AVAILABLE: Library of Congress

PETRUKHA, P.G.; BOVIN, V.G.; MYAKISHEV, M.A.; RYABTSEVA, I.L., red.; BARANOVSKAYA, K.P., tekhn. red.

[Machine tools; purpose and performance, kinematic and hydraulic systems, adjustment and basic data] Metallorezhushchie stanki; naznachenie i metody raboty, kinematicheskie i gidravlicheskie skhemy, nastroika i osnovnye dannye. Moskva, Mosk. aviatsionnyi in-t im. Sergo Ordzhonokidze, 1962. 106 p. (MIRA 16:12)
(Machine tools—Design and construction)

5(1) SOV/64-59-5-23/28

AUTHORS: Margasyuk, P. F., Bovin, V. N., Belostotskiy, M. D.

TITLE: Improvement of Betanaphthol Production

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 5, p 447 (USSR)

ABSTRACT: Several measures for the improvement of working conditions and for the partial automation of various phases in technological procedure were adopted for the rebuilding of the betanaphthol plant, according to suggestions made by a group of workers in Dorkhimzavod imeni Frunze (Dorkhim-plant imeni Frunze). For example, naphthalene is directly taken out of an automatic tipper; in the same way the solvent is fed with sodium sulphate and common salt. The aqueous naphthalene suspension is pumped into reservoirs at 60°, from where it flows off spontaneously into the semiautomatic horizontal centrifuge (furnished with scrapers for the sediments). The naphthalene paste passes into a heated closed apparatus, and the molten naphthalene is transported by compressed air into the measuring tank. The customary exit of naphthalene vapors into the operating rooms was avoided by a naphthalene regeneration. The sintering of naphthalene, the

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heating of sodium sulphite solution, the dosing of naphthalene and of sulphuric acid monohydrate and of the sodium sulphate into the measuring tanks as well as the stabilization of temperature of the reaction mass in the apparatus for sulfuration were converted to automatic operation.

BULKIN, Yu. M.; BOVIN, V. P.; NIKOLAYEV, Yu. G.

"Construction of powerful loop-type reactors, the MIR research loop-type reactor."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

POSIK, Lev Notovich; KOSHELEV, Ivan Vasil'yevich; BOVIN, Vladimir Pavlovich; SAGURO, M.A., red.; MAZEL', Ye.I., tekhn.red.

[Quick radiometric assaying of mined ores; brief guide] Radiometricheskii ekspress-analiz dobytykh rud; kratkoe rukovodstvo. Moskva, Izd-vo glav.upr. po ispol'zovaniiu atomnoi energii pri Sovete Ministrov SSSR, 1960. 75 p. (MIRA 13:11)

(Ores--Sampling and estimation)
(Gamma ray spectometry)

21.5300

77225
SOV/89-8-1-19/29

AUTHOR: Bovin, V. P.

TITLE: The Efficiency of Gaseous Discharge Counters. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 1, pp 68-70 (USSR)

ABSTRACT: Since most of the earlier investigations do not reflect the peculiarities of modern counters, the author investigated the γ-ray efficiency of Soviet commercially available counters. The MS and BS counters are filled with argon-alcohol mixtures in copper- or tungsten-coated, 1-mm-thick glass containers. Type GS counters have graphite-cathodes, and halogene STS counters have steel cathodes. Efficiences of particular brands represented on Fig. 1 varied in amount from 10 to 20% for individual counters, but the general trend was quite uniform. The largest nonuniformity was encountered with counters BS and STS, and also with all argon-alcohol counters after 10^6 to 10^7 counts.

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The Efficiency of Gaseous Discharge Counters. Letter to the Editor

77225
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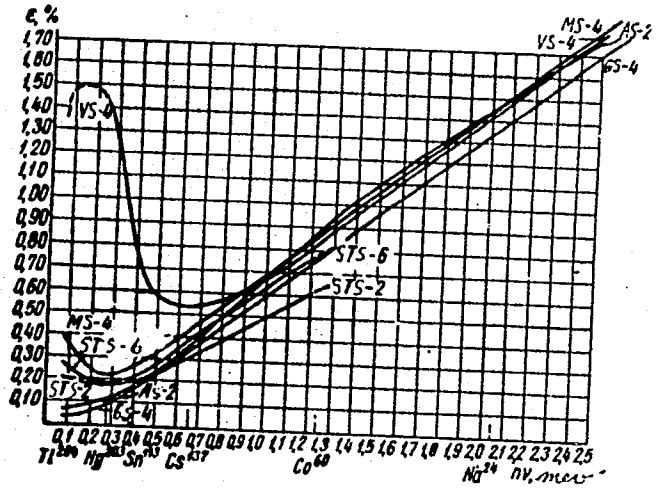

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Fig. 1. Efficiency of gaseous discharge counters of various types vs energy of radiation.

The Efficiency of Gaseous Discharge Counters. Letter to the Editor

77225
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Type MS and GS counters exhibited good characteristics but required a high working potential (1,300 to 1,350 v). BS counters showed the largest integral efficiency thanks to the high photoabsorption of γ-rays on tungsten cathode. The counter has a maximum due to the maximum $R\tau$ value near the K-discontinuity of the photoabsorption coefficient (R is range of photoelectrons in the cathode material and τ is coefficient of photoabsorption of γ-rays). The STS curves were not well investigated above 1.5 mev. The author also investigated the influence of Al, Fe, and Pb filters of different thickness, shape, and relative position, and plotted curves similar to those in Fig. 1. He finally noted that when working with thin-walled counters, it is advantageous to use combined Fe-Pb or Al-Pb filters. The metal with smaller atomic number should be closer to the counter. There are 2 figures; and 6 references, 2 German, 1 Dutch, 1 Japanese, 1 Swedish, 1 Swiss.

SUBMITTED: February 13, 1959
Card 3/3

21.5300

77254
SOV/89-8-2-19/30

AUTHOR: Bovin, V. P.

TITLE: Experimental Investigations of Scintillation Counter Efficiency. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 2, pp 155-158 (USSR)

ABSTRACT: Many theoretical papers discussed the efficiency of scintillation counters as functions of various geometrical and material parameters. The author investigated the efficiency of cylindrical NaI(Tl) crystals exposed to point sources of radioactive isotopes of Tl^{204}, Hg^{203}, Sn^{113}, Cs^{137}, and Co^{60}. They were calibrated by comparison to the radium 0.1 mgm standard, using an air ionization chamber. After reviewing the known results in literature, the author states that the results of his tests with crystals of various sizes are in full agreement with theoretical calculations. These calculations predicted that for point sources and energies up to 0.1 mev the efficiency will not depend on the distance between the source and the

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crystal, while for 1-2 mev of energy it may vary 1½ to 2 times, especially in the case of larger crystals. All measurements were made at constant operating conditions and geometry. To insure an almost 100% registration of photons produced in crystals, the author used photomultipliers with low noise level and high amplification factor, perfect optical contact, optimum working parameters, etc. In Fig. 2, 3, 4, and 5 he shows efficiences of various crystals with or without various filters. One sees that the influence of Fe filters was less than that of Pb of the same thickness (in gm/cm). The author explains this by the high efficiency of crystal phosphorus to the soft (Compton) scattering radiation produced in iron filters, while in lead the dominant mode is the photoabsorption up to 0.5 mev. Screening by means of filters of small thickness (0.2-0.3 mm lead , or 1-1.5 mm iron), one can obtain similar efficiency curves from crystals different in size and kind. Various scintillators have different relation between efficiency and energy of γ -rays. It is

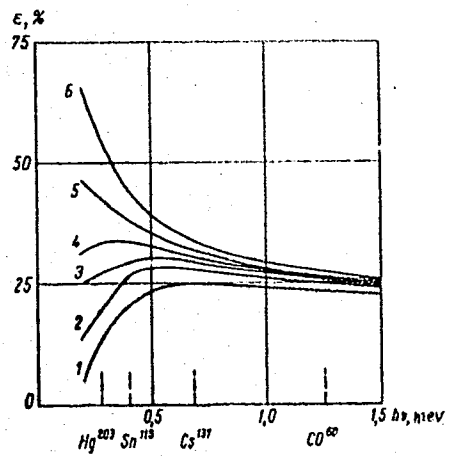

Fig. 2. Efficiency curves of a NaI(Tl) crystal, 30 mm in diameter and 15 mm high, using lead filters of various thicknesses (in mm): (1) 3.0; (2) 2.0; (3) 1.5; (4) 1.0; (5) 0.5; (6) without filter.

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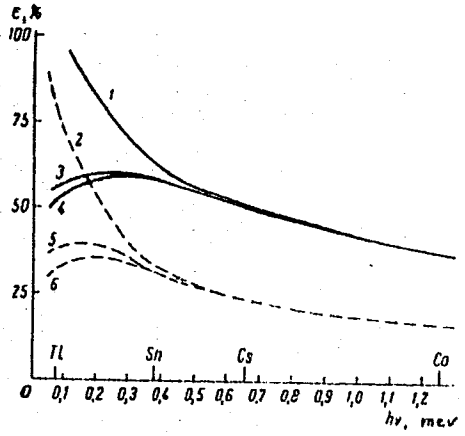

Fig. 3. Efficiency curves of NaI(Tl) crystals of various size: (1) 40 x 50 without filter; (2) 20 x 20 without filter; (3) 40 x 50 with lead filter (0.2 mm); (4) 40 x 50 with an aluminum and lead filter (3 and 0.2 mm); (5) 20 x 20 with an aluminum and lead filter (3 and 0.2 mm); (6) 20 x 20 with a lead filter (0.27 mm).

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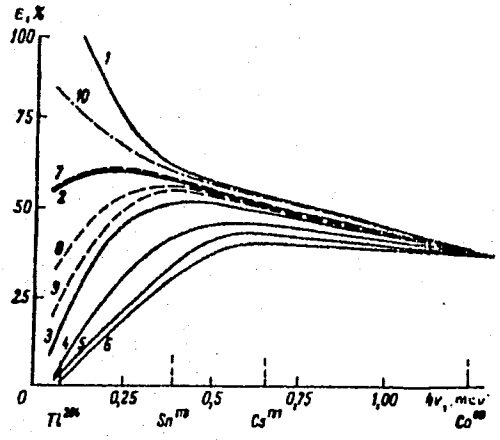

Fig. 4. Relationship between efficiency of a 40 x 50 mm NaI(Tl) crystal and thickness (in mm) of the screening materials: (1) without filter; (2, 3, 4, 5, 6) with lead filters of thickness 0.2; 0.5; 1.0; 1.5; 2.0 mm, respectively; (7, 8, 9) with iron filters of thickness 1.0; 2.0; 3.0 mm, respectively; (10) with aluminum filter (5.0 mm).

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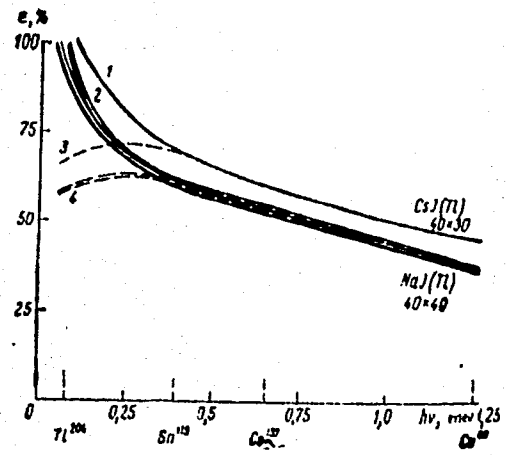

Fig. 5. Efficiency curves for NaI(Tl) and CsI(Tl) crystals: (1, 2) without filter; (3, 4) with iron filter of 1 mm diameter.

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consequently impossible to use unscreened scintillation counters for quantitative measurements. Figure 6 shows the relationship between efficiency of the scintillation counter with crystal NaI(Tl) and the discriminator level of the input signal. One sees that the efficiency depends in a much larger degree on the operating conditions of the photomultiplier and the sensitivity of the circuitry than on the type and size of the crystal. Therefore, when comparing sensitivities or when tuning various sections of scintillation counters, one should pay the most attention to proper function of circuits. In most cases, it is sufficient to screen the crystals with 0.2-0.3 mm Pb or 1-1.5 mm Fe to make them all behave alike. V. L. Shashkin showed interest and gave advice. There are 6 figures; and 7 references, 1 Swedish, 2 Dutch, 4 U.S. The U.S. references are: A. Stanford, V. Rivers, Rev. Scient. Instrum., 29, 406 (1958); W. Miller, J. Reynolds, W. Snow, Rev. Scient. Instrum., 28, 717 (1957); M. Berger, J. Dogget, Rev. Scient. Instrum., 27, 269 (1956); W. Hornyak, T. Coor. Phys. Rev., 92, 675 (1953).

SUBMITTED: February 13, 1959

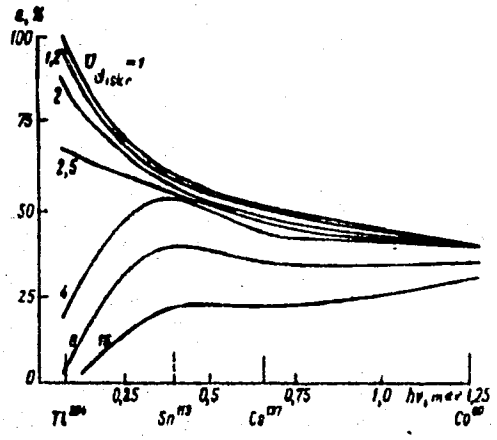

Fig. 6. Relationship between efficiency of scintillation counter with crystal NaI(Tl), 40 x 50 mm, and discriminator level of input signal.

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S/089/60/009/006/005/011
B102/B212

21.5200

AUTHOR: Bovin, V. P.

TITLE: Methods for directional recording of gamma radiation

PERIODICAL: Atomnaya energiya, v. 9, no. 6, 1960, 483-487

TEXT: The present paper deals with an analysis of the fundamental characteristics and parameter of directional radiation receivers. Special attention has been paid to scintillation radiometers with a directional effect of the compensation type. It is shown that such devices exhibit considerably better properties than analogous ones which operate on the basis of gas-discharge counters. The specific properties of directional radiometers are characterized by the directivity diagram. This is the ratio of the receiver sensitivity $q(\varphi,\theta)$ for quanta with a certain energy, inciding from the direction (φ,θ) to the sensitivity for quanta from the main direction, where the sensitivity is a maximum: $\eta(\varphi,\theta) = \frac{q(\varphi,\theta)}{q(\varphi,\theta)}$. Such diagrams are represented by $\eta(\varphi)$ or $\eta(\theta)$ and the angular resolution is expressed by α (see Fig.1). α denotes the angle

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Methods for directional...

between two extreme directions, which correspond to a decrease of the sensitivity to one half. In order to determine the directional sensitivity characteristics several types of radiation receivers have been suggested. Most frequently gas-discharge counters are used with bimetal and finned cathodes and with insolated beads at the plate, and also combined receivers with a coincidence and anticoincidence circuit and receivers with screens and collimators and with compensation systems. Widely spread are simply shielded receivers with a high directivity. As a rule the shields are made of lead. The compensation systems, where gamma quanta penetrating the shields laterally are measured and compensated by an additional receiver, allow a complete elimination of the lateral radiation. In such instruments (Fig. 2a) the signals of both receivers are fed over separated channels to the differential recording device, where the signal difference is established. In order to obtain directional sensitivity characteristics two types of compensation systems may be employed: Either the main receiver (Fig. 2b) or the compensation receiver (2c) is shielded. $q_2 = q_1 K$ has to be fulfilled in order to compensate completely the share K of the lateral radiation (system in

Fig. 2b). The following expression is obtained for the signal difference: $\Delta n_o = n_{10}(1-K^2)$, and for the other type (Fig. 2c) $\Delta n_o = n_{10}(1-K)$. The directivity diagram shown in Fig. 1 has been recorded for a system of the first type. The root-mean square errors have been calculated for the compensation channel, (σ) and the differential recording device (δ) of both types. $n_2 = K[Kn\Phi + n(1-\Phi)]$ pulses per second are counted in the compensation channel (of the first type) and the error is given by $\sigma_1 = \sqrt{\frac{n_1}{T} + \frac{n_2}{T}} = \sqrt{\frac{n}{T}\left[\Phi(1-K)^2+2K\right]}$. $\Delta n = n_1 - n_2 = n\Phi(1-K^2)$ pulses per second are recorded in the differential recording device and the error is given by $\delta_1 = \frac{\sigma_1}{\Delta n} = \frac{1}{K+1}\sqrt{\frac{1}{nT\Phi}\left[1 + \frac{2K}{\Phi(1-K)^2}\right]}$ (the solid angle is defined by $\Phi = \Delta n/4\pi\Delta n_o$). Analogous expressions hold for the second type

$$\sigma_2 = \sqrt{\frac{n_1}{T} + \frac{n_2}{T}} = \sqrt{\frac{n}{T} + \frac{nK\Phi + n(1-\Phi)}{T}} = \sqrt{\frac{2n - n\Phi(1-K)}{T}}; \quad (12)$$

Method for directional...

$$\delta_2 = \frac{\sigma_2}{\Delta n} = \frac{1}{1-K}\sqrt{\frac{1}{nT\Phi}\left(\frac{2}{\Phi} - 1 + K\right)}. \quad (13)$$

This type shows a number of advantages. Several of the common types of compensation receivers and their directivity diagrams are also discussed (see Fig. 4). During 1956-58 the author has developed portable directional scintillation radiometers for application in mining. One of them is known under the type РНД-58 (RND-58). The instruments are equipped with scintillation counters according to the second compensation type, their total weight is 3.5 kg and they will record gamma radiation ranging from 10 - 10^4 mcuries/hr. V. Nilov is mentioned. There are 4 figures and 10 references: 3 Soviet-bloc and 7 non-Soviet-bloc. The two most recent references to English-language publications read as follows: D. Wilkinson. Rev.Scient.Instrum. 23, 414, (1952); G. Eicholz et al. Nucleonics, 15, No. 11, 90 (1957).

SUBMITTED: February 22, 1960

Card 4/4

L 33994-66 EWT(m)/EWP(j) IJP(c) RM

ACC NR: AR6017189 SOURCE CODE: UR/0058/65/000/012/A031/A031

40

AUTHOR: Bovin, V. P.; Romanov, I. L.

B

TITLE: Concerning combined phosphors and methods of separating pulses by shape

SOURCE: Ref. zh. Fizika, Abs. 12A304

REF SOURCE: Tr. 6-y Nauchno-tekhn. konferentsii po yadern. radioelektron. T. 1. M., Atomizdat, 1964, 21-31

TOPIC TAGS: phosphorescent material, pulse shape, radiation detection, scintillator

ABSTRACT: The authors consider two simplest and most effective methods of separating pulses by shape when recording different types of nuclear radiation with combined phosphors: the method of using space charge in a photomultiplier and the method of short-circuited line. The relative advantages and shortcomings of these methods are discussed when combined phosphors of different types are used. It is concluded that both methods can be successfully used to separate pulses in combined phosphors CsI(Tl)-stilbene and CsI(Tl)-plastic scintillator. The space-charge method is a simpler electronic scheme, but has a limitation at radiation intensities of the order of 10^4 pulses/sec. For the method of short-circuited lines it is necessary to have a relatively more complicated electronic apparatus, a broadband amplifier and coincidence circuit, but is not subject to deterioration of linearity of the counting characteristics when high radiation intensities are measured. L. S. [Translation of abstract]

SUB CODE: 20

Card 1/1

Bovin, V. T.

BOVIN, V. T.

Gidravlicheskaia laboratoriia Tsentral'nogo aerogidrodinamicheskogo instituta. Moskva, 1929. 39 p., illus. (TSAGI. Trudy, no. 54)
Summary in English.
Title tr.: The Hydraulic Laboratory of the Central Aerodynamic and Hydrodynamic Institute.

NCF

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

PA - 2002

AUTHOR: BOVIN,V.V., MOŠAROV,A.I.

TITLE: On the Use of Pocket-Dosimeters of the Type DK-0,2 for the Individual Dosimetry of Fast Neutrons.

PERIODICAL: Atomnaia Energiia, 1957, Vol 2, Nr 2, pp 184-185 (U.S.S.R.)
Received: 3 / 1957 Reviewed: 3 / 1957

ABSTRACT: The authors showed that when working on a cyclotron with berylliumtarget bombarded with deuterons with 8-13 MeV it is possible to use "thimble chambers" with air-equivalent walls for the practical individual dosimetry of fast neutrons. For the experiments chambers of the type DK-0,2 produced in the factory "Geologorazvedka" were used which are destined for the measuring of x- and γ-rays. The ratio of the ionization effect of the neutron component and the total effect of γ-and neutron radiation was determined in the chamber by means of filters of lead and paraffin. Three measurings were sufficient: without filter, with lead filter and with two filters. This ratio was $0,80^{0}$ in chambers which were installed under an angle of 105^{0} with respect to the neutron bundle. Absolute sensitivity to fast neutrons was determined from an experiment with a Ra-Be-source (activity 318 millicurie) and a lead filter. In the "thimble chamber" the effect of ionization is proportional to the dose and this does not depend on the energy of the recoil protons. On the occasion of gauging, neutrons of less than 3 MeV contribute very little towards total ionization. - The thickness of the lead was chosen in such a manner (25 cm), that the relative contribution to ionization of the radiation which has passed the filter, must be attributed to the fast neutrons. By means of a separate

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Bovin, V.V.

109-3-4/40

AUTHORS: Bovin, V.V., Krupchitskiy, P.A., Pershin, I.I., Chirikov, B.V.

TITLE: Measurement of Primary Ionization Using the Method of Mean Gap Length in Wilson Chambers and Diffusion Chambers. (Izmereniye pervichnoy ionizatsii po metodu sredney dliny prosveta v kamere Vil'sona i v diffuzionnoy kamere)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, Nr 3, pp.19-23 (and 1 plate) (USSR).

ABSTRACT: A detailed description is given of measurements of primary ionisation by the method of mean gap length between drops in tracks of particles in Wilson and Diffusion Chambers. The accuracy obtained was ± 10% in the case of the Wilson Chamber (considerable overlapping; track length 10 cm) and ± 13% in the case of the diffusion chamber (track length 2 cm). The following precautions must be taken in order to obtain such high accuracy. 1. 100% efficiency of condensation on ions is necessary (Ref.7). As a control on the efficiency of condensation particle tracks were separated into two parts by means of a field of 30 V/cm and a comparison of the number of drops

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Measurement of Primary Ionization Using the Method of Mean Gap Length in Wilson Chambers and Diffusion Chambers.

down each of these components was carried out. Measurements were carried out on the positive component. Using this method, negative ions (in this case electrons) are separated out and this is useful since the efficiency of condensation on them is always less than 100% and can fluctuate considerably. Changes in the structure of tracks during separation into the two components (Ref.8) did not occur since electronegative admixtures were very small (less than 0.5% O_2). In order to guarantee 100% efficiency of condensation only the central part of the sensitive layer of the chamber was used. The temperature was stabilized.

2. In ionisation measurements it is necessary to use those parts of tracks which do not overlap strong droplet backgrounds.

3. Good illumination of tracks is essential. The Wilson chamber was illuminated by two flash lamps type ИПК-600 and photography was carried out at an angle of 45° to the light beam on a highly sensitive 35 mm film (reduction 1:10, f:20). The diffusion chamber was illuminated continuously with the mercury lamp СВДШ-250. The photography

Measurement of Primary Ionization Using the Method of Mean Gap Length in Wilson Chambers and Diffusion Chambers.

was carried out at an angle of 30° to the light beam. The objective of the photographic camera was controlled by a coincidence scheme using Geiger-Muller tubes.
4. High contrast films and developers were used. Fine grain developers are particularly undesirable.
5. Optimum magnification must be used in examining the tracks. The authors have used a magnification of 100. The measured value of primary ionisation for argon recalculated into minimum ionisation are in agreement with the values obtained by G.W.McClure (Ref.10). Similar agreement is obtained for air and carbon dioxide. The following values were obtained for the primary ionisation:-

Air:	21 ± 1.5 ions/cm
Argon	30 ± 2 ions/cm
Carbon dioxide	28 ± 2.5 ions/cm.

There are 7 diagrams, 3 tables and 14 references, 1 Russian, 10 English, 1 French and 1 German.

SUBMITTED: October 14, 1956.

AVAILABLE: Library of Congress.

Card 3/3 **1. Cloud chambers 2. Ionization-Measurement 3. Photography**

KEPERSHA, L.M.; GAYDUKOV, I.M.; BOVIN, Ye.I.; DENISOVA, V.P.; PANOV, A.M.; SHVETS, G.I.

Rubber coating of metal-cord cloth in a cord calender unit. Kauch. i rez. 24 no.8:29-33 '65. (MIRA 18:10)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i Omskiy shinnyy zavod.

L 26752-66 EWT(m)/T/EWP(t) IJP(c) JD

ACC NR: AP6011482 SOURCE CODE: UR/0070/66/011/002/0352/0354

AUTHOR: Bovina, L. A.; Vinogradova, V. G.; Poluboyarinova, M. F.; Smirnova, Ye. A.; Kharakhorin, F. F.

ORG: none

TITLE: Sectorial structure of single crystals of indium antimonide doped with germanium

SOURCE: Kristallografiya, v. 11, no. 2, 1966, 352-354

TOPIC TAGS: indium compound, antimonide, electric conductivity, thermal emf, crystal strucure, single crystal, semiconductor conductivity, crystal growth

ABSTRACT: The authors investigated the transverse inhomogeneity in the conductivity in single crystals of indium antimonide doped with germanium to an excess-acceptor density 10^{12}--10^{14} cm^{-3}. The crystals were grown by the Czochralski method in the [111] and [211] directions at an inert gas pressure of 600 mm Hg. The conductivity inhomogeneity was determined from the sign of the thermal emf measured at liquid-nitrogen temperature. Most crystals grown in the [111] direction had n-type regions in the center and most frequently in the uppermost section of the crystal. With increasing crystal length, the entire section assumes a p-type conductivity and only a narrow ring of n-type (0.1--0.2 mm) appears on the edges of the plates cut from the crystal. In the [211] direction only peripheral n-type regions are produced. The results are attributed to the bending of the crystallization front and to varia-

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tion of the ratio of the effective donors through the volume of the crystal. It is therefore concluded that the inhomogeneities in the conductivity type in the transverse direction of weakly doped single crystals are due to residual donor impurities. Orig. art. has: 3 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 07Jan65/ ORIG REF: 001/ OTH REF: 002

Card 2/2 FV

BOVINA, T. A.

PHASE I BOOK EXPLOITATION SOV/4488

Akademiya nauk SSSR. Energeticheskiy institut

Goreniye pri ponizhennykh davleniyakh i nekotoryye voprosy stabilizatsii plameni v odnofaznykh i dvukhfaznykh sistemakh (Combustion at Reduced Pressures and Certain Problems in the Stabilization of the Flame in Single-Phase and Two-Phase Systems) Moscow, 1960. 85 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Energeticheskiy institut imeni G. M. Krzhizhanovskogo.

Resp. Ed.: L. N. Khitrin; Ed. of Publishing House: Ye. N. Grigor'yev; Tech. Ed.: V. V. Karpov.

PURPOSE: This book is intended for scientists engaged in combustion research.

COVERAGE: The book contains five reports delivered at the Obshchemoskovskiy seminar po goreniyu (Moscow General Seminar on Combustion) in 1958. The problems discussed in these reports concern the effect of reduced pressure on the ignition and combustion of a stream of gas-vapor mixture in turbulent flow. Each report is followed by Soviet and other references.

Bovina, T. A. Study of Exchange Between the Recirculation Zone Behind a Stabilizer and the Outer Stream. Some Flame Stabilization Problems 58

A method for experimental determination of the residence time of gas in the recirculation zone behind a stabilizer for cold streams and during combustion is presented. It is based on the introduction of luminous particles into the zone and their photoelectric recording. Accuracy of residence time determination is from ± 7 to ± 8%. The material contains quantitative data on residence time and the diffusion coefficient for the recirculation zone. Temperature and combustion completeness measurements in the zone behind the stabilizer show that the zone of reverse streams is filled with complete combustion products (φ = 0.96–0.97). On approaching breakout, combustion completeness does not decrease in velocity nor in richness of the mixture composition, i.e., the gas temperature in the zone is close to the theoretical combustion temperature for a given excess air coefficient. It was determined experimentally that the initial burning point of a fresh mixture moves away from the end of the stabilizer as the mixture weakens and incoming stream velocity increases. This shift in torch origin is proportional to the stream velocity and depends exponentially on the temperature which corresponds to the combustion temperature at a given excess air coefficient of the mixture. A scheme for explaining the flame stabilization mechanism behind a poorly streamlined body is proposed. According to this scheme the determining factor in the stabilization process is the correlation between the time necessary for preparation of the mixture for burning and the contact time of the fuel mixture with the surface of the zone. The factors affecting the kinetics of the process evidently play the main role in the total time of preparation of the mixture for burning.

Basevich, V. Ya. Effect of Preliminary Vaporization on the Completeness and Stability of Burning of Atomized Fuel 71

It is shown that the degree of preliminary vaporization of atomized fuel is one of the determining factors of combustion completeness and flame stability. The theoretical correlation of the burning velocities of vapor- and liquid-phase fuel, which correctly describes qualitatively the experiment on the assumption of free turbulent transfer of matter to the reaction zone of the burning drops, is verified experimentally. A considerable effect of turbulence on burning velocity and stability for drops with an average diameter d_k > 190 mk is noted. Experiments on hydrocarbon fuels with different boiling points and inclination to low-temperature oxidation did not disclose the effect of type of fuel on completeness and stability of flame. It is concluded that propagation velocities of turbulent flame cannot serve as a basis for the determination of combustion completeness or of mass burning velocity of atomized fuel.

23888

S/196/61/000/007/004/004
E073/E535

11.7400

AUTHOR: Bovina, T.A.

TITLE: Investigation of the exchange between zonal recirculation behind the stabilizer and the external flow and some problems of flame stabilization

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, 1961, No.7, p.5, abstract 7G43. (Sb. Goreniye pri ponizhennykh davleniyakh i nekotoryye vopr. stabilizatsii plameni v odnofazn. i dvukhfazn. sistemakh., M., AN SSSR, 1960, 58-70)

TEXT: The r e s i d e n c e t i m e of the gas in the recirculation zone behind the stabilizer was determined experimentally and data were obtained on the magnitude of the diffusion coefficient for the recirculation zone. The combustion chamber cross-section was rectangular 90 x 180 mm^2. V-shaped 20-60 mm stabilizers with an apex angle of 30° were fitted at a distance of 250 mm from the inlet end of the chamber. Homogeneous gasoline-air mixtures were burned in the chamber. The speed of flow varied between 10 and 70 m/sec in the case of cold blowing and 60 to 160 m/sec

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Investigation of the exchange ... S/196/61/000/007/004/004
E073/E535

during combustion. The intensity of turbulization of the flow varied between 5 and 20%, whereby the excess air coefficient α varied between 0.8 and 1.45. The time during which the gas was in the recirculation zone was determined as follows. Into the zone behind the stabilizer an aqueous solution of common salt was injected. In the hot zone the water evaporated and the forming sodium vapours emitted light. The light reflected or emitted by the particles was caught on a photomultiplier, the output current of which was fed to an oscillograph. From the change in brightness of the gas in the recirculation zone, conclusions were derived on the change in the concentration of the admixtures in that zone and on the intensity of mass exchange between the recirculation zone and the flow. For evaluating the heat exchange between the recirculation zone and the flow, the temperature of distribution along the radius was measured in various cross-sections of the zone by means of thermocouples. The boundaries of flame formation were determined by means of an ionization pick-up. The experiments yielded quantitative data on the time during which the gas is in the recirculation zone and on the coefficient of diffusion in the

recirculation zone. It was established that this zone is filled with products of complete combustion, the temperature of which is near to the theoretical value, taking into consideration the value of α. If the mixture is made poorer and the speed of the incident flow is increased, the point where the combustion of a fresh mixture begins will be shifted away from the inlet end of the stabilizer, whereby the magnitude of the flame shift is proportional to the speed of flow and for a given α it shows an exponential dependence on the combustion temperature of the mixture. The conclusion is made that the factors which influence the kinetics of the process have a major effect on the total time required for preparing the mixture for combustion. 4 references. Abstracted by V. Babiy.

[Abstractor's Note: The above text is a full translation of the original Soviet abstract.]

28331 S/124/61/000/005/017/032
A005/A130

26.2134

AUTHOR: Bovina, T. A.

TITLE: Investigation of the exchange between the recirculation zone behind a stabilizer and the outer stream, and some problems of flame stabilization

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 5, 1961, 91, abstract 5B552. (V sb.: Goreniye pri ponizhennykh davleniyakh i nekotoryye vopr. stabilizatsii plameni v odnofazn. i dvukhfazn. sistemakh. Moscow, AN SSSR, 1960, 58 - 70)

TEXT: The author experimentally studied the mass exchange behind a stabilizer and the mechanism of flame stabilization. It is assumed that stable burning behind a stabilizer depends to a large extent on what quantity of heat is carried from the recirculation zone into the outer stream of the initial fuel mixture. This is the very heat that determines the development of chemical reaction in the mixture and under certain conditions the transition of the mixture to ignition. The exchange between the recirculation zone and stream is caused by turbulent diffusion. The author defines the coupling between the diffusion coefficients of the

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Investigation of the exchange between the...

zone (D_2) and the inflowing stream (D_1) with velocity v and stabilizer size d as the ratio

$$\frac{D_2}{v} = k' \frac{D_1}{v} + k'' d \qquad (1)$$

where k' and k" are constant coefficients, D_2 was determined indirectly from the experimentally obtained average time of stay τ of the gas in the recirculation zone for both cold streams and streams with stable burning. Time τ was measured by photoelectric recording of admixtures introduced into the recirculation zone that are capable of reflecting or emitting light. After attainment of stationary conditions, the admixture supply was stopped; from the decrease in admixture concentration from an initial value of $C = C_0$ down to $C = 0$ the author, assuming an exponential law for this decrease, determined the relaxation factor τ_1 in the exponent index. The experiment gave rise to curves of τ versus stabilizer size, velocity and intensity of turbulence of the inflowing stream, as well as variation of τ over the length of the recirculation zone. The data obtained on the diffusion coefficient of the zone as a function of stream parameters D_1 and v and on stabilizer size d show that Eq. (1) is satisfied for the values k' = 1 and k" = 0.004. Measurement data for the temperature field through a cross section of the

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return stream zone attest to the constancy of average temperature in the zone for variable stream velocity. If the excess air coefficient is constant and v increases, the temperature in the zone center remains constant up to the beginning of flame separation. Chemical analysis showed that the return stream zone contains products with a combustion rate of $\varphi = 0.96 - 0.97$, and φ does not decrease with approach to the conditions of flame separation. Therefore, it is concluded that flame separation is determined by the quantity of heat coming in per unit volume of the initial mixture and by the time of motion of this volume along the zone surface. It is established that impoverishment of the mixture together with increase in the velocity of the incoming stream leads to increase in the distance l of the beginning of the flame tongue from the stabilizer surface. From measurements of this distance and the detected exponential dependence of l on the temperature in the zone it is concluded that chemical-kinetic factors have a predominant influence on the flame stabilization limits as compared with mixing factors. There are 4 references.

Yu. Denisov

[Abstracter's note: Complete translation]

CHVYROV, A.D.; BOVINA, Ye.S.; AMBURG, S.L.

Rapid determination of fat contents in chrome-tanned leather.
Obm.tekh.opyt. [MLP] no.27:41-43 '56. (MIRA 11:11)
(Leather--Testing)

SLAVIN, S.V., doktor ekonom.nauk; GRANIK, G.I., kand.ekonom.nauk; KUZAKOV, K.G., kand.ekonom.nauk; MIKHAYLOV, S.V., kand.ekonom.nauk; SHAPALIN, B.F., kand.geograf.nauk; KAMENITSER, L.S., nauchnyy sotrudnik; MOSKVIN, D.D., nauchnyy sotrudnik; TYURDENEV, A.P., nauchnyy sotrudnik; LEDENTSOVA, N.A., inzh.; KOZLOV, B.K., kand.tekhn.nauk, starshiy nauchnyy sotrudnik; BRONSHTEYN, L.B., starshiy nauchnyy sotrudnik; BOVKUN, A.Ye.; VERSHININ, A.A., okhotoved; SERGEYEV, M.A., retsenzent; AGRANAT, G.A., kand.geograf.nauk, red.; PUZANOVA, V.F., kand.geograf. nauk; SHENKMAN, V.I., red.izd-va; BRUZGUL', V.V., tekhn.red.

[Problems in the development of the productive forces of Kamchatka Province] Problemy razvitiia proizvoditel'nykh sil Kamchatskoi oblasti. Moskva, 1960. 420 p. (MIRA 13:7)

1. Akademiya nauk SSSR. Sovet po izucheniyu proizvoditel'nykh sil. Sektor prirodnykh resursov i ekonomiki Severa. 2. Zaveduyushchiy Sektorom prirodnykh resursov i ekonomiki Severa Soveta po izucheniyu proizvoditel'nykh sil AN SSSR (for Slavin). 3. Institut energetiki AN SSSR (for Kozlov). 4. Tikhookeanskiy rybnyy institut (TINRO) (for Bronshteyn). 5. Starshiy ekonomist Kamchatskogo oblplana (for Bovkun). 6. Kamchatskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo instituta zhivotnogo syr'ya i pushniny (for Vershinin).
(Kamchatka Province--Economic conditions)

L 3656-66 EWP(e)/EWT(m)/EWP(w)/EPF(c)/EWP(i)/EIC/EPF(n)-2/EWG(m)/T/EWP(t)/EWP(b)
ACCESSION NR: AT5024878 EWA(c) IJP(c) JD/WW/JG/DJ/GS/AT/WH UR/0000/65/000/000/0127/0142

AUTHOR: Epik, A. P.; Bovkun. G. A.; Golubchik, I. V.; Sinitsina, L. P.

TITLE: Certain properties of carbide and boride diffusion coatings on refractory metals

SOURCE: AN UkrSSR. Institut problem materialovedeniya. Diffuzionnyye pokrytiya na metallakh (Diffusion coatings on metals). Kiev, Naukova dumka, 1965, 127-142

TOPIC TAGS: metal diffusion plating, refractory metal, boride, carbide, corrosion resistance, wear resistance, metal scaling

ABSTRACT: Since the physicochemical properties of the diffusion coatings of refractory metals still remain relatively uninvestigated, the authors investigated the scale resistance, wear resistance, and chemical resistance of the carbide and boride diffusion coatings on Ti, Zr, Mo, and W, as well as of the boride coatings of Nb. The boride coatings on Ti, Zr, Nb, Mo, and W represented the phases TiB_2, ZrB_2, NbB_2, $Mo_2B + Mo_2B_5$, and $W_2B + W_2B_5$, and the carbide coatings, correspondingly, the phases TiC, ZrC, Mo_2C, and $W_2C + WC$. Tests of the scale resistance of

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the carbides of these refractory metals at oxidation temperatures of 600-1000°C showed that their scale resistance increases in the following order

$$Mo_2C < WC < W_2C < VC < TiC < TaC(NbC) < ZrC$$

For the borides, this sequence is as follows

$$TiB_2 > ZrB_2 > NbB_2 > TaB_2 > W_2B_5$$

with the borides being generally more scale-resistant than the carbides. Wear-resistance tests, in their turn, based on friction against a rigidly affixed rotating piece of sandpaper, showed that the boridized specimens are more wear-resistant than the carbidized specimens, and that both types of specimens are many times more wear-resistant than the refractory base metal. Measurements of the microhardness of the diffusion coatings showed that it approximates the microhardness of the corresponding phases of the stoichiometric composition. Finally, chemical-resistance tests of the specimens, as based on the authors' tests of corrosion resistance in hydrochloric, sulfuric, nitric, and phosphoric acids, as

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well as in alkalis, showed that carbidized W is the most wear-resistant, as it virtually does not interact with nitric, sulfuric, and phosphoric acids, while it only weakly interacts with alkali solutions. Of the boronized specimens, boronized W and Mo are the most corrosion-resistant. These investigations are only in their initial stage, and they will be continued. Orig. art. has: 2 figures, 5 tables.

ASSOCIATION: Institute of Problems in Materials Science, AN UkrSSR (Institut problem materialovedeniya, AN UkrSSR)
44,55
SUBMITTED: 06Aug65 ENCL: 00 SUB CODE: MM, IC, GC

NO REF SOV: 025 OTHER: 007

GC

Card 3/3

L 07987-67 EWT(m)/EWP(e)/EWP(w)/EWP(t)/ETI IJP(c)' WH/WW/JD/JG/DJ
ACC NR: AP6015350 (A) SOURCE CODE: UR/0226/66/000/005/0029/0031

AUTHORS: Artamonov, A. Ya.; Bovkun, G. A.

ORG: Institute for Problems of Material Applications of the AN UkrSSR (Institute problem materialovedeniya AN UkrSSR)

TITLE: Materials for surface protection against abrasive wear

SOURCE: Poroshkovaya metallurgiya, no. 5, 1966, 29-31

TOPIC TAGS: wear, stellite, cermet wear material, cermet, protective coating, surface coating / KBKh45 cermet, T-620 cermet, T-590 cermet, EP-303 cermet, TiC + 30% NiCr cermet, KTS cermet, KTZh cermet

ABSTRACT: Abrasive wear resistance of a number of cermets was investigated on apparatus Kh4-B using previously described techniques (Ispytaniya na abrasivnoye iznashivaniye na mashine Kh4-B, Izd-vo AN SSSR, M., 1962). Cylindrical specimens 2-mm in diameter were tested at a specific pressure of 95.5 Mn/m^2 for a total of 30-m travel. Besides a check specimen of U8A steel, cermets based on titanium and chromium carbides with chromium nickel and nickel bonding were investigated. The maximum specific wear resistance of titanium and chromium carbide cermets was found to be at a 30% nichrome and at a 10% nickel content respectively (ε = 4 and 11 respectively). Comparative tests with existing coatings showed the superiority of the new materials as per the following listing of relative wear resistance: KBKh45 -- 2.74; T-620 --

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ACC NR: AP6015350

2.68; T-590 -- 3.24; stellite -- 1.37; EP-303 -- 3.9; TiC + 30% NiCr -- 3.96; Cr_3C_2 + 10% Ni -- 10.6; TiB_2 + B_4C -- 10.8; KTS -- 16.8; KTZh -- 8.28. Orig. art. has: 1 table and 2 figures.

SUB CODE: 11/ SUBM DATE: 07Jan66/ ORIG REF: 011/ OTH REF: 002

Card 2/2

BOVKUN, K. A.

BOVKUN, K. A. -- "Gas Permeability of Blast Furnace Charge." Min Higher Education Ukrainian SSR, Dnepropetrovsk Order of Labor Red Banner Metallurgical Inst, Dnepropetrovsk, 1956. (Dissertation for the Degree of Candidate in TECHNICAL SCIENCES).

SO: KNIZHNAYA LETOPIS' (Book Register), No. 42, October 1956, Moscow.

BOVKUN, K.A., inzh.

Gas permeability in iron ore and sinter layers. Izv. vys. ucheb. zav.; chern.met. no.5:3-11 My '58. (MIRA 11:7)

1.Dnepropetrovskiy metallurgicheskiy institut.
(Blast furnaces) (Osmosis)

AUTHOR: Bovkun, K.A. [redacted] 130-58-5-4/16

TITLE: Blast-furnace Operation with a Sized Charge (Rabota domennykh pechey na sortirovannoy po krupnosti shikhte)

PERIODICAL: Metallurg, 1958, Nr 5, pp 6 - 8 (USSR).

ABSTRACT: The author states that in the USSR, productivity of blast furnaces has been increased both by reducing the coke rate and by increasing the coke-burning rate and points out the importance for both of the charge permeability.. As the coke is relatively large and uniform, it is the sinter which mainly governs the permeability and sinter should therefore contain the least possible quantity of 0-12 mm sizes. The author states that layer charging of sized materials becomes more effective when the proportion of fines is high and may actually decrease permeability when the proportion is low, as shown by laboratory experiments. He gives a table showing the critical contents of ore and sinter fines in the charge and states that with present-day sinters, layer charging of sizes is desirable, good results being obtainable with sizing to + 25 and 25-0 mm and better with sizing to +40, 40-12 and 12-0 mm with removal of the last. Results of approximate calculations of pressure drop through the charge made for Nr 1 furnace at the "Zaporozhstal'" Works (70-90% sinter in the

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burden) were higher than measured values and the author briefly discusses the reasons for this. He shows that with present charging methods and burden sizing a combination of preferential wall and centre gas flows is needed to give sufficient overall permeability: with burden sizing, this necessity would be reduced but not entirely avoided unless the burden consists of sinter without any 0-12 mm fraction. In the author's opinion, the improvement in the gas permeability of the charge should be used to enable better solid and gas distribution and utilisation to be achieved together with a higher driving rate of the furnace. There is 1 table.

KISSIN, David Abramovich; BOVKUN, Kim Alekseyevich; SHAROPIN, V.D., red.; ISLENT'YEVA, P.G., tekhn. red.

[Ways of increasing the output of sintering furnaces; practices of the "Zaporozhstal'" Plant] Puti uvelicheniia proizvoditel'nosti aglomeratsionnykh mashin; opyt zavoda "Zaporozhstal'," Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 83 p. (MIRA 15:1)
(Zaporozh'ye--Sintering)

L 05096-67 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP6013291 30B SOURCE CODE: UR/0413/66/000/008/0086/0086

AUTHORS: Bovkun, K. A.; Sadov, L. S.; Rabotenko, G. F.; Bardadym, A. G.; Rybal'chenko, A. A.

ORG: none

TITLE: A potentiometer-integrator. 16 Class 42, No. 180819 [announced by Dnepropetrovsk Branch of the Institute of Automation (Dnepropetrovskiy filial instituta avtomatiki)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 86

TOPIC TAGS: potentiometer, electric measuring instrument

ABSTRACT: This Author Certificate presents a potentiometer-integrator containing an electronic potentiometer. The design provides for recording of both the current value of the parameter and its average value over a fixed time interval on a single plot. A secondary slide wire is connected to the measuring circuit of the potentiometer (see Fig. 1). The sliding arm of this secondary slide wire is connected through a kinematic coupling to a ratchet. It is also connected by a switch for periodically cutting off the sliding arm of the main slide wire at

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L 05096-67

ACC NR: AP6013291

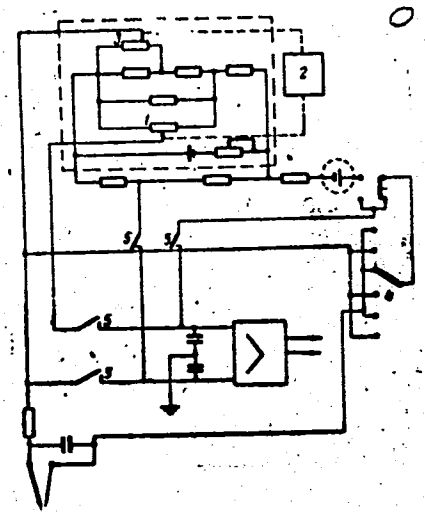


Fig. 1. 1 - secondary slide wire;
2 - kinematic coupling with the ratchet;
3 - main slide wire; 4 - switch;
5 - relay contacts

the reference position by short-circuiting the amplifier input. In this way the sliding arm of the secondary slide wire is periodically shifted to the value proportional to the position of the sliding arm of the main slide wire. In doing this the summation and storage of the average value of the input parameter is accomplished. Orig. art. has: 1 figure.

Card 2/2 SUB CODE: 09/ SUBM DATE: 21Mar64 vmb

BOVKUN, N.T., inzh.

Operational experience of installation crews. Sudostroenie 25 no.4:53-54 Ap '59. (MIRA 12:6)
(Shipbuilding)

GARBER, Yu.N.; BOVKUN, R.A.; YEFIMOVA, Ye.N.

Liquid-vapor equilibrium in the system isobutyl alcohol - isomeric xylenes. Zhur.prikl.khim. 35 no.2:416-422 F '62. (MIRA 15:2)

1. Kuznetskiy filial Vostochnogo nauchno-issledovatel'skogo uglekhimicheskogo instituta.
(Isobutyl alcohol) (Xylene) (Phase rule and equilibrium)

GARBER, Yu.N.; BOVKUN, R.A.; Prinimala uchastiye BESSONOVA, Z.

Relation between the refractive index and the composition of binary systems formed by some alcohols with styrene and xylenes. Zhur.fiz. khim. 37 no.7:1581-1583 Jl '63. (MIRA 17:2)

1. Vostochnyy nauchno-issledovatel'skiy uglekhimicheskiy institut, Kuznetskiy filial.

GARBER, Yu.N.; BOVKUN, R.A.; Prinimala uchastiye; BESSENOVA, Z.

Properties of azeotropic systems formed by isomeric xylenes and styrene with C_3-C_4 alcohols. Zhur.prikl.khim. 37 no.1:153-161 Ja '64. (MIRA 17:2)

1. Altayskiy politekhnicheskiy institut, Kuznetskiy filial Vostochnogo nauchno-issledovatel'skogo uglekhimicheskogo instituta.

GARBER, Yu.N.; BOVKUN, R.A.

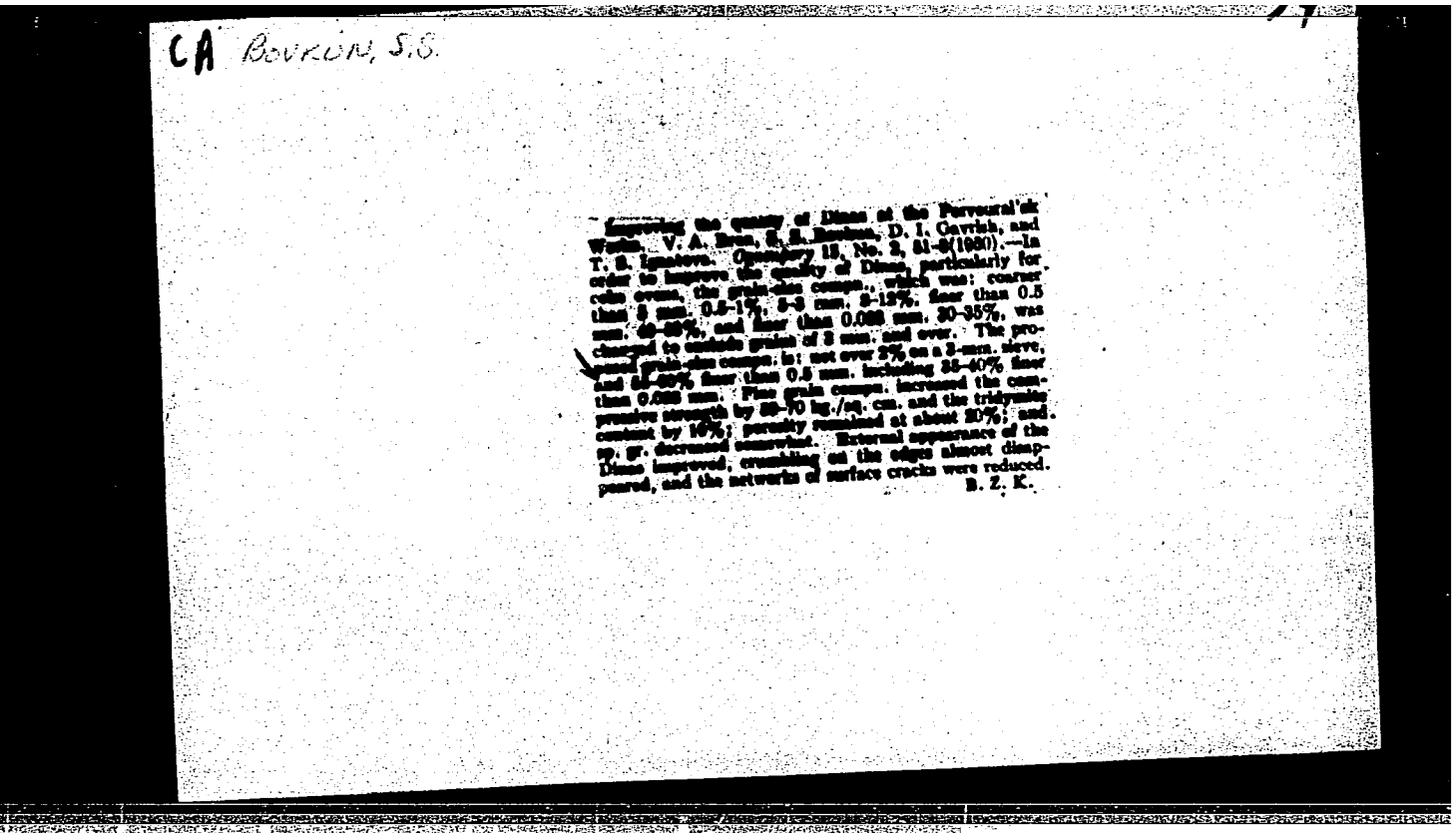
Study of azeotropes formed by xylene isomers and styrene with methylcellosolve. Zhur. prikl. khim. 37 no. 4:831-837 Ap '64. (MIRA 17:5)

BOVKUN, S.I.; KHODZHAYEVA, I.Kh.

Ligation of the umbilical cord with the use of biomycin. Med. zhur. Uzb. no.12:65 D '61. (MIRA 15:2)

1. Iz kafedry akusherstva i ginekologii pediatricheskogo i sanitarnogo fakul'tetov (zav. - doktor med. nauk G.V.Pen'kov) Tashkentskogo gosudarstvennogo meditsinskogo instituta.
(UMBILICUS) (AUREOMYCIN)

CA Bovkun, S.S.



Improving the quality of Dinas of the Pervoural'sk Works. V. A. Bron, S. S. Bovkun, D. I. Gavrish, and T. S. Ignatova. Ogneupory 15, No. 2, 81-6(1950).—In order to improve the quality of Dinas, particularly for coke ovens, the grain-size compn., which was: coarser than 3 mm. 0.5-1%; 3-0 mm. 9-15%; finer than 0.5 mm. 40-55%, and finer than 0.060 mm. 30-35%, was changed to suitable grains of 3 mm. and over. The proposed grain-size compn. is: not over 2% on a 3-mm. sieve, and 45-60% finer than 0.5 mm. including 28-40% finer than 0.060 mm. Fine grain compn. increased the compressive strength by 60-70 kg./sq. cm. and the tridymite content by 10%; porosity remained at about 20%; and sp. gr. decreased somewhat. External appearance of the Dinas improved, crumbling on the edges almost disappeared, and the network of surface cracks were reduced.
B. Z. K.

BOVKUN, S.S.

Work on dust removal at the Pervoural'sk dinas works
Ogneupory 17 no.2, 1952

TSIGLER, V.D.; BOYKUN, S.S.; SIDORENKO, Yu.P.; KALYUZHNYY, P.T.; PAZUKHA, P.I.

Efficient firing of coke dinas in gas-heated compartment kilns.
Ogneupory 19 no.5:195-201 '54. (MIRA 11:7)
(Firebrick) (Kilns)

TSIGLER, V.D.; PINDRIK, B.Ye.; BOVKUN, S.S.; SIDORENKO, Yu.P.

Ways to reduce rejects in standard dinas bricks burned by the gas-chamber kiln process. Ogneupory 21 no.5:202-206 '56. (MLRA 9:10)

1. Khar'kovskiy institut ogneuporov (for TSigler, Pindrik)
2. Zavod imeni Dzerzhinskogo (for Bovkun, Sidorenko).
(Firebrick) (Kilns)

Bovkun, S. S.

AUTHORS: Kaynarskiy, I.S., Pindrik, B.Ye., Bovkun, S.S., Sidorenko, Yu.P., Chudnovskiy, A.M. 131-12-1/9

TITLE: Production (Proizvodstvo) The Organization of Dinas Chromite Production (Organizatsiya proizvodstva dinasokhromita)

PERIODICAL: Ogneupory, 1957, Nr 12, pp. 529-533 (USSR)

ABSTRACT: Before current production was organized a set of test samples was put together, the composition and method of production of which is described in detail. The raw material was dried in a tunnel drying plant and then pressed. The dinas chromite was burnt in gas chamber kilns according to the regime for Martin dinas at 1425-1445°. The results of sorting out showed that dinas chromite can be burnt according to the regime of Martin dinas. Furthermore, the chemical composition, the porosity, the pressure- and breaking strength, refractoriness, permeability to gas, heat conductivity, and the specific heat are given. In table 1 a comparison is drawn between dinas chromite and dinas with respect to slag erosion. The illustration shows the curves of heat expansion of dinas chromite at various temperatures. Further results of microscopical investigations of the structure are given. From all results mentioned above it may be seen that, with respect to its properties, dinas chromite is very similar to dinas, but that

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Production. The Organization of Dinas Chromite Production 131-12-1/9

it is distinguished by a greater resistance against slag at moderate temperatures. For current industrial production the technological process was precisely described, and the best working conditions were provided, which are described in detail. Table 2 shows the burning temperatures. The physical-ceramical properties of dinas chromite are shown in table 3. The results obtained by the investigation of three complete sets of current production may be seen from table 4. In conclusion it is said that the production of dinas chromite presents no difficulties and requires no additional equipment: it can be carried out in any dinas plant. There are 1 figure, 4 tables, and 2 Slavic references.

ASSOCIATION: Khar'kov Institute for Refractories (Khar'kovskiy institut ogneuporov) The Dinas Factory imeni Dzerzhinskiy (Dinasovyy zavod imeni Dzerzhinskiy).

AVAILABLE: Library of Congress

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15(2) SOV/131-59-1-4/12

AUTHORS: Tsigler, V. D., Bovkun, S. S., Sidorenko, Yu. P., Gorfinkel', B. L. (Deceased), Pazukha, P. I.

TITLE: Coking Test of Coke Dinas in the Tunnel Kiln Designed by the All-Union Institute of Refractory Products (Opyt obzhiga koksovogo dinasa v tunnel'noy pechi konstruktsii Vsesoyuznogo instituta ogneuporov)

PERIODICAL: Ogneupory, 1959, Nr 1, pp 19-25 (USSR)

ABSTRACT: Table 1 indicates the period of heating, coking and cooling of the dinas in this furnace. The change of temperature conditions in the heating and cooling zones is shown in figures 1 and 2 and subsequently described in detail. Coking of the dinas was carried out at a temperature of 1400-1440° with a duration of 22 hours. Figures 3 and 4 show the temperature drop according to the height of furnace. Table 2 indicates mass products of various brands which are suitable for coking in the tunnel kiln. Shaped coke products are made of 80% ovruchskiy quartzite and 20-30% broken dinas. Figures 5 and 6 show the mode of settling of various brands, and figures 7, 8 and 9 show coke products of various brands. Further, the

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Coking Test of Coke Dinas in the Tunnel Kiln Designed by the All-Union Institute of Refractory Products

coking conditions (Table 3) and the quality of dinas (Table 4) are indicated. The properties of dinas were determined in the TsZL, and its mineralogical composition in the laboratoriya dinasa Ukrainskogo nauchno-issledovatel'skogo instituta ogneuporov (Dinas Laboratory of the Ukrainian Scientific Research Institute of Refractories) (Table 5). The coke dinas coked in the tunnel kiln corresponds to the requirements of the GOST 8023-56. At these tests, it was not possible to solve the problem of coking shaped dinas products of a higher weight. The coking conditions of these products are still investigated. There are 9 figures, 5 tables and 3 Soviet references.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (Ukrainian Scientific Research Institute of Refractories) Dinasovyy zavod im. Dzerzhinskogo (Dinas Works imeni Dzerzhinskiy)

15(2)

AUTHORS: Bovkun, S. S., Sidorenko, Yu. P. SOV/131-59-6-2/15

TITLE: Steel-pouring Ladles (Buckets) Lined with Unburnt Magnesite (Bezobzhigovyye magnezitovyye stalerazlivochnyye stakany)

PERIODICAL: Ogneupory, 1959, Nr 6, pp 247-250 (USSR)

ABSTRACT: The authors of this paper describe the production technology of these linings in the production of which A. M. Chudnovskiy, Ye. I. Kishko, P. N. Babinskiy, M. G. Danno, I. M. Danchuk, N. T. Bolotov, M. V. Tarasenko, V. V. Kiprenko and G. A. Petrina took part (footnote 1). The chemical compositions of the powdered magnesites used, are given in table 1. The production scheme of the linings is shown in figure 1. The grain composition of the mass can be seen in table 2. Figure 2 shows a pressed lining. The shapes and dimensions of the pressed linings SP-17 correspond to the GOST 5500-50. The press output in a seven-hour working shift amounts to 160 linings with a piece weight of 13,5 kg. The linings are dried for 30 hours on trucks in a tunnel drying plant at 120 - 140°. Their rest moisture is below 0,5 % and the waste quota about 2%. According to their physical qualities the

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Steel-pouring Ladles (Buckets) Lined with Unburnt Magnesite

SOV/131-59-6-2/15

linings produced in February and March 1959 met the specifications of the VTU (Table 3). They shall only be transported in covered waggons, and well packed, and shall only be stored in covered and dry rooms. Unburnt linings were tested in the metallurgical works of the Donets-basin, when treated under the same conditions as the burnt ones, and good results were achieved. Conclusion: The unburnt linings of magnesite are not inferior to burnt linings, neither in quality, nor in their working results achieved in steel casting ladles with a capacity up to 200 t. The omission of the burning process brings about considerable saving. The productional technology developed in the works imeni Dzerzhinskiy, allows an increase of output of linings without much capital investment. There are 4 figures and 4 tables.

ASSOCIATION: Krasnoarmeyskiy dinasovyy zavod im. Dzerzhinskogo (Krasnoarmeysk Dinas Works imeni Dzerzhinskiy)

Card 2/2

BOVKUN, S.S.; SIDORENKO, Yu.P.

Firing heavy coke Dinas in tunnel kil[redacted]. Ogneupory 26 no.9: 399-402 '61. (MIRA 14:9)

1. Dinasovyy zavod im. Dzerzhinskogo.
(Firebrick)

BOVKUN, S.S.; DANCHUK, I.M.; BOGOSLOVSKAYA, L.N.

Burning of lightweight dinas brick in tunnel kilns. Ogneupory 27 no.8:351-355 '62. (MIRA 15:9)

1. Krasnoarmeyskiy dinasovyy zavod imeni Dzerzhinskogo.
(Firebrick)

BOVKUN, Viktor Georgiyevich; KAZARINOV, Ivan Alekseyevich; KOKOSHKIN, Pavel Aleksandrovich; LYUBSKIY, Gennadiy Severianovich; MEDOVAR, Anatoliy Isayevich; PETROV, Viktor Vasil'yevich; PIONTKOVSKIY, Bronislav Aleksandrovich; SERYAKOV, Nikolay Ivanovich; ELINSON, Mikhail Mikhaylovich; SERGEYCHUK, K.Ya., red.; GRIGOR'YEV, B.S., red.; FORTUSHENKO, A.D., red.; BUSANKINA, N.G., red.; SHEFER, G.I., tekhn. red.

[Engineering manual on electric communications; electric equipment] Inzhenerno-tekhnicheskii spravochnik po elektrosviazi; elektroustanovki. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1962. 671 p. (MIRA 15:6)
(Telecommunication--Handbooks, manuals, etc.)
(Electric engineering--Handbooks, manuals, etc.)

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 9, p 174 (USSR) SOV/124-57-9-11145

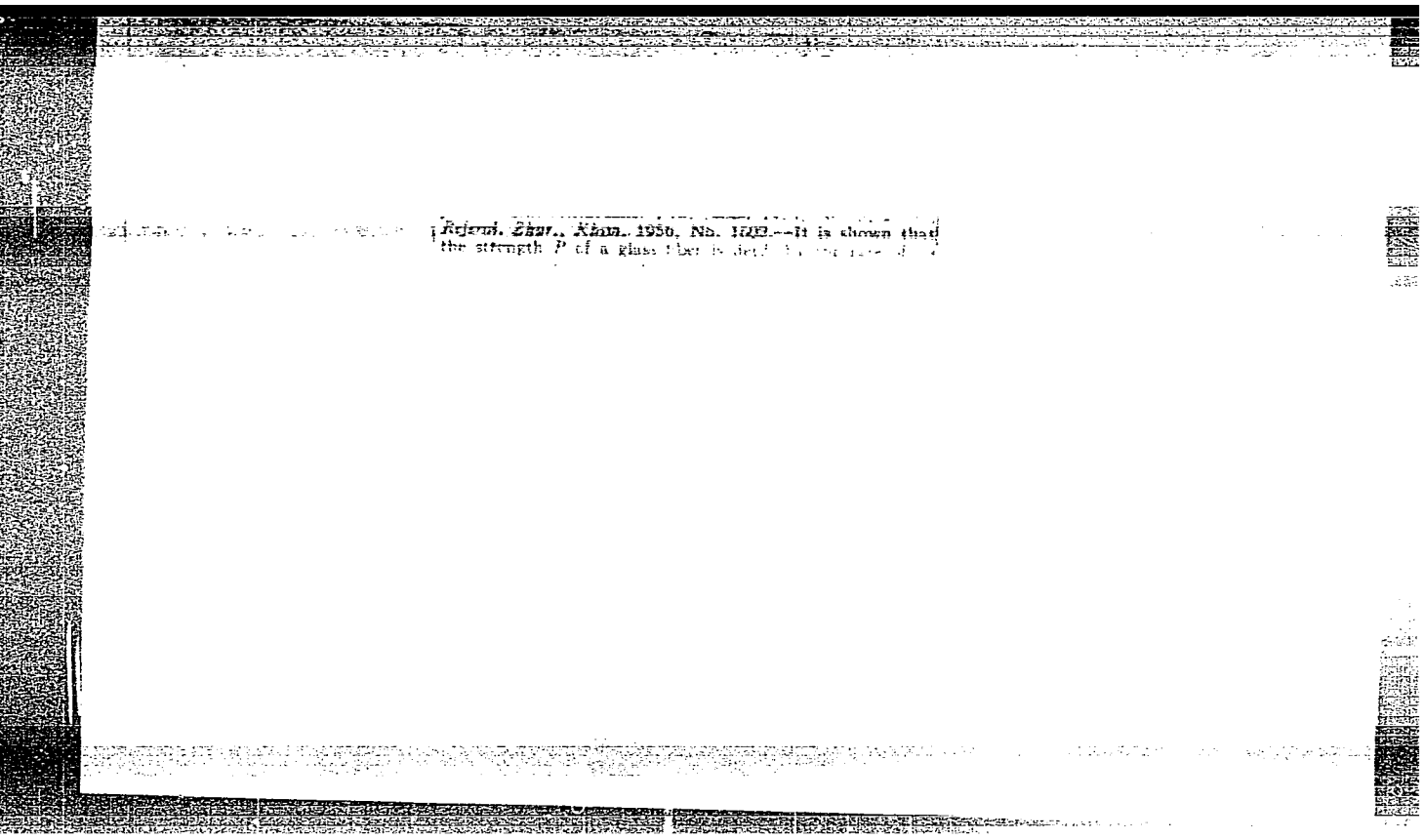
AUTHOR: Bartenev, G. M., Bovkunenko, A. N.

TITLE: The Strength of Thin Filaments and the Structure of the Glass (Prochnost' tonkikh nitey i struktura stekla)

PERIODICAL: Nauch.-tekhn. inform. byul. Vses. n.-i. in-ta stekla. 1954, Nr 6, pp 24-33

ABSTRACT: Bibliographic entry

Card 1/1



Referat. Zhur., Khim. 1956, No. 11[illegible].--It is shown that the strength P of a glass fiber is def[illegible]

BOVKUNENKO, A. N.

BOVKUNENKO, A. N. --"Investigation of the Effect of Certain Technological Factors on the Strength of Glass Fiber." * (Dissertations for Degrees in Science and Engineering Defended at USSR Higher Educational Institutions) Min of Industry of Structural Materials USSR, All-Union Sci Res Inst For Glass, Moscow, 1955

SO: Knizhnaya Letopis', No. 25, 18 Jun 55

* For Degree of Candidate in Technical Sciences

BOYKUNENKO, P. N.

USSR.

Structure of glass and strength of glass fibers. G. M. Bartenev and A. N. Bovkunenko (All-Union Sci. Research Inst. Glass, Moscow). *Zhur. Fiz. Khim.* 29, 508-19 (1955).—The breaking stress P of alkali-free glass filaments increased with the degree D/d of extension (D orifice diam., d fiber diam.) rapidly at small D/d and linearly at $D/d > 50$. The P of filaments drawn out at 1249° was greater than that of 1180° filaments; e.g., at $d = 20\ \mu$ and $D/d = 100$, P was 115 and 106 kg. wt./sq. mm., resp. When the filaments were etched in HF, their P rose but remained const. on further dissoln. of the surface layer in HF; thus, decrease of d by 1 μ and by 20 μ resulted in equal values of P; these final values were about 60 kg. wt./sq. mm. greater than those before etching. As P was independent of d and depended on D/d only, the higher strength of thinner filaments cannot be due to a lesser probability of flaws in a smaller specimen but is caused by the act of stretching. When stretching is small, flaws are oriented, while large stretching orients chem. bonds.

J. J. Bikerman

62

BOVKUNENKO, A.N.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1686
AUTHOR BARTENEV, G.M., BOVKUNENKO, A.N.
TITLE The Strength of Glass Fibres and the Influence exercised upon it by Various Factors.
PERIODICAL Žurn. techn. fiz., 26, fasc. 11, 2508-2515 (1956)
Issued: 12 / 1956

The drawing-out of a continuous glass thread from a viscous glass mass is a well-known process. Here the strength of the glass fibres drawn in this manner is investigated. The fibres are drawn at temperatures of from 1200 to 1300° C out of a viscous mass of glass which flows out of the smelting vessel under the influence of hydrostatic pressure. The glass undergoes plastic deformations of the order 10^6 % when being drawn with a linear velocity of several thousand meters per minute. The viscosity of the glass mass exercises immediate influence upon the velocity of drawing, but not upon strength. However, the temperature-dependent structure of the viscous glass influences the strength of the glass fibres. Thus, the strength of the glass fibres depends on the degree of drawing-out (most important factor), on chemical composition, and on the temperature of the glass mass. There is a correlationlike but not functional connection between strength and diameter of the fibre. The strength of the glass fibres can, in the course of working and by the influence of technological parameters, be adapted to the degree of drawing out.

The dependence of the strength of the glass fibres on length: The strength of the glass fibres does not depend on transversal dimensions but on length, viz.

Zurn.techn.fis, 26, fasc.11, 2508-2515 (1956) CARD 2 / 2 PA - 1686

according to the formula $P = C/\sqrt[n]{l}$. Here the constant C depends on the degree of drawing out, on the composition and on the temperature of the glass mass. It may be assumed that n = 4. The authors examined this formula by measuring the strength of fibres and thick threads in dependence of length (5 to 200 mm). For all diameters 1/n = 0,25 was found, and thus the above formula applies in the case of fibres and thick threads. The independence of strength on transversal dimensions holds good for dimensions of the order 0,01 mm; however, the observed dependence of strength on the length of fibres refers to dimensions of more than 5 mm. A possible explanation of these phenomena is offered.

A formula for the strength of glass fibres: The diameter of the fibre is an easily measurable quantity, and therefore strength and the degree of drawing-out are in practice computed more easily by proceeding from the diameter and by taking the condition of incompressibility when forming the glass into account. One finds:

$P = (1/\sqrt[4]{l})(a + bD/d)$, where $\sqrt{\alpha} = D/d$ replaces the degree of drawing-out the fibre.

The strength of thick glass threads with a diameter of more than 50 microns does not only depend on the degree of drawing-out, but also on transversal measurements.

INSTITUTION:

CHERNYAK, M.G.; ASLANOVA, M.S.; VOL'SKAYA, S.Z.; KUTUKOV, S.S.; SIMAKOV, D.P.; NAYDUS, G.G.; BOVKUNENKO, A.N.; KOVALEV, N.N.; SHKOL'NIKOV, Ya.A.; ZHIVOV, L.G.; KOVALEV, N.P.; KOZHUKHOVA, N.V.; KOROLEVA, A.Ye.; VINOGRADOVA, A.M.; OSIPOVA, O.M.; BADALOVA, E.I.; BRONSHTEYN, Z.I.; L'VOV, B.S.; KRYUCHKOV, N.N.; BLOKH, K.I.; MASHINSKAYA, N.I., red.

[Continuous filament glass fibers; technology fundamentals and their properties] Nepreryvnoe stekliannoe volokno; osnovy tekhnologii i svoistva. Moskva, Khimiia, 1965. 319 p. (MIRA 18:8)

BOVS, L.A.

A.Kh.Khrgian's formula for determining altitudinal distribution of specific humidity. Sbor.rab.Minsk.GMO no.2:13-17 '59.
(MIRA 13:5)

(Minsk region--Humidity)

BOVSHEVEROV, V.M.; VORONOV, V.P.

Acoustical anemoscope. Izv.AN SSSR.Ser.geofiz. no.6:882-885 Je '60. (MIRA 13:6)

1. Akademiya nauk SSSR. Institut fiziki atmosfery.
(Anemometer)

33205
S/141/61/004/005/007/021
E032/E514

24.3200 (1057, 1109, 1158)

AUTHORS: Bovshevero~v, V.M., Gurvich, A.S. and Kallistratova, M.A.

TITLE: An experimental study of the vibration of an artificial source of light

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, v.4, no.5, 1961, 886-891

TEXT: The static vibration characteristics, the dispersion, and the frequency spectrum were investigated with the aid of the apparatus shown in Fig.1. The light source ИС was placed behind a slit whose width was such that the angular dimensions of the source were of the order of 2". The source was placed at a distance L from a telescope. The mirror of a single-loop galvanometer Г was placed between the objective О of the telescope and its focal point at a distance of about 1 cm from the latter. Light reflected from the mirror was focused by a second objective (not shown in the figure) onto a 50 μ slit. The width of this slit was smaller by a factor of approximately 2 than the image of the source produced by the second objective. The photomultiplier ФЭУ was placed behind the slit. When the position of

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33205
S/141/61/004/005/007/021
E032/E514

the source is changed the system may be re-focused by displacing the objective of the telescope. The vibration was measured with the aid of a tracking system operating on a carrier frequency of 5 kc/s. The carrier frequency signal derived from an audio-frequency oscillator was fed into the loop through an adding circuit Σ (balanced bridge). The amplitude of the oscillation of the image was of the order of 35 to 40 μ. The photomultiplier output was fed into the amplifier $\mathcal{Y}$ (band-width 4800-5200 cps). If the average position of the image (per period) is at the mid-point of the slit, then the photomultiplier signal contains frequency components 2f, 4f etc. but the component with frequency f (period = 1/f) is absent. The amplitude of the latter component is proportional to the displacement of the average position of the image from the mid-point of the slit and the phase is the same as the phase of the oscillations of the loop or differs from it by 180° depending on whether the image is displaced to the left or to the right. The amplifier will transmit only those frequencies which are approximately equal to f. The amplifier is followed by the synchronous detector Π whose output is fed to the galvanometer loop through the adding circuit Σ. The variance of

the vibration was measured with the aid of an electrodynamic multiplier with negative feedback which was similar to that described by G. Korn and T. Korn (Ref.6: Electronic analogue computers, 1952 (Russian translation IL, M, 1955). The scale of the multiplier was graduated in units of the variance of the angle of incidence $\sigma_\varphi^2 = (\varphi - \bar{\varphi})^2$. The variance σ_φ^2 was measured as a function of L and of the meteorological conditions. It was found that, on the average, the plot of σ_φ^2 vs. L is a straight line. This is in agreement with the theoretical formula reported by V. I. Tatarskiy (Ref.1: Theory of fluctuations in the propagation of waves in a turbulent atmosphere, Izd.AN SSSR, M., 1959). The experimental data obtained for the intensity of fluctuation in the angle of incidence are also in good agreement with calculations based on meteorological measurements of temperature gradients and wind speed. The spectrum of fluctuations in the angle of incidence is in good agreement with the theoretical calculations based on the Kolmogorov-Obukhov theory of turbulence. There are 5 figures and 7 Soviet references.

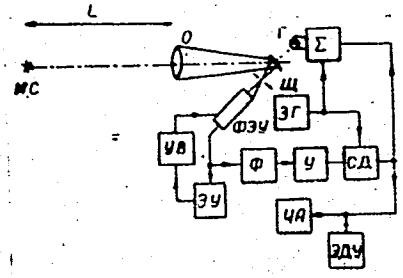
33205

An experimental study of the ... S/141/61/004/005/007/021
E032/E514

ASSOCIATION: Institut fiziki atmosfery AN SSSR
(Institute of Physics of the Atmosphere AS USSR)

SUBMITTED: March 2, 1961

Fig.1. Legend. Block diagram of the apparatus.
ИС - light source, О - objective,
Г - loop galvanometer, Щ - slit,
ФЭУ - photomultiplier,
Ф - 5 kc/s filter, У - amplifier,
СД - synchronous detector,
Σ - adding bridge, ЭУ - electrometric amplifier, УВ - high-voltage rectifier,
ЗГ - audio-frequency oscillator,
ЧА - frequency analyser,
ЭДУ - electrodynamic multiplier.



Card 4/4

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27607
S/030/61/000/009/005/013
B105/B101

AUTHORS: Bovsheverov, V. M., Mordukhovich, M. I.

TITLE: Local acoustic methods in studies of the atmosphere

PERIODICAL: Akademiya nauk SSSR. Vestnik, 31 no. 9, 1961, 56-60

TEXT: Relations between sonic velocity and atmospheric temperature and the deflection of sound by the wind are described as the bases of a local measurement of wind and temperature. The choice of frequency f and of the base length determines the scale by which the velocity $\Delta v = \frac{c_o^2}{2df} \approx \frac{5.8 \cdot 10^8}{df}$ cm/sec and the temperature $\Delta t = \frac{c_o}{df\alpha} \approx 9.3 \cdot 10^6 \frac{1}{df}{}^\circ C$ are measured. S. Moshkovich showed that the error will not be more than 5-10%, provided the ratio between the dimensions of transducer D and base length d has a value of 0.02. D = 0.05 - 0.07 is admissible for an acoustic thermometer. A large-based and a small-based variant of an acoustic anemometer as well as an acoustic thermometer developed at the Institut fiziki atmosfery Akademii nauk SSSR (Institute of Physics of the

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Local acoustic methods in studies ...

Atmosphere of the Academy of Sciences USSR) were put to work. The acoustic anemometer features three transducers (an emitter and two receivers). Its electronics consists of a generator for emitter excitation and a phase meter. The transducers were ~2mm in size for a base of 2d=20cm, and at least 150-200 kops were required for their efficient operation. The acoustic thermometer, while a complicated device, determines the atmospheric temperature directly (without thermistor, bimetal, etc.) by measuring the sound velocity in air. The device works at a maximum altitude of 40-45 km. The thermometer works at 20 kops, its base is 2d = 25 cm, and its sensitivity is about 15° of the phase per °C. Its temperature measuring range covers about 25°C. An acoustic thermometer with 35 tubes weighing about 35 kg was carried to altitudes of 28-30 km in a test program carried out jointly with the Tsentral'naya observatoriya Glavnogo upravleniya gidrometsluzhby (Central Observatory of the Main Administration of the Hydrometeorological Service). Data supplied on that occasion by the acoustic thermometer were compared with those of thermistor radiosondes. The radiosonde was overheated by about 15°C at an altitude of 30 km. A lighter and smaller semiconductor variant of the acoustic thermometer is being developed. There are 2 figures.

Card 2/2

3.5800

S/506/62/000/004/002/005
E032/E314

AUTHORS: Bovsheverov, V.M., Gurvich, A.S., Mordukhovich, M.I. and Tsvang, L.R.

TITLE: Instruments for the determination of temperature and wind-velocity pulsations and for the statistical analysis of experimental data

SOURCE: Akademiya nauk SSSR. Institut fiziki atmosfery. Trudy. no. 4. 1962. Atmosfernaya turbulentnost'. 21 - 29

TEXT: This is a review of instruments developed at the Institut fiziki atmosfery AN SSSR (Institute of Physics of the Atmosphere of the AS USSR). They include acoustic anemometers for the determination of pulsations of wind-velocity components (V.M. Bovsheverov - Izvestiya Akademii nauk SSSR, Seriya, geofiz., no. 6, 1960; A.S. Gurvich - Akust. zh., no. 3, 1958), acoustic converters developed to eliminate errors associated with the formation of a zone of reduced velocity in the wind shadow of acoustic converters (V.M. Bovsheverov - Vestn. AN SSSR, no. 9, 56-60, 1961), acoustic thermometers based on the known relationship between the velocity of sound and temperature (M.I. Mordukhovich -

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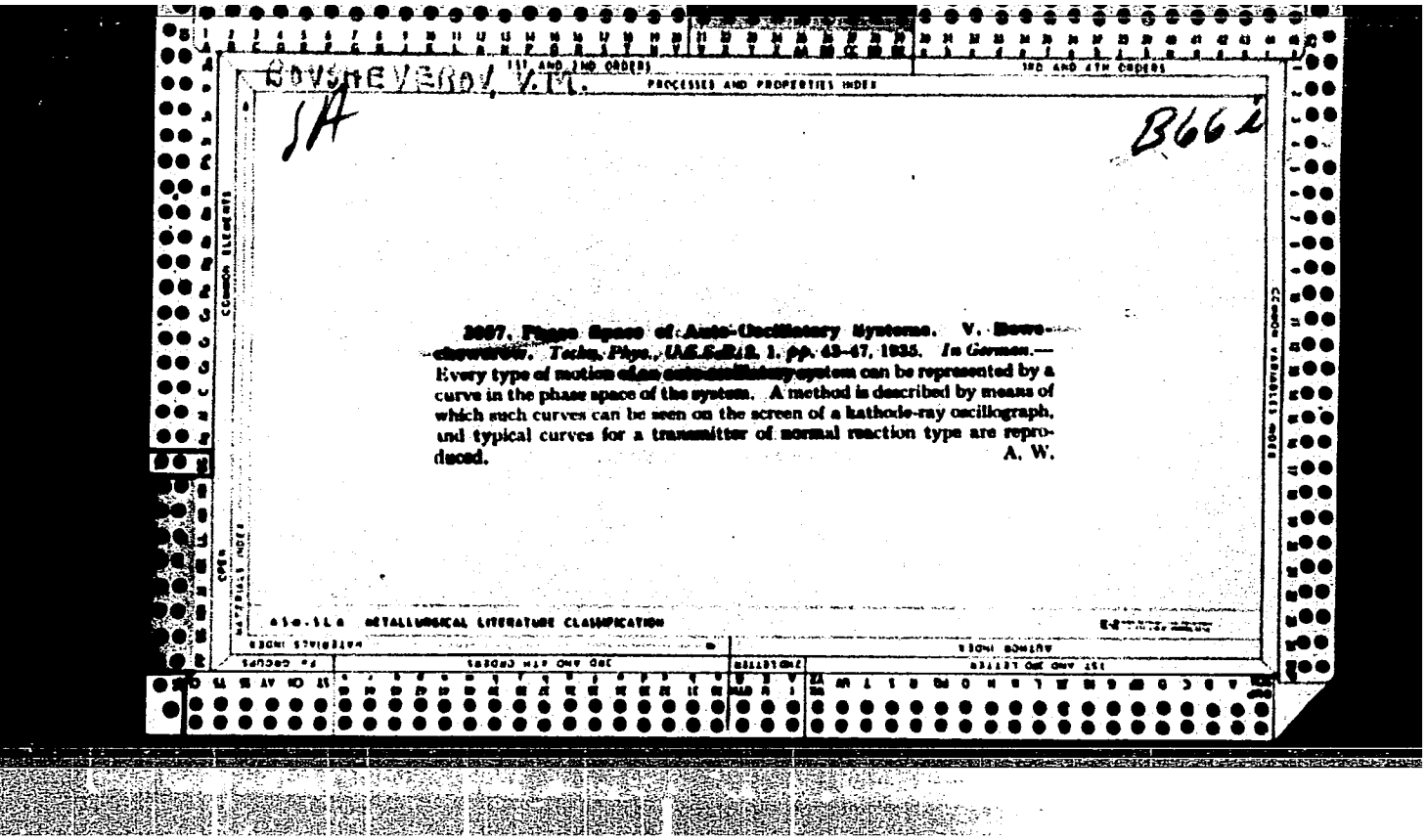
Izv. AN SSSR, seriya geofiz., no. 3, 1959) and a pulsation microthermometer incorporating a 20 μ platinum or tungsten wire thermometer and ensuring automatic measurement of the mean temperature of air (L.R. Tsvang - Izv. AN SSSR, seriya geofiz., no. 8, 1960). The second set of instruments, which are concerned with the analysis of these measurements, includes a low-frequency analyser for the measurement of frequency spectra and a "correlometer" which is used to determine correlation functions of two random quantities and the variance of a random quantity from the mean. There are 9 figures.

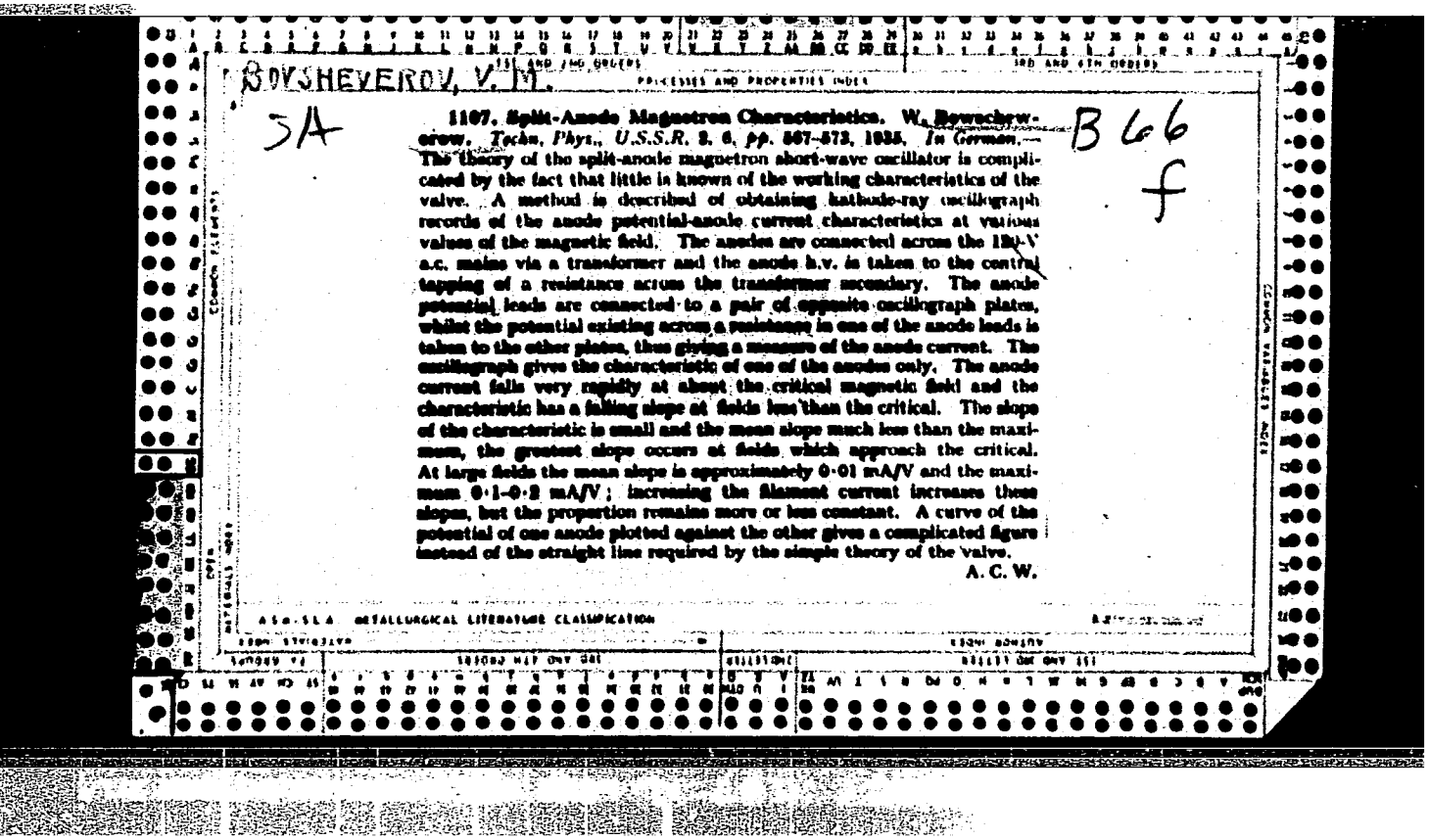


SOVIET/V.M.

SA

B662

2007. Phase Space of Auto-Oscillatory Systems. V. Shove-chevskii. *Techn. Phys., USSR*, 2, pp. 43–47, 1935. *In German.*—Every type of motion of an auto-oscillatory system can be represented by a curve in the phase space of the system. A method is described by means of which such curves can be seen on the screen of a kathode-ray oscillograph, and typical curves for a transmitter of normal reaction type are reproduced. A. W.



BOYSHEVEROV, V. M.

5A

B66

f

1107. Split-Anode Magnetron Characteristics. W. Bowschewerow. *Techn. Phys., U.S.S.R.* 2, 6, *pp.* 567–573, 1935. *In German.*—The theory of the split-anode magnetron short-wave oscillator is complicated by the fact that little is known of the working characteristics of the valve. A method is described of obtaining kathode-ray oscillograph records of the anode potential-anode current characteristics at various values of the magnetic field. The anodes are connected across the 1½-V a.c. mains via a transformer and the anode h.v. is taken to the central tapping of a resistance across the transformer secondary. The anode potential leads are connected to a pair of opposite oscillograph plates, whilst the potential existing across a resistance in one of the anode leads is taken to the other plates, thus giving a measure of the anode current. The oscillograph gives the characteristic of one of the anodes only. The anode current falls very rapidly at about the critical magnetic field and the characteristic has a falling slope at fields less than the critical. The slope of the characteristic is small and the mean slope much less than the maximum, the greatest slope occurs at fields which approach the critical. At large fields the mean slope is approximately 0·01 mA/V and the maximum 0·1–0·2 mA/V; increasing the filament current increases these slopes, but the proportion remains more or less constant. A curve of the potential of one anode plotted against the other gives a complicated figure instead of the straight line required by the simple theory of the valve.

A. C. W.

BOVCHEVEROV, V.M.
WE

Propagation of Waves

621.396.11 : 551.51.053.5 **1041**

On the Connection between the Anomalies of Polarization of Half-light and the State of Ionization. — V. M. Bovcheverov, A. V. Mironov, I. M. Mikhailine, V. M. Morozov, Z. L. Ponizovsky, S. P. Sokolov & I. A. Khvostikov. (*C. R. Acad. Sci. U.R.S.S.*, 1940, Vol. 26, No. 9, pp. 000–003. In French.) According to Rayleigh's theory of molecular scattering, the degree of polarization of half-light (dawn and twilight) should decrease uniformly with ϕ the zenithal distance of the sun, according to $p = (1 - \cos^2\phi)/(1 + \cos^2\phi)$, but in fact the polarization shows a well marked minimum. This may be attributable to effects of the ionized layers. The experiments described (simultaneous observations of polarization and of critical frequency of pulsed radio transmissions) were carried out to find whether there was any correlation between ionization and the degree of anomalous polarization. A comparison between the observed decreases of polarization from the theoretical values and the corresponding critical frequencies show that there is such a correlation, *i.e.* the maximum decrease is associated with the highest critical frequencies.

BOVSHEVEROV, V. M.

USSR/Geophysics - Electrical Instruments 1952

"Dynamic Devices for Measuring Electrical Fields and Charges," V. M. Bovsheverov

"Trudy Geofiz Inst, Ak Nauk SSSR" No 14 (141), pp 79-93

Examines the problem of selecting rationally the schemes and designs for dynamic field-measurers. Analyzes in detail methods for detg the sign of a field and for stabilizing the readings of instruments. Shows diagrams of developed instruments and the results of tests.

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3.5140

S/035/61/000/009/009/036
A001/A101

AUTHORS: Bovsheverov, V. M., Gurvich, A. S., Tatarskiy, V. I., Tsvang, L. R.

TITLE: Devices for statistical analysis of turbulence

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 9, 1961, 29, abstract 9A237 ("Tr. Soveshchaniya po issled. mertsaniya zvezd", 1958, Moscow-Leningrad, AN SSSR, 1959, 26-33, Discuss., 60-62)

TEXT: The laboratory of atmospheric acoustics of IFA, AS USSR, has constructed a set of devices for statistical analysis of turbulence in the Earth's atmosphere: 1) spectrum analyzer, designed on the principle of parallel storing of the signal on 30 filters located in the frequency range 0.05 - 1,000 cps with separation between the neighboring filters being half an octave (a special photoelectrical gage was developed for calibrating the analyzer), 2) an analyzer for measuring the function of probability distribution of light intensity fluctuations; it functions also on the principle of parallel storing and rapid consecutive inquiry (integrated distribution function is measured; the voltage being investigated is supplied to the modulator, further to 25 discriminators with different potentials of unlocking, and after amplification to the storing

Card 1/2

24(8), 3(7)

AUTHORS: Bovsheverov, V. M., Gurvich, A. S., Tsvang, L. R.

SOV/20-125-6-18/61

TITLE: Direct Measurements of a Turbulent Flow of Heat in the Lowest Layer of the Atmosphere (Pryamyye izmereniya turbulentnogo potoka tepla v prizemnom sloye atmosfery)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6, pp 1242-1245 (USSR)

ABSTRACT: The authors first refer to several earlier papers dealing with this subject. The acoustic laboratory of the Institut fiziki atmosfery AN SSSR (Institute for the Atmospheric Physics of the AS, USSR) developed a new method for the direct measurement of the turbulent heat flow. The general measurement scheme is shown by a schematical drawing. The pulsations of the vertical component of the wind velocity W' were measured by means of an acoustic microanemometer, which is described in detail. The acoustic scheme prevents measurements of wind velocity from being influenced by temperature pulsations. Temperature fluctuations were measured by means of a resistance thermometer, the primary element of which consisted of a 20-micron platinum wire of 20 mm length. This wire was connected to a bridge

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circuit. The time constant of such a primary element is of the order of magnitude 0.01 sec. The maximum sensitivity of the thermometer is 0.15°C and the amplitude characteristic (for the pulsations) is within ± 2° linear. The voltages U_1 and U_2 at the output of the microanemometer and the resistance thermometer respectively are proportional to the momentary values of the vertical component of the wind velocity $U_1 = k_1 W'$ and to the temperature pulsations $U_2 = k_2 T'$. These voltages are then applied to two input contacts of a correlometer. The amperage I at the output of this electronic device is then proportional to the product $I = k_3 \overline{U_1 U_2}$, averaged with respect to time, of the two voltages applied. This amperage is then measured by means of an indicator device, the scale of which can be calibrated for the values of the turbulent heat flow. The heat flow was measured alternatingly in heights of 1 and 4 m (360 measurements in 1m height and 80 in a height of 4 m). Averaging extending over a period of 100 seconds is insufficient, for it is necessary to average over a period of 10 minutes. By comparing

the correlation coefficients with the corresponding Richardson numbers it may be seen that with increasing instability ($Ri \to -\infty$) also the correlation $\overline{w'T'}$ increases. There are 4 figures and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut fiziki atmosfery Akademii nauk SSSR (Institute for the Physics of the Atmosphere of the Academy of Sciences, USSR)

PRESENTED: January 20, 1959, by A. A. Dorodnitsyn, Academician

SUBMITTED: January 19, 1959

BOVSHEVEROV, V.M.; GURVICH, A.S.; MORDUKHOVICH, M.I.; TSVANG, L.R.

Instruments for measuring temperature fluctuations and wind velocities, and instruments for the statistical analysis of measurements. Trudy Inst.fiz.atm. no.4:21-29 '62. (MIRA 15:12)
(Winds) (Atmospheric temperature) (Mensuration)

BOVSHEVEROV, V.M.; KALLISTRATOVA, M.A.

Method and preliminary measurements of the fluctuation of the solar limb image. Astron. zhur. 41 no.3:550-554 My-Je '64. (MIRA 17:6)

1. Institut fiziki atmosfery AN SSSR.

ACC NR: AT6003707 SOURCE CODE: UR/0000/65/000/000/0032/0039

AUTHORS: Bovsheverov, V. M.; Gurvich, A. S.; Kallistratova, M. A.

ORG: none

53
51
B+1

TITLE: Flickering of the image of an artificial light source in the surface layer of the atmosphere

SOURCE: AN SSSR. Astronomicheskiy sovet. Opticheskaya nestabil'nost' zemnoy atmosfery (Optical instability of the earth's atmosphere). Moscow, Izd-vo Nauka, 1965, 32-39

TOPIC TAGS: atmospheric turbulence, atmospheric refraction, wind velocity, temperature gradient, free atmosphere

ABSTRACT: Apparatus used for measuring fluctuation of wave fronts was described previously by the authors (Izv. vyssh. uch. zav., Radiofizika, 4, No. 5, 1961). Measurements were made at night in August of 1960 at the Tsimlyanskaya nauchnaya stantsiya Instituta fiziki atmosfera (Tsimlyanskiy Scientific Station of the Institute of Atmospheric Physics). Directed light sources (projectors) were set up at distances of 125, 250, 500, 1000, and 2000 m. The angle of light was about 2". Average values for 10 minutes were used. Flickering was measured, and vertical profiles of wind velocity and temperature were determined to a height of 12 m. The dependence of flicker dispersion on height was determined. Measured and computed values of this

Card 1/2

2

ACC NR: AT6003707

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dispersion were compared and found to be in good agreement. The authors show that the vertical distribution of average wind velocities and of temperature in the surface layer of the atmosphere may be used to compute reliably the amount of flicker by means of the theory advanced by V. I. Tatarskiy (Teoriya flyuktuatsionnykh yavleniy pri rasprostranenii voln v turbulentnoy atmosfere. Izv. AN SSSR, M., 1959). To make comparable computations when the ray passes through the entire atmosphere, it is necessary to know the relationship of C_n (the structural constant of the refractive index n) to dT/dz and du/dz (T is the Kelvin temperature, u the wind velocity, and z the height) in the free atmosphere, in addition to the vertical profiles of wind velocity and temperature. These relationships are now being investigated by L. R. Tsvang (Izv. AN SSSR, ser. geofiz., 10, 1963). Measurements confirm the view that the mean square fluctuation of the angle of light-wave incidence is proportional to the distance of turbulent medium through which the light passes. The fluctuation spectrum of the incident angle agrees satisfactorily with theoretical computations on the basis of the Kolmogorov-Obukhov turbulence theory, and it supports the validity of the "frozen turbulence" hypothesis. The dimensionless spectra of incident-angle fluctuation of light and sound waves are rather similar. Orig. art. has: 4 figures and 8 formulas.

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Proposed indices do not characterize the hazards of sudden outbursts in coal seams (response to N.G.Rusakov's, A.E.Ol'khovichenko's article). Ugol' Ukr. 4 no.10:43 O '60. (MIRA 13:10)

(Rock pressure) (Geology) (Rusakov, N.G.)
(Ol'khovichenko, A.E.)