrying out preventive maintenance on photorepeaters. Resumé.

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USSR

u UDC 621.791.85

ZUYEV, I. V., RYKALIN, N. N., and UTLOV, A. A., Moscow

"Estimating the Critical Specific Power of Electron Beam Welding of Metals with Dagger Fusion"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 3-7

Abstract: The critical power density at which dagger fusion begins is estimated. It is shown that the volumetric power density is a more exact energy characteristic under the effect of an electron beam. The surface power density depends in this case on the magnitude of the accelerating voltage. Relations are obtained for estimating the critical parameters of the electron beam effect.

The critical volumetric power of electron beam welding with dagger fusion is calculated for certain metals. The results presented are compared with the BAS calculations of the power and specific power density for a number of metals. The estimates show that the critical specific volumetric power for a given material is a constant, is independent of the accelerating voltage, and is determined only by the thermophysical and mechanical properties of the material. Increasing the volumetric power density or the surface power density above the critical value leads to a decrease in the energy accumulation time. It is noted that in actual cases where welding is carried out with a power density of 10^6 - 10^7 watts/cm², the energy accumulation time for all materials is $\sim 10^{-6}$ - 10^{-5} seconds. According to the tabulated
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ZUYEV, I. V., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70,
pp 3-7

data, such materials as tungsten, copper, and gold require 10-20 times more power
to obtain dagger fusion than stainless steel or titanium.

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USSR

+ 2
UDC 621.317.755

UTOCHKIN, B. A., RODNOV, YU. V., GLUPOVA, O. A.

"High-Sensitivity High-Speed Oscillograph Based on a Traveling Wave Tube With Rigid Beam Focusing"

Moscow, Tr. 7-y Konferentsii po yadern. elektron. (Works of the Seventh Conference of Nuclear Electronics), Atomizdat, 1969, Vol 2, Part 1, pp 60-73 (from RZh-Radiotekhnika, No 4, 1970, Abstract No 4A366)

Translation: The described oscillograph (O) is intended for measuring in the field of nuclear radio-electronics. There are no input assemblies. Signals are fed directly onto the matched input of the deflecting system. The focusing system consists of a triplet of magnetic, quadripole lenses. A detailed description is given of the following: the basic circuits of the O-channel for vertical deflection, system for focusing and deflecting, and the triggering and scanning generator circuits. The characteristics of O are given. The particular design characteristics for O are given: the presence of a double layer magnetic screen, the use of lenses for observing the screen and other details.
1/1 Orig. art.: seven ill., nine bibl. entries. N.S.

USSR

MINAYEV, YU. A., GRIGORYAN, V. A., and UTOCHKIN, YU. I., Moscow
Institute of Steel and Alloys

"Mechanism of Removal of Deoxidation Products From Liquid Steel"

Moscow, IVUZ Chernaya Metallurgiya, No 3, 1971., pp 48-51.

Abstract: The mechanism of coagulation and removal of deoxidation products from liquid steel is studied. The essence of the method is as follows: the relative movement of particles may result from adsorption phenomena related to local concentration heterogeneities. When there is a concentration gradient in a sufficiently dilute solution, uneven adsorption occurs along the surface of a non-metallic particle. This results in a surface tension gradient along the particle-metal division boundary, resulting in turn in mechanical movement of the non-metallic inclusion. Calculations show that for particles measuring 1-25 μ , orthokinetic coagulation is most probable under the influence of surface forces. It is assumed that these nonmetallic inclusions are enlarged by this mechanism in local volumes of metal, then float upward under the influence of the force of gravity.

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USSR

UDC 681.3.06:51

KLIMENKO, Yu. V., ~~UTROBIN~~, I. S.

"Automatic Output of Information to a Graph"

Uch. zap. Perm. Un-t [Scientific Writings of Perm' University], No 220, 1970, pp 182-186, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V621 by I. Brodskaya).

Translation: It is suggested that a standard EPP-09 strip chart recorder be used to output information from the "Aragats" machine to a graph. The information output from the machine register through a corresponding circuit is fed to a code-voltage convertor. The output of the convertor carries a voltage which moves the carriage of the strip chart recorder. Graph output is not simultaneous with machine operation. An m-point strip chart recorder allows up to m curves, corrected to a single argument to be output simultaneously. Graph output is 20 times slower than printer output.

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UTROBINA, I. K.

IDC 669.017

EFFECT OF ULTRASONIC VIBRATIONS ON THE BLOCK STRUCTURE OF COPPER

Article by Ye. G. Ayzenson, I. K. Utrobina, Perm State University, Metal Physics Department; Moscow, Institut Vysokikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 1, 1972, submitted 20 October 1970. Pp 122-124

It has been established [1] that in some polycrystalline samples, including copper, on treatment with ultrasonic sound, new dislocations are generated, and their density increases with an increase in the amplitude of the ultrasonic vibrations. The threshold amplitude beginning with which new dislocations are generated decreases with an increase in the experimental temperature. A significant increase in the dislocation density can lead to the formation of new interblock boundaries during alignment of the dislocations in the walls. The correctness of this proposition is seen in the results of reference [2]. It is demonstrated that in 1Kh18N9T austenitic steel formed by ultrasound at 1,000 degrees, the dislocation density increases, and the sonic field, on the contrary, can lead to consolidation of the blocks.

In order to investigate the effect of ultrasound on the block structure of metals, we performed an x-ray study of the dimensions of the block structure herent dispersion of technical copper subjected to ultrasonic vibrations in different temperature ranges. The copper samples of wave length 10 mm in diameter annealed at 400 degrees for 2 hours were subjected to ultrasound by the procedure described in reference [3] with amplitudes of 3, 6, 10 and 15 microns for 10, 15, 30, 60 and 120 minutes in pools with temperatures of 20, 150 and 300 degrees.

A study was made of the cross sections of the samples corresponding to the locations of maximum ultrasonic stresses. These cross sections were polished and electrolytically pickled in concentrated H₃PO₄ to a depth of 0.3 mm in order to remove the surface work-hardened layer occurring during polishing.

X-rays were taken on the UR5-501 diffractometer in copper emission. The x-ray of the stationary samples on film showed that the interference lines are nonuniformly darkened. This indicates the presence in the samples of regions

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9 May 70

USSR

Transformation and Structure

UDC 669.14.018.8:621.789.2

AYZENTSON, YE. G., GREVNOV, L. M., and UTROBINA, I. K., Perm' State University

"Effect of Ultrasonic Machining at 1000° C on the Fine Structure of 1Khk8N9T Austenite Steel"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 2, 1970, pp 114-117

Abstract: An investigation was made of specimens of 1Kh18N9T austenite steel ultrasonically machined at 1000° C for 20 min. In the process of sonication standing waves with amplitude of 3, 5, 10, and 15 mkm were produced in specimens at the place of maximum migration. In sections of specimens corresponding to areas of maximum ultrasonic stresses, the following were observed: a) under the effect of ultrasound, equiaxial mosaic structures were produced, whose dimensions (in comparison with control specimens) were larger in the direction $\langle 111 \rangle$ and smaller in the direction $\langle 200 \rangle$; b) characteristic temperature did not change; c) static distortions with tendency to increased saturation; d) the austenite lattice constant decreased. The

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USSR

AYZENTSON, YE. G., et al., Izvestiya Vysshikh Uchevnykh
Zavedeniy -- Chernaya Metallurgiya, No 2, 1970, pp 114-117

observed effects are explained by the development of a dis-
location structure in steel under the effect of ultrasound.

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Microelectronics

USSR

UDC: 621.382.8:317

BORISOV, K. G., Engineer, SITNIKOV, L. S., Doctor of Technical Sciences,
JTYAKOV, L. L., Candidate of Technical Sciences

"New Possibilities for Constructing Universal Count Decades Based on Inte-
grated Circuitry".

Moscow, Pribory i Sistemy Upravleniya, No 4, Apr 72, pp 28-29

Abstract: The article deals with synthesis of universal decades with pulse-position data representation based on integrated circuitry (chiefly transistor-transistor logic). Some of the possibilities for increasing the degree of large-scale integration are also considered. A schematic diagram of the pulse-position decade is given and its operation is de-
scribed.

USSR

IVANOV, G. A., SITNIKOV, L. S., TOKOVENKO, S. Ye., UTYAKOV, L. L.

UDC: 681.325.5

"A Frequency Subtractor"

USSR Author's Certificate No 292234, filed 6 Oct 69, published 2 Mar 71
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct
71, Abstract No 10B369 P)

Translation: Frequency subtractors are known which contain a storage element and a transistorized switch. The proposed device is distinguished from conventional units by the fact that it contains a comparator, a resistive divider in the collector of the transistor, and a diode, and the storage element is made as a capacitive accumulator circuit whose output is connected through the diode to the collector of the transistorized switch and through the comparator to the centertap of the resistive divider. This improves the operational reliability of the device and simplifies it. One illustration.

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USSR

UDC: 621.374.5(088.8)

VOLKOGON, V. P., SITNIKOV, L. S., UTYAKOV, L. L.

"A Wide Pulse Shaper"

USSR Author's Certificate No 265185, filed 4 Mar 68, published 17 Jun 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G264 P)

Translation: The proposed transistorized wide pulse shaper utilizes the effect of charge accumulation in PN junctions. The device contains a saturated shaping stage with a transistor switch as a controlling leakage resistance, and a matching emitter follower. To reduce the duration of the trailing edge of the shaped pulses, the output of the emitter follower is connected through a differential network to the base of the switching transistor.

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USSR

UDC: 621.317.755

SITNIKOV, L. S., TOKOVENKO, S. Ye., UTYAKOV, L. L., YAKOVLEV, V. T.

"A Time-Mark Generator for a Cathode-Ray Oscilloscope"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 4, Feb 71, Author's Certificate No 292243, Division H, filed 20 Jan 69, published 6 Jan 71, pp 150-151

Translation: This Author's Certificate introduces a time-mark generator for a cathode ray oscilloscope. The device contains a pulse light source, a shaper, series-connected capacitor storage counters with two inputs, a source of stable-frequency signals and a selector switch. As a distinguishing feature of the patent, in order to simplify the device, connected to one of the inputs of the capacitor storage counters is a series circuit comprised of a synchronizing pulse oscillator and reference phase pulse oscillator. The output of this last pulse oscillator is connected through the selector to a coincidence module whose second input is connected through the selector switch to the outputs of the capacitor storage counters, and the output of the coincidence module is connected to the shaper.

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USSR

UDC: 621.314.26

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BABAK, O. V., BIGUN, Ya. F., BOLOTOV, B. V., SITNIKOV, L. S., UTYAKOV, L. L.,
KHOMOVNENKO, M. G., Institute of Electrodynamics, Academy of Sciences of
the UkrSSR

"A Pulse Frequency Divider"

USSR Author's Certificate No 251000, filed 20 May 68, published 30 Jan 70
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11,
Nov 70, Abstract No 11A183 P)

Translation: This Author's Certificate introduces a pulse frequency divider based on a storage core made of a ferromagnetic material with rectangular hysteresis loop. To insure the possibility of regulating the division coefficient, the storage core with its windings is placed between the poles of a core of magnetically hard material. The control winding of this second core is connected to a key coincidence gate through a pulse shaper circuit. A pulse with fixed amplitude and duration is fed to the input of the magnetic divider. Before arrival of the first pulse, the core of the divider is in a state of negative magnetization and the shaper transistor is in the cutoff state. The first and each subsequent pulse increase the level of magnetization of the core up to the saturation point. When this happens, the tran-

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sistor is switched to the active state and it shapes an output pulse. The circuit then returns to the initial state. The division coefficient of the frequency divider can be varied by changing the magnetization of the magnetically hard core, thus changing the hysteresis loop of the core with rectangular characteristics. One illustration. N. S.

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USSR

UTYAMYSEV, R., Candidate of Technical Sciences, Director, All-Union Scientific Research Institute of Surgical Equipment and Tools

"A Policy Directed Toward New Equipment"

Moscow, Sotsialisticheskaya Industriye, 24 Nov 71, p 2

Abstract: Modern scientific and technical progress, especially in the areas of radio electronics, engineering cybernetics, chemistry of polymers, precision instrument building and automation, optics, mathematics, and nonferrous metallurgy, has profoundly influenced medicine. Achievements of the Soviet medical industry are too numerous to mention, but the anesthesia and anesthesia-respiratory units, surgical suturing devices, and artificial blood circulation units are well-known. One question that arises is what particular sector of the national economy should be producing the various types of equipment, and it will be necessary here to delineate the areas of specialization of the medical industry and utilize the facilities of various other sectors which primarily produce nonmedical articles. A major problem at this point, which should be looked after by the Ministry of Health with assistance from the Ministry of Instrument Building, Automation, and Control Systems, is building analytic instruments, especially for analyzing the action of yeasts.

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