

GORODETSKAYA, Ye.G. [Horodets'ka, E.H.]; SIDEL'NIKOV, V.M. [Sydel'nykov, V.M.]

Hormone therapy in rheumatic fever in children. Ped., akush. i gin.
23 no.4:33 '61. (MIRA 17:1)

GORODETSKIY, A. A.

Gordetskiy, A. A. and Slonim, I Ya. "On the methodology of postoperative exposure to light in cases of cancer of the mammary glands," Vracheb. delo, 1949, No. 3, paragraphs 211-14.

SO: U3736, 21 May 53, (Letopis 'Zhurnal 'nykh Stroy, No. 18, 1949).

TIMOFEYEVSKIY, A.D.; GORODETSKIY, A.A., professor; CHALAYA, M., mladshiy nauchnyy sotrudnik.

Studies of the comparative effects of X rays on normal and neoplastic human tissue explants following single and repeated exposures.
Vest.rent.i rad. no.6:15-22 N-D '53. (MLRA 7:1)

1. Iz otdela eksperimental'noy tsitologii (zaveduyushchiy - deystvital'nyy chlen Akademii meditsinskikh nauk SSSR A.D.Timofeyevskiy) i otdela eksperimental'noy rentgenologii (zaveduyushchiy - professor A.A.Gorodetskiy) Instituta eksperimental'noy biologii im. akademika A.A.Bogomol'tsa (direktor - professor O.A.Bogomolets) Ministerstva zdravookhraneniya USSR.
(X rays--Physiological effect)

GORODETS'KIY, O.O.

Radiotherapy of metastases of cancer. Med. zh., Kiev 23 no.5:48-53
1953. (CML 25:5)

1. Institute of Physiology imeni A. A. Bogomolets of the Academy of
Sciences Ukrainian SSR.

GORODETSKY, A. A.

LUNG

The distribution of radioactive phosphorus in normal rabbits and in rabbits with transplanted carcinoma. A. A. Gorodetski and B. H. Chebunov. *Yuzhik Vestnik* 4, *Radiol.* 1954, No. 3, 7-11. — Normal rabbits were injected with 45 microcuries per kg. of $\text{NaH}_2\text{PO}_4\text{-P}^{32}$ and sacrificed 24 hrs. later. The highest concn. of P^{32} was found in the thigh bone, followed by backbone, liver, kidney, lung, heart, spleen, muscle, blood, and brain. Brown-Pierce carcinoma was transplanted intramuscularly into rabbits, and 10-2 months later $\text{NaH}_2\text{PO}_4\text{-P}^{32}$ was injected. Normal rabbits of the same wt., injected with $\text{NaH}_2\text{PO}_4\text{-P}^{32}$, were used as controls. The distribution of radioactivity was measured in live rabbits by means of a probe 10-12 days after the administration of radiophosphate. In normal live rabbits significant differences in the concn. of P^{32} was noted in various parts of the skin. In live rabbits with carcinoma the greatest concn. of P^{32} was in the tumor 24 hrs. and in the skull 3-4 days after the administration of P^{32} , decreasing thereafter more rapidly in the soft tissues than in the tumor. On autopsy, the greatest concn. of P^{32} was in the tumor, being 4-5 times that of the soft tissues, and even higher than in the bones of the normal rabbits. The liver and kidney metastases accumulated more P^{32} than the parenchyma of the same tissues, although the P^{32} concn. in metastases of various organs was not the same. Rabbits with Brown-Pierce carcinoma contd. more P^{32} in the spleen than in the kidneys. The reverse was true for normal rabbits. P^{32} can be used for location of surface tumors and their metastases in intact animals. J. A. Stekel

GORODETSKIY, A.A.

"Biological Effect on Ionizing and Penetrating Radiation" p. 125, in the book Experience in the Use of Radioactive Isotopes in Medicine R. Ye. KAVETSKIY and I.T. SHEVCHENKO, published by the Gosmedizdat Publishing House of the UKRAINIAN SSR, KIEV 1955, represents medical transactions of a conference held in KIEV from 18-20 January 1954.

So: 1100235

GORODETS'KIY, O.O.

Effect of ionizing radiation on the organism. Medych.zhur.24
no.5:3-9 '54. (MLRA 8:10)

1. Institut fiziologii im. O.O. Bogomol'tsya Akademii nauk
URSR, laboratoriya biofiziki.
(RADIATIONS, effects,
ionizing radiations, on organism)

GORODETSKIY, A. A.

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✓ Some data on the role of the nervous system in the development of radiation sickness. A. A. Gorodetskiy
 Vesnik Rentgenol. i Radiof. 1955, No. 6, p. 10. Phenazine
 introduced into rats in doses sufficient to produce a distinct
 stimulating effect leads to greatly increased severity of
 radiation sickness upon irradiation of the animals. At
 doses of 0.05 mg/kg. the drug tends to increase the duration
 of life of such irradiated animals, however. Introduction
 of the drug after irradiation does not produce any effects
 except for reduced regenerative function of the blood.
 External irradiation of animals with electrons from P^{32} or
 similar sources produces the general symptoms of radiation
 sickness, analogous to that caused by α -rays which were
 described in this work. G. M. Korolev

IRM

MMZ PM

Inst. Biophysic. Inst. Physiol. in. Boyoulets, AS USSR

GORODETSKIY, A. A.

"The Biological Effects of Nuclear Radiation and Measures for Protection Against This Radiation," a paper presented at the USSR Conference on the Application of Tracer Atom Methods in Chemistry of Complex Compounds, Kiev, 5-8 October 1955, described in an article by Z. A. Shek in Zhur. Neorgan. Khim., 1, No.2, 1956

GORODETSKIY, A.A.

Characteristic features of the course and outcome of acute radiation syndrome produced by general external and internal ionizing irradiation. Fiziolzhur. (Ukr.) 2 no.3:137-143 My-Je '56. (MLRA 9:10)

1. Institut fiziologii imeni O.O.Bogomol'tsya Akademii nauk URSS, laboratoriya biofiziki.
(RADIATION--TOXICOLOGY)

GORODETS'KIY, O.O.

Biological effect of nuclear radiation and methods for
protection against it. Visnyk AN URSR 27 no.7:12-18
Jl '56.

(MLRA 9:10)

(RADIATION--PHYSIOLOGICAL EFFECT)

GORODETS'KIY, O.O.

GORODETS'KIY, O.O.

Current problems in biophysics and prospects for expanding research
in this field. *Fiziol.zhur.[Ukr.]* 3 no.5:80-89 S-0 '57.

(MIRA 11:1)

1. Institut fiziologii im. O.O.Bogomol'tsya Akademii nauk URSR,
laboratoriya biofiziki.
(BIOPHYSICS)

LIPKAN, Nikolay Fedorovich; GORODETSKIY, A.A., prof., red.; LOKHMATYY, Ye.G., tekhnred.

[Elements of radiation biochemistry] Elementy radiatsionnoi biokhimi. Kiev, Gos.med.izd-vo USSR, 1958. 158 p.

(MIRA 14:6)

1. Chlen-korrespondent AN USSR (for Gorodetskiy).
(RADIOBIOLOGY)

UN 610
DU 4

GORODETSKIY, A.A.

Reflection of slow electrons from the surface of certain metals and
semiconductors. Radiotekh. i elektron. 3 no.3:345-354 Mr '58.
(Electrons) (MIRA 11:4)

GORODETSKIY, A.A. [Horodets'kyi, O.O.]

Effect of ionizing radiations on the animal organism. Fiziol.
zhur. Ukr. 4 no.5:711-712 S-0 '58 (MIRA 11:11)
(RADIATION—PHYSIOLOGICAL EFFECT)

GORODETSKIY, Aleksey Afanas'yevich, prof.; SIVACHENKO, Tamara Porfir'yevna;
KHOMUTOVSKIY, Otton Al'fredovich; RYABOVA, Era Zinov'yevna; CHEBO-
TAREV, Ye.Ye., red.; GITSHTEYN, A.D., tekhred.

[Excretion of some radioactive substances from the body] Vyvedenie
iz organizma nekotorykh radioaktivnykh veshchestv. Kiev, Gos.
med.izd-vo USSR, 1959. 199 p. (MIRA 13:3)

1. Chlen-korrespondent AN USSR (for Gorodetskiy).
(RADIOACTIVE SUBSTANCES--TOXICOLOGY)

Gorodetskiy, A.A.

The Radiation Effects on the Phosphorus (100) Isotopes in the Tissues of Rats
YSHEFBERG, D. G. and YERIKOV, D. A. Leningrad (New journal)
"11 supplement"

17 The Peculiarities of the Biological Effects of Radio-active Phosphorus
on the Organism
GORODEZKY, A. GORODETSKIY, A. A. Kiev (See previous)

118 Radiology in Obstetrics — Its Present and Future Position
MAYLAND, D. G. Sydney (Australia)

- 1. The reasons for the restricted use of X-ray in healthy pregnant
- 2. In certain clinical cases, radiological investigation is essential during the later stages of pregnancy
- 3. Fluoroscopy should be confined to the simplest technique and, in many cases, a single erect lateral film will provide sufficient information for the obstetrician.

Presented at the Ninth International Congress of Radiology, Munich, 23-30 July 1959.

ZELENSKIY, Nikolay Vasil'yevich [Zelens'kyi, M.V.]; GORODETSKIY,
O.O. [Horodets'kyi, O.O., otv.red.; BRAGINSKIY, L.P.
[Brahins'kyi, L.P.] red.izd-va; MANZHERAN, V., tekhn.red.

[The diffusion method of salting out proteins] Dyfuzne
vysoliuvannia bilkiv. Kyiv, Vyd-vo Akad.nauk URSR. 1959.
186 p. (MIRA 13:2)

1. Chlen-korrespondent AN USSR (for Gorodetskiy).
(Proteins)

SHEVCHENKO, I.T., prof., otv.red. (Kiyev); GORODETSKIY, A.A., prof., red.; ZARKEVICH, N.F., dotsent, red. (Kiyev); ZNACHKOVSKIY, N.G., starshiy nauchnyy sotrudnik, red. (Kiyev); IVANOV, V.N., akadenik, red. (Kiyev); KAVETSKIY, R.Ye., akademik, red. (Kiyev); POKROVSKIY, A.S., prof., red.; ARENDAREVSKIY, I.P., red.; LOKHMATYY, Ye.G., tekhred.

[Transactions of the Second Oncological Congress and the Third Congress of Radiologists of the Ukrainian S.S.R., Kiev, June 18-24, 1956] Trudy II s"ezda onkologov i III s"ezda rentgenologov i radiologov USSR, 18-24 iyunia 1956 g.g. Kiev, Gos.med.ind-vo USSR, 1959. 678 p. (MIRA 13:7)

1. S"yezd onkologov, 2nd. Kiyev, 1956. 2. Chlen-korrespondent AN USSR (for Gorodetskiy). 3. AN USSR (for Ivanov, Kavetakiy). (CANCER--CONGRESSES) (RADIOLOGY, MEDICAL--CONGRESSES)

GORODETSKIY, A.A., prof.

"Pathophysiology of acute radiation sickness." Reviewed by A.A.
Gorodetskii. Pat.fiziol. i eksp.terap. 3 no.4:94-95 J1-Ag '59.
(MIRA 12:12)

(RADIATION SICKNESS)

GRODETSKIY, A.A.; CHEBOTAREV, Ye.Ye.

Treatment of radiation sickness. Nov.khir.arkh. no.4:3-12
Jl-Ag '59. (MIRA 12:11)

1. Institut fiziologii in. A.A.Bogomol'tsa AN USSR i laboratoriya
biofiziki (rukovoditel' - chlen-korrespondent AN USSR A.A.Goro-
detskiy). Adres avtorov: Kiyev, ul.Bogomol'tsa, Institut fiziologii
in. akademika A.A.Bogomol'tsa.
(RADIATION SICKNESS)

GORODETSKIY, A.A. [Horodets'kiy, O.O.]

Scientific conference on problems in biophysics and the mechanism
of action of ionizing radiation. Fiziol. zhur. [Ukr.] 6 no.6:829-
830 N-D '60. (MIRA 14:1)

(RADIOBIOLOGY---CONGRESSES)

GORODETSKIY, A.A. [Horodets'kyi, O.O.]

"Radioactive substances in pharmacotherapeutics and diagnostics" by
A.F.Leshchinski. Reviewed by O.O.Horodets'kyi. Fiziol. zhur.
[Ukr.] 6 no.6:825-827 N-D '60. (MIRA, 14:1)
(RADIOISOTOPES—THERAPEUTIC USE) (LESHCHINSKII, A.F.)

GORODETSKIY, A.A.

Effect of antireticular cytotoxic serum on the course of radiation sickness caused by radioactive phosphorus. Med.rad. 4 no.11:59-62
N '59. (MIRA 13:2)

1. Iz Instituta fiziologii imeni A.A. Bogomol'tsa AN USSR i Kiyevskogo intituta usovershenstvovaniya vrachey.
(RADIATION INJURY experimental)
(ANTIRETICULAR CYTOTOXIC SERUM pharmacol.)
(PHOSPHORUS radioactive)

Research in the Field of
Biophysics and Radiation Biology

S/030/60/000/010/014/018
B021/B058

approved. and its working scope compared with that of the Commission of the Ministerstvo zdravookhraneniya USSR (Ministry of Health UkrSSR) was defined. The Conference showed the suitability of holding similar discussions jointly with the Institute of Biophysics of the Academy of Sciences USSR. The wish was expressed to convene in future symposia on individual problems, specially on the effects of ultrasonics, the method of biophysical studies, the effects of electromagnetic superhigh frequencies and the efficacy of preparations for radiation protection. ✓

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V. I. Mirutenko, on the influence of electromagnetic superhigh frequencies oscillations on the heat distribution in organs and cells; S. F. Gorodetskaya and I. M. Shur'yan, on the influence of superhigh frequencies on progeny, higher nerve function, the blood forming system; N. I. Kerova, on the influence of superhigh frequencies on the nucleic exchange; V. K. Tkach, on quantitative determination of the thermal destruction of proteins through decimeter radio waves by means of the resonance method; V. K. Tkach and V. V. Sidyakin, on using the method of monomolecular layers of proteins for determining the change of the properties of serum proteins under radiation influence; B. M. Mamotyuk, on using the polarographic method for determining low-molecular proteins; N. P. Kayushin, I. K. Kopashcheva and K. M. L'vov, on the method of magnetic nuclear resonance for producing free radicals in surviving tissues; V. K. Tkach and Yu. A. Petrenko, on measuring the rate of the propagation and absorption of ultrasonic vibrations in aqueous solutions of proteins. After the conclusion of the Conference, a coordination discussion was held in which the activity of the Commission for problems was

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S/O30/60/000/010/014/018
B021/B058

AUTHOR: Gorodetskiy, A. A., Corresponding Member AS UkrSSR

TITLE: Research in the Field of Biophysics and Radiation
Biology 19

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, No. 10, pp. 110 - 112

TEXT: The Institut biofiziki Akademii nauk Ukrainskoy SSR
(Institute of Biophysics of the Academy of Sciences of the Ukrainskaya
SSR), which is being established on the basis of the Laboratory of
Biophysics of the Institut fiziologii im. A. A. Bogomol'tsa
(Institute of Physiology imeni A. A. Bogomolets), starts its activities
in Kiyev. In order to determine the trend for its research, it was
considered suitable to compare research results of the Otdeleniye
biologicheskikh nauk Akademii nauk Ukrainskoy SSR (Department of
Biological Sciences of the Academy of Sciences of the Ukrainskaya
SSR) with the results of the Institut biofiziki Akademii nauk SSSR
(Institute of Biophysics of the Academy of Sciences USSR) and other

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Research in the Field of
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institutions active in this field. For this purpose a Conference on Problems of Biophysics and the Mode of Action of Ionizing Radiation was held by the a.m. Institutes and the Ukrainskoye respublikanskoye obshchestvo rentgenologov i radiologov (Ukrainian Republican Association of Roentgenologists and Radiologists) in Kiyev from June 21 to 24, 1960, and measures of combatting radiation damage were discussed. The following lectures were delivered: A. A. Gorodetskiy, on the efficiency of the inhibitors of chain oxidation processes for curing and prophylaxis of acute radiation diseases; A. M. Kuzin succeeded through radiation in separating a substance from plant leaves which inhibits cell division; A. V. Lebedinskiy and Yu. I. Moskalev, G. S. Strelin and Ye. M. Pil'shchik, A. F. Makarchenko, P. A. Vlasyuk, A. V. Monorat, D. M. Grodzinskiy and Ya. L. Shekhtman, on mechanisms of the development of cancerous growth after ionizing irradiation; B. R. Kirichinskiy, on dosimetry of ultrasonics at the irradiation of biological objects; S. S. D'yachenko, M. I. Gurevich and N. V. Il'chevich, on the influence of ultrasonics on blood pressure and breathing; N. F. Lipkan on high sensitivity of nucleic exchange to ultrasonics;

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GORODETSKIY, A.A. [Horodets'kiy, O.A.]; BARABOY, V.A.; CHERNETSKIY, V.P.
[Chernets'kiy, V.P.]

Therapeutic effect of gallic acid derivatives in acute radiation sickness. Dop. AN URSR no. 12:1635-1637 '60. (MIRA 14:1)

1. Institut fiziologii im.A.A. Bogomol'tsa i Institut organicheskoy khimii AN USSR. 2. Chlen-korrespondent AN USSR (for Gorodetskiy).

(Gallic acid) (Radiation protection)

GCRODEFSKIY, A.A. [Horodets'kiy, O.O.]; KIRICHINSKIY, B.R. [Kirychns'kiy,
B.R.]

Use of electronics in medicine and biology. Fiziol.zhur. 6 no.1:
139-141 Ja-F '60. (MIRA 13:5)

(ELECTRONICS IN MEDICINE)

GORDDETSKIY, A.A. [Horodets'kiy, O.O.]; KHOMUTOVSKIY, O.A. [Khomutova'kiy, O.A.]; OLEYNIKOVA, T.N. [Oleynykova, T.N.]; ANDRYUSHCHENKO, V.V.

Electron microscopic study of kidneys during acute radiation sickness produced by radioactive strontium. Fiziol. zhur. [Ukr.] 6 no.3:405-414 My-Je '60. (MIRA 13:7)

1. Institut fiziologii im. A.A. Bogomol'tsa AN USSR, laboratoriya biofiziki.

(KIDNEYS) (RADIATION SICKNESS)
(ELECTRON MICROSCOPY)

PHASE I BOOK EXPLOITATION SOV/5853

Gorodetskiy, Aleksey Afanas' yevich, Boris Romanovich Kirichinskiy, Nikolay Fedorovich Lipkan

Ocherki po radiobiologii (Essays on Radiobiology) Kiyev, Izd-vo AN UkrSSr, 1961. 219 p. 3000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainiskoy SSR. Institut fiziologii im. A. A. Bogomol' tsa.

Resp. Ed. : A. A. Gorodetskiy, Corresponding Member, Academy of Sciences UkrRSR; Ed. of Publishing House: L. P. Braginskiy; Tech. Ed. : A. A. Matveychuk.

PURPOSE: This book is intended for scientific workers, biologists, doctors, and biochemists.

Card 1/12

Essays on Radiobiology

SOV/5853

COVERAGE: Basic laws governing the action of ionization radiations on the living organism, problems of the dosimetry of ionization radiation, and methods of protection against ionization radiation are discussed. The book follows the seminar course on radiation biology at the Otdeleniye biologicheskikh nauk AN USSR (Department of Biological Sciences AS UkrSSR). No personalities are mentioned. There are 288 references: 175 Soviet, 42 English, 18 German, and 3 French.

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Fundamental Concepts of the Structure of Matter	5
Molecules and atoms	5

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GORODETSKIY, A.A. [Horodets'kiy, O.A.]; BARABOY, V.A.; CHERNETSKIY, V.P.
[Chernets'kiy, V.P.]

Protective action of certain inhibitors of chain oxidative
processes in acute radiation sickness. Dop. AN URSR no. 6:812-
815 '61. (MIRA 14:6)

1. Institut fiziologii im. A.A. Bogomol'tsa i Institut
organicheskoy khimii AN USSR. 2. Chlen-korrespondent
AN USSR (for Gorodetskiy).
(RADIATION PROTECTION)
(GALLIC ACID)

272400

30360

S/205/61/001/004/019/032
D298/D303

AUTHORS: Gorodetskiy, A. A., Karupu, V. Ya., Khomutovskiy,
O. A., Oleynikova, T. N., and Andryushchenko, V. V.

TITLE: Electronoscopic study of the lungs with chronic
radiation sickness induced by radioactive strontium

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 564-566

TEXT: In previous research the authors found that the administration of radioactive strontium in doses sufficient to cause acute radiation sickness induced changes in the lung tissue (hyperemia, hemorrhage, etc.) after 1 - 2 days (Ref. 1: Fiziol. zh., 6, 1960), and with chronic radiation sickness after 2 - 3 days (Ref. 2: Tez. dokl. nauchnoy konferentsii po probleme "Lechebnoye i diagnosticheskoye primeneniye radioaktivnykh izotopov (The Therapeutic and Diagnostic Use of Radioactive Isotopes)", Khar'kov, 1960). However, there were indications that submicroscopic lesions ensued much earlier. The present work was an attempt to check this. Tests were run on white rats. Sr⁸⁹ in the form of its chloride

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S/205/61/001/004/019/032
D298/D303

Electronoscopic study of...

salt was injected into the rat's abdominal cavity in a dose of 0.32 μ c/g. The animals were killed off at periods ranging from 1 hour to 108 days after irradiation, and slides were prepared from their organs examined under an ~~VEM-100~~ (UEM-100) electron microscope at magnifications of 1500 - 30,000. Only one hour after the administration of radioactive strontium, marked edema of the epithelial and endothelial cells and the connective tissue of the alveolar septa were noted. Particularly large vacuoles were distributed through the protoplasmatic plates of the endothelial and epithelial cells. The lesions affected all the strata of the alveolar septa, blood vessels, bronchi and the pleura. Dense dark granules appeared in the epithelial cells. The authors consider the changes in the membranes and connective tissue layers of the alveolar walls particularly noteworthy since they were of a marked dynamic nature, connected with the course of radiation sickness. In the early period of radiation sickness (1 - 7 days), the membranes become thickened, edematous, pultaceous and delaminated, while at later periods (40th, 90th and 108th days) they are densely packed. As radiation sickness develops, the layers of connective tissue thicken and

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S/205/61/001/004/019/032
D298/D303

Electronoscopic study of...

develop incorrectly orientated coarse fibers. Electronoscopic examination, therefore, reveals early changes in the cells and membranes of the lung tissue which, to a certain extent, explain the appearance of early hemorrhages in the lungs. The thickening and hardening of the membranes and connective tissue layers at later stages explains the deterioration in the gas metabolism in cases of chronic radiation sickness. There are 5 figures and 11 references: 5 Soviet-bloc and 6 non-Soviet-bloc. The reference to the English-language publication reads as follows: F. N. Low, Anat. Rec., 117, 241, 1953.

ASSOCIATION: Institut fiziologii im. A. A. Bogomol'tsa AN USSR (Institute of Physiology im. A. A. Bogomolets, AS UkrSSR), Kiyev

SUBMITTED: February 13, 1961

Card 3/3

4

30369

27.2400

S/205/61/001/005/005/005
D299/D304

AUTHORS: A.A. Gorodetskiy, V.A. Baraboy, and V.P. Chernetskiy

TITLE: The protective action of certain inhibitors of chain oxidation processes with acute radiation sickness

PERIODICAL: Radiobiologiya, v. 1, no. 4, 1961, 781 - 788

TEXT: One of the most promising ways of counteracting radiation afflictions is to break the chain reaction in one of its initial links. If modern conceptions of the mechanism of protective action are true, compounds capable of fixing active radicals and of lowering the tissues' redox potential will prove to be effective agents in the prophylaxis and treatment of radiation sickness. This applies especially to the group of inhibitors of chain oxidation processes, but the authors could find no published data on the advisability of using these preparations in cases of radiation sickness. Experiments were conducted with white mice and white rats injected intraabdominally with propyl gallate (a 0.75% solution in a phosphate buffer) 30 min before irradiation. Ir-

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X

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D299/D304

The protective action of ...

radiation was effected with an P⁶⁰Co (RUM-3) and an P⁶⁰Co (RUM-11) apparatus at intensities of 24.5 and 25.4 r/min. The mice were given a dose of 600 r and the rats a dose of 750 r. In its most effective dose of 60 mg/kg of body weight, propyl gallate increased the survival rate of the irradiated animals and extended the average life span of the irradiated mice to 19.6 days (8.8 days in the control series). The injection of propyl gallate also postponed the period of the height of clinical symptoms of acute radiation sickness from 6 - 10th day to 9 - 15th day after irradiation. A polarographic study was made of the action of propyl gallate on the activity of the blood serum proteins, especially the activity of the SH-groups. The inhibitor effect of propyl gallate was expressed in a sharp drop in the activity of the serum proteins' SH-groups which gave them a certain measure of protection against the destructive action of radiation. This also accounted for the more rapid restoration of this activity only 1 - 2 days after irradiation. The author then describes tests conducted with other inhibitors such as: gallic acid, methyl gallate, butyl gallate and sodium gallate. The comparative efficacy of these preparations can be seen from the following tables:

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X

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D299/D304

The protective action of ...

Preparation	No. of mice	No. of survivors	% of survivors	Mean life span (days)
Gallic acid	30	9	30.0	16.5
Methyl gallate	30	7	23.3	15.1
Propyl gallate	260	112	43.1	19.6
Butyl gallate	30	15	50.0	21.0
Sodium gallate	30	14	47.0	25.0
Control	100	2	2.0	8.8

The table shows that sodium gallate, propyl gallate and butyl gallate

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The protective action of ...

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D299/D304

are most promising anti-radiation preparations. There are 5 figures, 1 table and 24 references: 9 Soviet-bloc and 15 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: A.M. Siddiqi, A.L. Tappel, Arch. Biochem. and Biophys., 60, 91, 1956; A.L. Tappel, Food Res., 18, 560, 1953; Th.H. Pritchard, Inds Parfum., 9, 2, 51, 1954; D.B. Johnston, M.W. Foote, W.I. Rogers, J.E. Little, Antibiot. and Chemotherapy, 3, 183, 1953

ASSOCIATION: Institut fiziologii im. A.A. Bogomol'tsa (Institute of Physiology im. A.A. Bogomolets), Kiyev

SUBMITTED: January 7, 1961

Card 4/4

GORODETSKIY, A.A.; BARABOY, V.A.; CHERNETSKIY, V.P.

Protective effect of some inhibitors of chain oxidation processes
during acute radiation sickness. Radiobiologiya 1 no.5:781-788 '61.
(MIRA 14:11)

1. Institut fiziologii imeni A.A.Bogomol'tsa, Kiyev.
(RADIATION PROTECTION) (GALLIC ACID)

GORODETSKIY, A.A.; KARUPU, V.Ya.; KHOMUTOVSKIY, O.A.; OLEYNIKOVA, T.N.;
ANDRYUSHCHENKO, V.V.

Electron microscope examination of lungs in chronic radiation
sickness caused by radioactive strontium. Radiobiologiya 1
no.4:564-566 '61. (MIRA 17:2)

1. Institut fiziologii imeni A.A. Bogomol'tsa AN UkrSSR,
Kiyev.

GORODETSKIY, A.A. [Hprodets'kyi, O.O.]

A.A.Bogomolets's serum in the prophylaxis and therapy of radiation sickness. Fiziol. zhur. [Ukr.] 7 no.3:369-370 My-Je '61.
(MIRA 14:5)

1. Institut fiziologii im. A.A.Bogomol'tsa AN USSR, Kiyev.
(ANTIRETICULAR CYTOTOXIC SERUM) (RADIATION SICKNESS)

GORODETSKIY, A.A. [Horodets'kyi, A.A.]; BARABOY, V.A.

Chemoprophylaxis and chemotherapy of experimental acute radiation sickness. Fiziol. zhur. [Ukr.] 7 no.5:617-625 S-0 '61.

(MIRA 14:9)

1. Laboratory of Biophysics of the A.A.Bogomoletz Institute of Physiology of the Academy of Sciences of the Ukrainian S.S.R., Kiev.

(RADIATION SICKNESS)

(GALLIC ACID)

GORODETSKIY, A.A.; BARABOY, V.A. (Kiyev)

Effect of ascorbic acid on the protective and therapeutic
action of gallates in acute radiation sickness. Vrach. delo
no.2:96-98 F '62. (MIRA 15:3)

1. Laboratoriya biofiziki instituta fiziologii imeni A.A.
Bogomol'tsa AN USSR.

(GALLATES) (ASCORBIC ACID) (RADIATION SICKNESS)

PHASE I BOOK EXPLOITATION

SOV/6550

Gorodetskiy, A. A., and V. A. Baraboy

Protivoluchevyye svoystva gallatov; eksperimental'noye issledovaniye
(Antiradiation Properties of Gallates; an Experimental Study)
Kiev, Izd-vo AN USSR, 1963. 125 p. 2000 copies printed.

Ed.: A. A. Gorodetskiy, Corresponding Member, Academy of Sciences
UkrSSR, Professor; Ed.: Z. B. Yankovskaya; Tech. Ed.: A. M. Lisovets.

PURPOSE: The book is intended for radiobiologists and other specialists in
medicine who are working on radiation protection problems.

COVERAGE: The monograph summarizes the original research carried out by the
authors and includes data on the therapeutic properties, pharmacology, and
toxicology of gallates. It has been established that injection of gallates
into the test animals prior to their exposure to LD of radiation insures
50% survival. The most important properties of gallates consist in their
ability to significantly reduce radiation effects in the organism even
after their application during 2 — 4 hours following irradiation. There
are 348 references, mostly non-Soviet.

Card-1/3

Gorodetskiy, A. F.

L 16607-62

Pb-4 A/AR/K

IWT(m)/BDS/ES(a)/ES(j)/ES(c)/ES(k)

AFPTC/AMD/ASD/A7MDC/APCG
S/238/63/009/002/001/003

68

AUTHORS:

Gorodetskiy, O. D., and Baraboy, V. A.

TITLE:

Prevention and treatment of acute radiation sickness in dogs by means
of sodium gallate 19

PERIODICAL:

Fiziologichnyy zhurnal Akademii nauk UkrSSR, v. 9, No. 2, 1963,
240-244.

TEXT: The problem was generated by the possibility of using gallates to prevent the reaction to radiation after-effects with the additional advantage of their low toxicity. It was shown in experiments on 17 dogs that the intravenous administration of 60 mg/kg of body weight of sodium gallate solution before and 200 and 300 mg/kg of body weight directly after exposure to as much as 600 r dose of radiation weakens substantially the seriousness of radiation sickness. Such dose aids the survival of about half of the experimental animals and prolongs the life of those animals which die by 6-10 days. This confirms the data of previous investigators in experiments with small animals, it is proposed to clinically test sodium gallate as an antiradiation sickness drug.

ASSOCIATION: Laboratoriya biofiziki Instytutu fiziologii im. N. S. Bohomoletsya Akademii nauk URSR, (Biophysics Laboratory of the Physiology Institute im. N. S. Bohomolets, Academy of Sciences of the Ukrainiskaya SSR), Kiev

SUBMITTED: September 3, 1962

Card 1/1

GORODETSKIY, Aleksey Afanas'yevich, prof.; PEL'KIS, Petr Solomonovich,
doktor khim. nauk, prof.; RYABOVA, Era Zinov'yevna; DUBENKO,
Roza Grigor'yevna; YANKOVSKAYA, Z.B., red.

[Radiation-protective properties of arylamides and
arylhydrazides of thiocarboxylic acids] Protivoluchevye
svoistva arilamidov i arilgidrazidov tiokarbonovykh kislot.
Kiev, "Naukova dumka," 1964. 110 p. (MIRA 17:8)

1. Chlen-korrespondent AN Ukr.SSR (for Gorodetskiy).

GORODETSKIY, A.A.; BARABAY, V.A.

Review of E.F. Romantsev's book "Radiation and chemical defense."
Med. rad. 9 no.1:82-87 Ja '64. (MIRA 17:9)

1. 11/25/55 ENG(j)/ZWT(m) GS
ATLOC 8044

Author: Propetskiy, A. A., Dubenko, B. G.

Title: Derivatives of diarylthiocarbonylurea
anti-sickness

Source: *Meditsina, eksperimental'naya* 11: 10-11, 1964
Experimental prevention of motion sickness
Moscow, Izd-vo Meditsina, 1964

TOPIC TAGS: diarylthiocarbonylurea

The authors have synthesized a series of derivatives of diarylthiocarbonylurea and tested them for anti-sickness activity. It was found that the best results were obtained with the compound 1,1-diphenyl-2-thiocarbonylurea. The authors also tested the effect of these compounds on the activity of the vestibular apparatus and the results are discussed. The authors also tested the effect of these compounds on the activity of the vestibular apparatus and the results are discussed.

Card 4/4

L 41615-65

ACCESSION NR: AT5008044

...-4-(4-oxo-1-phenyl-1H-imidazol-2-yl)-thioacetamide
...-4-(4-oxo-1-phenyl-1H-imidazol-2-yl)-thioacetamide
...-4-(4-oxo-1-phenyl-1H-imidazol-2-yl)-thioacetamide
...-4-(4-oxo-1-phenyl-1H-imidazol-2-yl)-thioacetamide
...-4-(4-oxo-1-phenyl-1H-imidazol-2-yl)-thioacetamide
...-4-(4-oxo-1-phenyl-1H-imidazol-2-yl)-thioacetamide
art. nos: 5 figures, 3 tables, 8 formulas

ASSOCIATION: none

SUBMITTED: 19Aug64

ENCL: 00

SUB CODE: LS,CC

NO REF SOV: 000

OTHER: 000

Card 2/2

L 02174-66 BWF(m) FV

ACC NR: AR60L4530

(N)

SOURCE CODE: UR/0081/65/000/019/H044/H044

AUTHORS: Gorodetskiy, A. A.; Dubenko, R. G.; Pel'kis, P. S.; Ryabova, E. Z. 36TITLE: Derivatives of diarylthiocarbohydrazide¹ in the prophylactic treatment of acute radiation sickness B

SOURCE: Ref. zh. Khimiya, Abs. 19Zh156

REF SOURCE: Sb. Patogenez, eksperim. profilaktika i terapiya kachevykh porazheniy. M., Meditsina, 1964, 179-192

TOPIC TAGS: radiation sickness, x-ray irradiation, antiradiation drug, hydrazine compound, toxicity

ABSTRACT: A series of substituted 1,5-diphenylthiocarbohydrazides of general structure $(ArNHNH)_2CS$ { Ia-s, where a, Ar = 2,4-(CH₃)₂C₆H₃; b, Ar = 2,5-(CH₃)₂C₆H₃; c, Ar = 3,4-(CH₃)₂C₆H₃; d, Ar = 4-iso-C₃H₇C₆H₄; e, Ar = 3-CH₃OC₆H₄; f, Ar = 4-C₂H₅OC₆H₄; g, Ar = 2-C₂H₅OC₆H₄; h, Ar = 2-CH₃SC₆H₄; i, Ar = 4-H₂NSO₂C₆H₄; j, Ar = 4-[(2-ethyl-1,3,4-thiadiazolyl-5)-aminosulfonyl]-phenyl; k, Ar = 4-[(4,6-dimethylpyrimidyl-2-aminosulfonyl)-phenyl; l, Ar = 4-NaO₃SC₆H₄; m, Ar = 2-ClC₆H₄; n, Ar = 3-ClC₆H₄; o, Ar = 2-IC₆H₄; p, Ar = 4-IC₆H₄; q, Ar = 2,4-(Cl)₂C₆H₃; r, Ar =

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L 42174-66

ACC NR: AR6014530

2,4-(Br)₂C₆H₃; s, Ar = 4-COOHC₆H₄} was synthesized and studied for its antiradiation activity. Ia-s are able to form intramolecular compounds with cations of heavy metals, possess reductive properties, and, depending upon the pH of the medium, react in either thiono- or thiolo- form. Ia-s can be synthesized according to 3 methods: by reaction of corresponding hydrazines with CS₂, by the nitroformazil method, and by reaction of hydrazines with CSCI₂. The first method was found most convenient; a series of compounds was obtained in good yield by the second method. Those reported are: compound, yield %, melting point, C: a, 29, 163--164; b, 23, 148--149; c, 24, 141; d, 70, 110--111; e, 51, 142--143; f, 34, 151--152; g, 45, 169--170; h, 54, 142--143; i, 95, 186; j, 75, 211--212; k, 55, 175; l, 95, 305; m, 69, 112--113; n, 74, 142--143; o, 83, 128; p, 54, 157; q, 33, 129; r, 44, 134; s, 69, 193--194. The highest protective activity upon irradiation of animals with x-rays in lethal doses was exhibited by Il, disodium salt of Is, Ii, and disodium salt of (3-OH-4-COOHC₆H₄NH)₂CS (II). The most active preparations Il and II are toxic.

V. Saval'yev [Translation of abstract]

SUB CODE: 07, 06

ms
Card 2/2

GORODETSKIY, A.A., red.; YANKOVSKAYA, Z.B., red.

[Biological effect of neutron irradiation] Biologicheskoe
deistvie neutronnogo izlucheniia. Kiev, Naukova dumka,
1965. 102 p. (MIRA 18:5)

1. Akademiya nauk URSR, Kiev. Instytut fiziologii. 2. Chlen-
korrespondent AN Ukr.SSR (for Gorodetskiy).

SHRAMENKO, Aleksandra Ivanovna; GORODETSKIY, A.A., red.

[Treatment of cancerous diseases with enclosed radioactive preparations] Lechenie rakovykh zabolevani zakrytymi radioaktivnymi preparatami. Kiev, Zdorov'ia, 1965. 183 p.
(MIRA 18:3)

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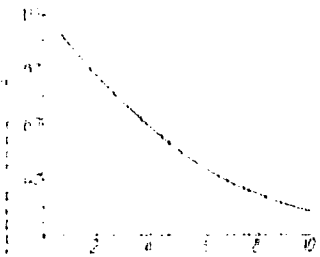
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radiation background was 15%. The duration and intensity of radiation was the same for all three groups. However, the first group of rats was irradiated in containers which allowed complete freedom of movement. The second group was irradiated in containers in which the axis of the body was parallel to the direction of the longitudinal axis of the container.

Card

1. Introduction

2. Experimental Methods



3. Results and Discussion

4. Conclusions

in rat phantoms in different po-
sitions.

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L 32940-66 EEC(k)-2/EWT(1)/EWP(k)/FBD/T SCTB/IJP(c) WH/WG/DD
ACC NR: AT6022252 SOURCE CODE: UR/0000/66/000/000/0003/0004

AUTHOR: Gorodetskiy, A. A.; Kirichinskiy, B. P.; Yevdokimov, I. R.;
Kolesnik, V. M. G
B+1

ORG: none

TITLE: The biological effect and dosimetry of ruby laser radiation ¹⁵₂₅

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio.
22d, 1966. Sektsiya kvantovoy elektroniki. Doklady. Moscow, 1966, 3-4

TOPIC TAGS: laser, ruby laser, laser effect, laser beam

ABSTRACT: A study was made of the biological effects (thermal, electrical, photo-chemical, and mechanical) produced by a ruby laser emitting an energy of one joule with a 5-usec pulse. The biological effect can be studied by measuring the energy of the laser emission absorbed by the irradiated object. The absorbed energy can be measured by using calorimetric, chemical, and photographic methods. Photometry makes possible simple and convenient evaluations of the absorption and reflection of laser radiation by biological objects. The photographic method can be used to study the absorption by different objects (blood, blood plasma, skin, muscular tissues, different organs and tissues of the animal organism, biological media) and to study the effect of

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L 32940-66

ACC NR: AT6022262

pigment coloration on the magnitude of the absorbed radiation energy. The effect of scattered and focused laser radiation on different biological objects, particularly the effect of focused beams on specimens of human and animal blood, was investigated. The elastic (ultrasonic) oscillations appearing under the effect of laser radiation in solid bodies, liquids, and various biological media were also investigated. The duration of the ultrasonic pulses, which were observed by means of a piezoelectric detector, was somewhat longer than the duration of laser pulses. The fundamental component of the ultrasonic pulse corresponds to the frequency range of 40 to 50 Kc. The ultrasonic pulse lags in comparison with the laser pulse by the time required for the propagation of elastic oscillations in the irradiated object. [JA]

SUB CODE: 20/ SUBM DATE: 11Apr66/ ATD PRESS: 5028

Card 2/2 *YLL*

ACC NR: AM5001716

Monograph

URV

Gorodetskiy, Aleksey Afanas'yevich; Pel'kis, Petr Solomnovich; Ryabova Era
Zinov'yevna; Dubenko, Roza Grigor'yevna

Antiradiation properties of aryl amides and aryl hydrazides of thiocarbonic acids
(Protivoluchevyye svoystva arilamidov i arilgidrazidov tiokarbonovykh kislot)
Kiev, Izd-vo "Naukova dumka," 1964. 110 p. illus., biblio. 1600 copies printed.
(At head of title: Akademiya nauk Ukrainskoy SSR. Institut fiziologii im.
A. A. Bogomol'tsa. Institut organicheskoy khimii)

TOPIC TAGS: antiradiation drug, radiation protection, amide, hydrazide, pharmacology

PURPOSE AND COVERAGE: This monograph is the result of searches for and tests of new antiradiation substances. A series of substituted aryl amides and aryl hydrazides of thiocarboxylic acids were synthesized and investigated. The compounds of this series are reducing agents, capable of forming various inner complexes, and also, depending on pH, can exist in the thion or thiol form. Various symmetrical and unsymmetrical derivatives of thiocarbonyl, 1, 5-diphenylthiocarbonylhydrazide, were also synthesized and biologically investigated. Thirty-six newly synthesized substances were subjected to biological testing of their prophylactic properties. Together with investigations of the effect of the synthesized preparations on the clinical course and result of radiation injuries, the toxicological and pharmacological properties of the most effective

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ACC NR: AM5001716

substances were studied, and also the distribution of the compounds, means and rate of their elimination from the organism. The monograph is intended for radiobiologists, synthetic chemists, biologists, and doctors.

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Ch. II. Derivatives of thiocarbanilide and their prophylactic antiradiation action — 22
Ch. III. Substituted 1, 5-diphenylthiocarbohydrazides and their antiradiation effect — 53
Ch. Iv. Elimination of cesium-134 from the organism under the influence of 1, 5-diphenylthiocarbazone and 1, 5-diphenylthiocarbohydrazide derivatives — 94
Conclusion — 101
Bibliography — 106 [13]

SUB CODE: 07/ SUBM DATE: 13Mar64/ SOV REF: 064/ OTH REF: 134/

Card 2/2

GORODETSKIY, A.B. (Moskva)

Examination of some typical magnetic amplifier feedback circuits.
Avtom.i telem. 17 no.2:147-159 F '56. (MIRA 9:7)
(Magnetic amplifiers)

8(6), 14(6)
AUTHORS:

SOV/143-58-11-10/16
Gokhsteyn, D.P., Doctor of Technical Sciences, Profes-
sor, Verkhivker, G.P., Engineer, Gorodetskiy, A.E.,
Engineer

TITLE:

The Problem of Expanding Existing Power Plants

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Energetika,
1958, Nr 11, pp 71-78 (USSR)

ABSTRACT:

The rapid increase of installed capacities in thermal power plants during the sixth Five-Year Plan and during the following years necessitates an expansion of the existing high and medium pressure power plants. In addition the construction of new power plants with increased and super-high steam pressures is required. Steam superimposing (parovaya nadstroyka) and gas turbine extension (gazoturbinnaya pristroyka) may be used for expanding existing thermal power plants. Under "steam superimposing" the authors understand an additional cycle connected to the basic operation cycle of a thermal power plant. The waste heat of this additional cycle is used for obtaining superheated, or,

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The Problem of Expanding Existing Power Plants

dry, saturated steam. It is assumed that the superheating of steam for the installation to be superimposed is achieved by the heat of the fuel. The "gas turbine extension" means the connection of an additional cycle during which a considerable amount of the heat, used for obtaining dry, saturated steam, and the heat, required for superheating, are provided by the fuel. Figures 1 to 3 are graphic representations of these additional cycles. These diagrams show that any steam superimposing leads to an efficiency increase which is also confirmed by three equations which are used for determining η . The power limitation of gas turbine will create some difficulties when combining the latter with steam turbines. The authors then investigate in somewhat more detail various possible power plant reconstruction systems taking into consideration locally available fuel. In case only solid fuels are available, steam superimposing or gas turbine extension with a closed cycle may be used. The authors consider the reconstruction of two turbine

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types: VK-100-2 (90 atmospheres, 480°C) and AK-50 (29 atmospheres, 400°C). By comparison and thermodynamic analysis the authors arrive at the conclusion that an initial steam pressure increase above 300-350 atmospheres will not provide a noticeable fuel saving. In this connection, the upper steam superimposing parameters are indicated with 300 atmospheres and 650°C, corresponding to the initial parameters of the SKK-300 turbine. Considerable results are achieved when superimposing the 29 atmosphere unit, since here, intermediate superheating and a feed water temperature increases to 280-300°C may be used. The gas turbine extension is justified only in case the cost per installed kilowatt is lower than that of steam superimposing, i.e. when the excess in fuel consumption is justified by lower amortization costs. The authors then consider power plants at which gas and coal are available as fuels. In this case, beside the steam superimposing an open-cycle gas turbine may be used, using the arrangement shown in figure 7. Such a gas

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The Problem of Expanding Existing Power Plants

turbine cycle was suggested by Professor Ya.I. Shnee and Engineer A.A. **Kasatkin** [Ref 1]. With this system, it is possible using solid fuel in the steam boiler. The efficiency of such a combine unit with a VK-100-2 turbine is 36.7% at a superimposing power of 58,000 kilowatts. For reducing the heater surface and increasing the possible unit power of the gas turbine, a semi-closed cycle may be suggested, as shown in figure 8. The power of such unit will amount to 40,700 kilowatts, having a somewhat lower efficiency (35.6%) than the aforementioned unit. However, the regenerator and water-gas heater surfaces are reduced by 30-40%. The gas turbine plant consists of one main turbine and auxiliary gas turbines, driving axial compressors and electric generators. Finally, the authors consider power plants using only liquid or gaseous fuels. In this case the open cycle gas turbine unit may be used which will be more economical when using a VK-100-2 turbine than the steam superimposing with steam parameters of 300 atmospheres and

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The Problem of Expanding Existing Power Plants

650°C. The efficiency of such a system, working on natural gas (8533 Cal) with an initial gas temperature of 700°C, is 38.3% with the VK-100-2 turbine and 34.8% with the AK-50 turbine. The authors compared the various possible superimposing and extension systems. This comparison is shown in table 1. The authors arrive at the following conclusions: 1) From the thermodynamic viewpoint, only such a gas turbine extension will be more effective at which the internal regeneration of the gas cycle is highly developed. 2) In a number of cases, a gas turbine extension will be more profitable than steam superimposing of existing power plants, provided liquid or gaseous fuel is available. This peculiarity is especially obvious when superimposing power plants with initial steam parameters of 90 atmospheres and 480°C. 3) The lower the parameters of the steam section of the existing power plant, the relatively higher the superimposing of such power plants will be. The efficiency of superimposed power plants having lower steam parameters will exceed in

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The Problem of Expanding Existing Power Plants

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some cases also by absolute values the efficiency of superimposed plants with higher steam parameters.
4) Using semi-closed gas turbine cycles for superimposing facilitates a considerable reduction of the heater surfaces and dimensions of units with a small reduction of the profitableness. There are 2 diagrams, 6 graphs, 1 table and 2 Soviet references.

ASSOCIATION: Odesskiy tekhnologicheskii institut imeni I.V. Stalina
(Odessa Institute of Technology imeni I.V. Stalin)
Kafedra obshchey teplotekhniki (Chair of General Heat Engineering)

SUBMITTED: June 24, 1958

Card 6/6

GORODETSKIY, A. F.

"Relation of Electric Strength of Solid Dielectrics to Entropy"
Izv. Tomskogo Politekhn. in-ta, 76, 1954, 133-135

Experimental data of alkali halide crystals lead to the conclusion that a rise of entropy of substances of similar structure is characterized by respective lowering of their dielectric strength. Expanding this viewpoint to oxides of NaCl type, a decrease of dielectric strength should be anticipated progressively in the following sequence: MgO, FeO, BaO. This assumption is confirmed by computations by Ye. K. Zavadovskaya (DAN, 82, 709, 1952. (RZhFiz, No 9, 1955)

SO: Sum-No 787, 12 Jan 56

"Prilozheniye k Vychisleniyu Vozdeystviya na Elektricheskuyu Prochnost' i na Elektricheskuyu Plastichnost'." Izv. Vsesoyuznogo Nauchno-Issledovatskogo Instituta Fizicheskoy Mekhaniki, No. 1, 1955, pp. 15-18.

Linear relation of electric strength of alkali-halide crystals to Brinell hardness and the elasticity modulus was established. (Izv. Vsesoyuznogo Nauchno-Issledovatskogo Instituta Fizicheskoy Mekhaniki, No. 1, 1955) SC: Sub. No. 715, 9 Nov. 55

GORODETSKIY, A. F.,
IVANKINA, M. S ,

"Dielectric Strength of Solid Solutions of an NaCl-KCl system,"
pp 159-164, ill, 12 ref

Abst: The results of an investigation are given showing that the dielectric strength of single crystals of solid solutions of alkali-haloids decreases with an increase in heat absorbed during the formation of the system, that is, with a decrease in its stability. The mechanical characteristics (micro-hardness and surface energy) are directly related to dielectric strength.

SOURCE: Izvestiya Tomskogo Politekhin. In-ta im. S. M. Kirova (News of the Tomsk Polytechnic Institute imeni S. M. Kirov), Volume 91, Works of the Conference on Solid Dielectrics, Tomsk, September 1955, Tomsk, Publishing House of the Polytechnical Institute, 1956.

Sun1854

S/564/57/000/000/014/029
D258/D307

AUTHORS: Gerodetskiy, A. P., and Saratovkin, D. D.
TITLE: Dendritic crystal forms appearing during anti-skeletal growth
SOURCE: Rost kristallov; doklady na Pervom soveshnanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 190-198.

TEXT: A theoretical summary of crystal growth on dislocations is first given, including the reasons for the appearance of dislocations. The present authors studied the growth of CdI_2 crystals obtained by the exchange reaction of KI and $\text{Cd}(\text{NO}_3)_2$; presence of other ions in the solution promoted the formation of screw dislocations. The growing crystals escaped through the zone in the solution impoverished in CdI_2 either by skeletal growth which passed into dendritic growth, or by (antiskeletal)
Card 1/2

Dendritic crystal...

S/564/57/000/000/014/029
D258/D307

spiral growth which passed into tubular or lamellar growth. Such "layer dendrites" may lead to the formation of thin plates oriented in parallel and separated by the solvent and protuberances appearing on screw dislocations. "Lamellar dendrites," in which some layers achieve greater or lesser horizontal spread, are frequently encountered. There are 12 figures.

Card 2/2

SOV/139-58-4-15/30

AUTHORS: Gorodatskiy, A.F., Gutin, S.S., Mel'nik, I.G.,
Serbulenko, M.G. and Shadrin, V.S.

TITLE: Some Electrical Properties of Thin Layers of Tellurium
and Germanium (Nekotoryye elektricheskiye svoystva
tonkikh sloyev tellura i germaniya)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika,
1958, Nr 4, pp 91-96 (USSR)

ABSTRACT: The dependence of resistivity on temperature, voltage-
current characteristics and limiting current densities
was determined for thin layers of tellurium and germanium
condensed in vacuo onto bases of various materials at
various temperatures. Some relations between resistivity
and deformation were also established. The main
conclusions, derived from measurements described below, were:
1) The resistivity of germanium films is fairly stable
with time. The change in resistivity with deformation
is about 2.3% for a relative deformation of 4.5×10^{-4} .
2) The resistivity of tellurium films is not stable.
Mechanically such films are not durable. The change in
resistivity with deformation is about half that of
germanium films.

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SOV/139-58-4-15/30

Some Electrical Properties of Thin Layers of Tellurium and Germanium

Preparation of Specimens. The thin films were produced by condensation in a vacuum of the order of 1×10^{-4} to 5×10^{-4} mm Hg in the form of strips 4 mm across and 30 mm long. The ends of the strips were overlapped for 1 to 2 mm by 5×9 mm rectangles of metal, also vacuum-condensed, to which copper wires were soldered. The metal contacts for tellurium were always of nickel, but tin was also tried for germanium. The bases used were mainly glass, but in special cases polymerized VL-7 lacquer on a metal disc, mica and fused quartz were tried. The bases were heated by radiation from a current-carrying tantalum wire placed above the base and the temperature was controlled by a copper-constantan thermocouple attached to the surface of the base. The tellurium from which the specimens were made had less than $10^{-4}\%$ impurities. The germanium used had a specific resistivity of 4 to 20 Ohm.cm. In all cases the conductivities were of the hole type.

Experimental Results and Discussion.

a) Tellurium condensed onto a cold base. Fig.1 shows Card 2/8 the log of the resistivity (which was of the order of some

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Some Electrical Properties of Thin Layers of Tellurium and Germanium

hundred thousand Ohms) plotted against reciprocal of the absolute temperature. The resistivity in air at a given temperature clearly increases after thermal cycling, as it also does for specimens stored at room temperature. This increase is irreversible.

b) Tellurium condensed onto a hot base (150-160°C). Fig.2 shows again a rapid resistivity increase after an initial thermal cycle. There is no further change after some 4 to 5 thermal cycles.

Fig.3 shows the difference in characteristics for changes in the atmospheric environment. Experiments started at the moment of preparation of the specimen and carried out in vacuo are shown by the curves beginning at the asterisk and marked by white cycles on the graph. These characteristics are approximately two straight line segments with a break at 90°C. After each cycle a lower resistance was obtained. However, after leaving the specimen in vacuo at 130°C for 30 mins, the resistivity increased - without reaching its initial value. When air was admitted

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into the system resistance fell and the curves with the

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Some Electrical Properties of Thin Layers of Tellurium and Germanium

black dots were obtained. The final curve was straighter and had a smaller gradient. When the same specimen was examined after 10 days in air, the curves at the bottom of Fig. 3 were obtained. These are approximately straight lines. Subsequent evacuation of the system did not reproduce the original properties of the specimen, though its resistance increased.

c) Germanium. Specimens condensed onto a cold base showed resistivities of the order of 10 megohms, while those condensed onto bases heated to 500-550°C showed resistivities between 7 and 30 kOhms (most lay between 10 and 16). It can be verified that in the hot-base specimens the layer structure is crystallographic, (see Refs 1 and 2). Specimens condensed in the same experiment onto bases of glass, mica and fused quartz showed practically identical resistivities, of the order of 12 kOhms. The resistivities of all specimens showed little change after ageing in air: 1.8% increase after 40 days. The resistivity temperature relationship was close to exponential between room temperature and 130°C.

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The points obtained by repeated thermal cycling lay fairly accurately on a single characteristic curve. It is noted in (Ref 3) that there is a significant change in resistivity for extension or compression of specimens of PbS. Furthermore, there are theoretical (Refs 4,5) and experimental (Ref 6) grounds for a deformation-resistivity relationship for germanium monocrystals. The deformation in the experiments, on thin layers of Te and Ge, here described, was produced by the method described in (Ref 3) and measured optically to an accuracy of 1μ . For tellurium each deformation cycle produced an irreversible increase in resistance. A single cycle is shown in Fig.4. For germanium the results were independent of the cycling history, and are shown in Fig.5.

Current Densities and Voltage-Current Characteristics.

Specimen thicknesses were measured by an interference microscope type MII-4 to an accuracy of 0.027μ . The tellurium specimens had thicknesses between 0.230 and 0.430μ , the germanium between 0.18 and 0.3μ . With poor

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heat dissipation (measurement in air for specimens on glass bases) current densities of 600 A/cm^2 were obtained for tellurium and 200 A/cm^2 for germanium. The static voltage-current characteristics of tellurium and germanium were strictly linear for current densities up to 300 A/cm^2 and 400 A/cm^2 respectively. The dynamic characteristics, taken on an oscilloscope, were strictly linear; increasing voltage and the corresponding heating changed the gradient of the characteristic.

Discussion. Takemaro Sakurai et al. (Ref 7) have already noted the irreversible changes in resistivity of thin tellurium layers condensed onto cold bases. They explained the effect by stating that such layers have a micro-crystalline structure with amorphous patches between crystals and that heating causes the crystals to grow at the expense of the amorphous patches. The effect does not occur in layers condensed onto hot bases at temperatures below that at which the specimen was condensed, which is in accordance with the above

Card 6/8 explanation. Such specimens behave in the same way as

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those cut from the solid. The authors point out that this theory is too simple to explain all the effects noted in the experiments described: for example, the coincidence of characteristics for specimens measured below 90°C in vacuo with those cut from the solid. The effects can be explained by introducing two additional considerations: first, the properties of surface levels, described by E. Clark (Ref 8), which explain the break in characteristics at 90°C when all surface levels are occupied and, secondly, the additional acceptor levels produced by oxygen at the layer surface. Subsidiary considerations are the effect of water vapour which may affect the surface ionic conductivity and the diffusion of oxygen into the depths of the specimens creating conduction electron traps. For tellurium the noise level makes measurement difficult.

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Some Electrical Properties of Thin Layers of Tellurium and Germanium

Paper presented at the Conference of higher educational establishments on dielectrics and semiconductors, Tomsk, February, 1958.

There are 5 figures and 8 references, 2 of which are Soviet, 6 English.

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut
(Novosibirsk Electro-technical Institute)

SUBMITTED: March 12, 1958

Card 8/8

GORODETSKIY, A.F.

AUTHOR: Kuchin, V. D., Candidate of Technical Sciences SOV165-58-7-22/32

TITLE: Conference on Solid Dielectrics and Semiconductors (Konferentsiya po tverdyim dielektrikam i poluprovodnikam)

PERIODICAL: Elektrichestvo, 1958, Nr 7, pp. 83 - 84 (USSR)

ABSTRACT: The intermediate university conference was held from February 3rd to 8th, 1958, in the Tomsk Polytechnical Institute (Tomskiy politekhnicheskiy institut). Representatives of 12 universities, 10 scientific research institutes, and 11 plants of 14 towns attended this conference. 83 reports were delivered. The work of the conference was carried out in 6 sections. In the section of semiconductors spoke: Professor Yu.G.Tolstov (ENIN AS USSR, Moscow) about a new method for the determination of the work parameters in germanium power valves without destruction of the latter. Docent A.F. Gorodetskiy and Docent S.S.Gutin (Novosibirsk) found a temporary instability of the resistance in thin tellurium layers and a satisfactory stability of the germanium-and bismuth resistance. Docent G.A.Katayev and L.N.Rozanov (Tomsk University) reported on the mechanism of heterogeneous reactions which occur

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under the participation of solid bodies. A.R.Zasyapkina (SFTI) reported on the good rectifier properties of the silver-polystyrene varnish-germanium- and the mercury-KCl-germanium system. D.K. Vesnovskiy and others, Novosibirsk Institute of Electrical Engineering (Novosibirskiy elektrotekhnicheskiy institut) developed automatic semiconductor devices with flat germanium triodes and photoresistances as transmitters. V.F.Sinorov (SFTI) reported on the experiments which confirm the existence of the surface acceptor level and the surface conductivity in compounds of the type A^{III} B^{IV}. Ye.I.Cheglov and A.M.Vaysberg (SFTI) investigated the "bond lattice" and found that the effective mass of the light hole increases with the increase of the ionic component in the bond and becomes anisotropic. V.N.Vertoprakhov (SFTI) reported on a new method for the detection of the crystallographic planes from the discharge figures on the germanium surface. A.P.Vyatkin (SFTI) investigated the rules governing the wetting of germanium with indium in dependence on the surface treatment of indium, the crystallographic orientation of germanium, and the heat maintenance in the case of melting. V.A.Chaldyshev investigated the energetic spectrum on the basis of a lattice model in connection with the

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sphalerite lattice. A.P.Izergin and others (SFTI) worked out a method for the breeding of germanium monocrystals with even distribution of the admixtures from the melt without melting pot. Yu.D.Lukantsever, Frunze Kirghiz Institute of Pedagogics (Kirgizskiy pedinstitut, Frunze) investigated the rules governing the dying down of the intensity of phosphorescence, photoconductivity, and the light sum in the phosphorus ZnS-Cu in an ideal crystal phosphorus. From an investigation of the temperature dependence of the photodielectric effect in the phosphorus ZnS-CuFe during excitation and in the case of long stages of dying down of the phosphorescence of the latter P.Ye.Ramazanov (SFTI) makes conclusions as to the relaxation character of the processes which cause this effect. I.G.Mel'nik, Novosibirsk Institute of Electrical Engineering, reported on a simple distribution chamber for a vacuum plant. Ye.I.Shuraleva, Irkutsk University (Irkutskiy universitet) reported on the investigation of the influence of the electric and thermal treatment in the case of pure rock salt crystals, as well as on the influence of different concentrations of an activator introduced into the phosphorus NaCl. Ni according to the method of electrolysis on the formation processes of F-centers

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and the storing of light sums under the action of X-rays.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnical Institute)

1. Dielectrics--USSR 2. Semiconductors--USSR 3. Conferences

Card 4/4

GORODETSKIY, A.P.; MEL'NIK, V.G.; MEL'NIK, I.G.

Method of producing ohmic contact with silicon. Fiz.tver.tela
1 no.1:173-174 Ja '59. (MIRA 12:4)
(Silicon—Electric properties)
(Electric contactors)

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24.7500

S/139/60/000/05/041/045

AUTHORS: Shadrin, V.S. and Gorodetskiy, A.F.
E032/E314

TITLE: Dependence of the Stress Sensitivity on Frequency for
Thin Films of Germanium //

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1960, No 3, pp 232 - 233 (USSR)

ABSTRACT: Thin films of germanium deposited in a vacuum on a heated neutral base can be used as strain gauges (Ref 1). The sensitivity of such gauges is higher by an order of magnitude than the sensitivity of wire gauges, although they cannot compete with the latter because of lack of stability and reproducibility of their parameters. The present authors consider the problem as to whether it is in principle possible to manufacture germanium film strain gauges with reproducible characteristics. It is argued that the change in the resistance of a germanium film on deformation is determined by two factors, namely, deformation of the grains leading to a change in the band structure of the semiconductor and a change in the resistance of the material between grains, or the presence of microcracks //

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and "porosity". If the change in the resistance of the gauge is not due to an alteration in the band structure but to the other causes, then it will be difficult to manufacture probes with reproducible characteristics. If, on the other hand, the strain effect is associated with the band structure, then reproducible characteristics can be obtained. The two effects can be separated by measuring the resistance of polycrystalline specimens at high frequencies (Refs 3,4,5). The present authors have carried out these measurements and have obtained the resistance of germanium films as a function of frequency. The resistance was measured to an accuracy of about 7%. The results obtained are shown in Figure 1, which plots the resistance and the change in the resistance as a function of frequency. As can be seen, the resistance decreases, beginning at 40 Mc/s and continues to decrease down to about 60 Mc/s, the total decrease being about 15%; the change in the resistance, on the other hand, in this region remains constant. These results indicate that the

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contribution due to the band-structure effect is the
predominating one. There are 1 figure and 5 references,
2 of which are Soviet and 3 English.

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut
(Novosibirsk Electrotechnical Institute)

SUBMITTED: June 22, 1959

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26427

5/139/61/000/003/007/013
E073/E335

9.6180

AUTHORS: Gorodetskiy, A.F., Baranovskiy, S.N. and
Marchenko, V.G.

TITLE: Investigation of the Strain-gauge Properties of
Semiconductors
I. Germanium

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1961, No.3, pp.66-70

TEXT: Published work of various authors indicates that in
principle it is possible to use semiconductors for strain gauges.
In earlier work of A. F. Gorodetskiy, S. S. Gutin, I. G. Mel'nik,
M. G. Serbulenko, V. S. Shadrin (Ref.4: Izvestiya vuzov, Fizika,
No.4, 91, 1958; Ref.10: A. F. Gorodetskiy, G. N. Guk, B.I.Pushkin,
Fizika tverdogo tela "Solid State Physics", Symposium, Vol.1, 1959)
it was established that vacuum-deposited germanium films had a
strain sensitivity of 30 - 60 units and preliminary experiments
with single-crystal germanium plates have shown that their
strain sensitivity is of the order of 100 and more. In this
case, the strain sensitivity S is defined by $S = \Delta R/R_0$, where

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ΔR is the increase in resistance during strain by pure tension or compression, R is the initial resistance and ϵ the relative strain. In view of the fact that the strain sensitivity of wire strain gauges is of the order of about 2, it can be anticipated that semiconductor strain gauges will yield a signal which may be higher by two orders of magnitude (Ref. 11: W. P. Mason, Bell Laboratories Record, January, 1959). In this paper the results are given of systematic investigations which were aimed at determining the possibility of producing semiconductor strain gauges with a high signal output. Data are given on the strain-gauge properties of germanium films deposited in vacuum on a neutral base and of single crystal germanium specimens. The germanium films, $4 \times 20 \text{ mm}^2$ or $2.5 \times 14 \text{ mm}^2$, were deposited through a stencil onto glass, which was subsequently strained by tension, compression and bending. Metallic spots were also vacuum-deposited onto the condensed germanium layers to serve as leads. During deposition the vacuum was between the limits 1×10^{-4} to 5×10^{-5} mm Hg. The conductivity of all the films was of the hole type. The single crystals of electron germanium were in the form of rectangular

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strips, 3-5 mm wide, 10-12 mm long and about 0.25 mm thick with specific resistivities of 3 and 30 Ω cm. Current-conducting leads were soldered-on after etching, using tin of 99.999% purity with zinc chloride as a flux. The single crystals were glued-on to the glass beams. The strain was determined from the sag by means of a thickness-metering instrument with an accuracy of 1 μ . The resistance was measured with an accuracy of $\pm 0.5\%$. In the case of films, S values up to 100 were obtained, whilst in the case of N-type low-resistance germanium single crystals S values of up to about 150 were obtained. In both cases, the increase in resistance proved to be a linear function of the strain for ϵ values of up to 6.65×10^{-4} in the case of germanium films and 3.2×10^{-4} in the case of single crystals. The S values dropped sharply with increasing temperature. The basic characteristics of the investigated specimens were found to be stable, provided the temperature was maintained constant. It is concluded that both vacuum-deposited films and single crystals are suitable for use as strain gauges with a high signal output. There are 9 figures and 11 references: 5 Soviet

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and 6 non-Soviet. The three English-language references quoted are: Ref.5 - C. Herring - Bell Syst. Techn. Journ., Vol.34, 237, 1955; Ref.6 - C. Herring, E. Vogt - Phys. Rev., 101, No.3, 944, 1956; Ref.11 - W. P. Mason (quoted in text).

ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut
(Novosibirsk Electrotechnical Institute)

SUBMITTED: May 9, 1960

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9.6180 (1137)

30471
S/139/61/000/005/008/014
E073/E335

AUTHORS: Gorodetskiy, A.F. and Smolyuk, T.G.

TITLE: Investigation of the strain-gauge
properties of semiconductors 2. Tin dioxide

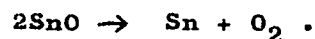
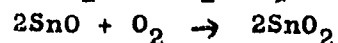
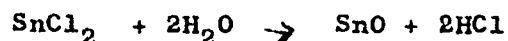
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
no. 5, 1961, 75 - 77

TEXT: M. Teichgrüber and H. Straubel (Ref. 5 - Zs. f.
Naturforsch., 12, 524, 1957) have found that SnO₂ has a
considerable strain-sensitivity. Since SnO₂ has a high mechanical
strength and chemical stability, the authors of this paper
consider it of interest to investigate more closely the strain-
sensitivity properties of SnO₂ films. Films
10 x 40 mm² and 5 x 40 mm² were deposited onto glass strips by
pyrolysis of SnCl₂ with subsequent hydrolysis of the decom-
position products. The reaction was produced in a specially
designed two-zone furnace - Fig. 1. Dehydrated SnCl₂
was charged into the crucible 5 inside the furnace 3, the
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temperature of which was maintained at 375 and 380 °C. Glass plates with silver contact spots, deposited by firing a paste of silver carbonate at 550 - 570 °C, were preliminarily leached out for 24 hours in a 0.5 N solution. These glass plates were fitted into the holder 4 and placed into the furnace 2, the temperature of which was maintained at 400 - 420 °C, with an accuracy of ± 2 °C. The following reactions took place:



As a result of this, the current-conducting layers consisted of SnO₂ with an admixture of metallic tin and tin protoxide.

Leads were soldered-on to silvered spots. The thickness of the films and, consequently, their resistance, were controlled by the weight of the charge; for a charge of 1 g, the resistance of the specimens was 5-6 kΩ; for a charge of 0.5 g the

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resistance was 30 - 40 kΩ . The films had n-type conductivity. Fig. 4 shows the change in the resistance as a result of ageing at 40 and 90 °C for durations of up to 6 hours. By maintaining the films at 100 °C for 1 hour the strain sensitivity became fully stabilized but dropped to a value of 12-15 from an initial value of about 35. In the temperature range 10 - 120 °C the temperature dependence of the resistance is one typical for semiconductors. The activation energy was estimated at 0.018 eV. The strain sensitivity S in the temperature range 20 - 140 °C increased by about 40%, from about 12 to about 18. Within strain values of $\epsilon = 7.8 \times 10^{-5}$ and 31×10^{-5} the strain sensitivity remained constant (S = 12), both during loading and after the load was removed. There are 6 figures, 1 table and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc.

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ASSOCIATION: Novosibirskiy elektrotekhnicheskiy institut
(Novosibirsk Electrotechnical Institute)

SUBMITTED: June 13, 1960
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