ACC NR: AT7011651 SOURCE CODE: UR/0000/66/000/000/0216/0216

AUTHOR: Popov, I. G.

ORG: none

TITLE: Aspects of rational nutrition of astronauts in flight

SOURCE: International Astronautical Congress. 17th, Madrid, 1966. Doklady. no. 13. 1966. Nekotoryye aspekty ratsional'nogo pitaniya kosmonavtov v polete

TOPIC TAGS: human physiology, space nutrition, space food, digestive system, biologic metabolism

ABSTRACT:
Cosmonaut nutrition will be a relatively more important environmental factor as spaceflight durations increase, considering the necessity of maintaining high levels of work capacity and adaptability in cosmonauts. The daily food requirements of cosmonauts for different flight phases must first be determined. The adequacy of food standards established in the USSR and other countries for professional groups with activities similar to those of cosmonauts was analyzed. Experience in feeding Ameri-

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ACC NR: AT7011651

can and Soviet cosmonauts and studying their metabolism was also considered. It is known that the overall nutritional regime is important in maintaining homeostasis, heat and water balance, and in determining the degree of assimilation of nutrients. In this study the effect of changes in the number and spacing of feedings and in total food volume on functioning of the organism were considered. Such factors as food variety, taste, and physical condition of food received special attention. The importance of maintaining good appetite and food palatability, and of promoting alimentary stimulation of positive emotions [sic] was acknowledged. When food products to which man is accustomed are used in spaceflight nutrition, it will be necessary only to maintain the alimentary system sterectype. But when closed ecological systems are perfected, it will be necessary to solve the complex problem of human enzymatic adaptation to the new food. Experimental studies of enzymatic adaptation of animals to new synthetic sources of fats and proteins have indicated the complexity of this problem. /ATD PRESS: 5098-F/

SUB CODE: 06 / SUBM DATE: none

Card 2/2

L 43907-66 EWT(m)/EWP(t)/ETI JD

ACC NR: AP6015621 SOURCE CODE: UR/0413/66/000.009/0015/0015

44

B

INVENTOR: Popov, I. G.

ORG: none

TITLE: High-pressure apparatus. Class 12, No. 181049

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 15

TOPIC TAGS: pressure ~~apparatus, welded plate~~ measurement high pressure

ABSTRACT: An Author Certificate has been issued for a high-pressure apparatus. To simplify its manufacture, the chassis consists of welded plate domes with the arched side facing the inside of the apparatus and fastened with longitudinal beams and rings (see Fig. 1). Orig. art. has: 1 figure. [Translation] [NT]

Card 1/2 UDC: 66.023.083.2

Card c/c

L 43907-66

ACC NR: AP6015621

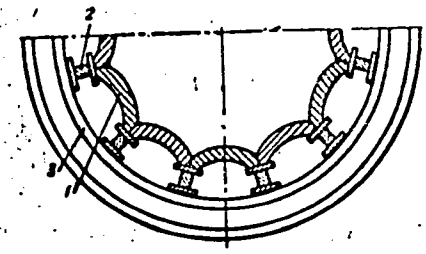

Fig. 1. High-pressure apparatus. 1— Plate domes; 2—beams; 3— rings.

SUB CODE: 13/ SUBM DATE: 17Mar64/

Card 2/2

SMIRNOV, A.D.; POPOV, I.G., red.; ISAYEVA, E.N., red.

[Dynamic model of the interbranch balance; a textbook] Dinamicheskaia model' mezhotraslevogo balansa; uchebnoe posobie. Moskva, In-t narodnogo khoz. 1964. 111 p. (MIRA 18:1)

S/124/62/000/003/042/052
D237/D302

AUTHOR: Popov, I.G.

TITLE: An approximate calculation of long cylindrical shells

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1962, 12, abstract 3V68 (Sb. Raschet prostranstv. konstruktsiy no. 6, M., Gosstroyizdat, 1961, 189 - 212)

TEXT: Assuming that in case of calculating long prismatic folded systems and cylindrical shells (replacing them by folded systems), the method of V.Z. Vlasov (Stroitel'naya mekhanika tonkostennych obolochek (Structural Mechanics of Thin-Walled Shells) M., ONTI, 1936) is sufficiently confirmed by experiment and assuming that the deformations of a spatial folded system nearly coincide with those of a cylindrical bar system, the method of solvings developed by the author (Tsilindricheskiye sterzhnevyye sistemy (Cylindrical Bar Systems) M., Gosstroyizdat, 1952), the author, in order to achieve further simplification of the computation of long cylindrical shells proposes replacing spatial elements by spatial bar systems. A series of comparative calculations by both methods is performed and

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POPOV, I. I., Cand Tech Sci -- (diss) "Prevention of landslides in the coal pits of the Northern Urals." Karaganda, 1960. 20 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Leningrad Orders of Lenin and of Labor Red Banner Mining Inst im G. V. Plekhanov); 120 copies; price not given; (KL, 21-60, 125)

POPOV, I.I., otv. za vypusk; VOROTNIKOVA, L.F., tekhn. red.

[Standard time and production norms for work in protective tree planting and landscaping in railroad transportation] Tipovye normy vremeni i vyrabotki na raboty po zashchitnym lesonasazhdeniiam i ozeleneniiu na zheleznodorozhnom transporte. Moskva, Transzheldorizdat, 1961. 233 p. (MIRA 15:5)

1. Russia (1923- U.S.S.R.) Ministerstvo putey soobshcheniya. Upravleniye truda, zarabotnoy platy i tekhniki bezopasnosti.
(Landscape gardening--Production standards)
(Roadside improvement) (Windbreaks, shelterbelts, etc.)

SOV-49-58-6-8/12

AUTHOR: Popov, I. I.

TITLE: A Short-Period Vertical Seismograph with Magnetic Restoring Force (Korotkoperiodnyy vertikal'nyy seysmograf s magnitnoy vozvrashchayushchey siloy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 6, pp 783-786 (USSR)

ABSTRACT: A seismograph consists basically of a pendulum which satisfies the equation:

$$K \frac{\partial^2 \theta}{\partial t^2} - M_D - M_C = 0 ,$$

where K is the moment of inertia of the system relative to the axis of rotation; θ is the displacement angle of the pendulum; M_D is the moment of the dissipative forces; M_C is the moment of the restoring forces (Refs.1-4). As a quasi-elasti[c] restoring force either gravity or an elastic spring is usua[lly] employed (The latter depends to some extent on temperature). However, it is also possible to use a magnetic field. It [is] supposed that there is an 'isolated' band of the magnet a[long] the point 'm' which can perform oscillations along the vertical line AB (Fig.1). The band M of a constant

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A Short-Period Vertical Seismograph with Magnetic Restoring Force.

magnet enables the weight of M to be counterbalanced. In
Fig.1, M is a strip of the constant stationary magnetic m
is a strip oscillating along AB ; P is the weight of the
strip m ; f is the mutual force between M and m

is the vertical component of f ; MM = r is the distance
from M to m ; MC = d is the distance from M to AB
φ is the angle between m and AB .
From: $f = A/r^2$, $r = d/\sin\varphi$, $f_1 = f \cos\varphi$, as
for the vertical component is obtained in the form:

$$f_1 = \frac{A}{r^2} \cos\varphi = \frac{A}{d^2} \sin^2\varphi \cos\varphi = B \sin^2\varphi \cos\varphi .$$

As f_1 changes with φ , there is a restoring force F
given by the difference between f_1 and P :

$$F = f_1 - P = B \sin^2\varphi \cos\varphi - P$$ which gives:

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A Short-Period Vertical Seismograph with Magnetic Restoring Force

magnet enables the weight of M to be counterbalanced. In Fig.1, M is a strip of the constant stationary magnet; m is a strip oscillating along AE ; P is the weight of the strip m ; f is the mutual force between M and m ; f_1 is the vertical component of f ; mM = r is the distance from M to m ; MC = d is the distance from M to AB ; φ is the angle between r and AB .

From: $f = A/r^2$, $r = d/\sin\varphi$, $f_1 = f \cos\varphi$, an expression for the vertical component is obtained in the form:

$$f_1 = \frac{A}{r^2}\cos\varphi = \frac{A}{d^2}\sin^2\varphi\cos\varphi = B\sin^2\varphi\cos\varphi \ .$$

As f_1 changes with φ , there is a restoring force F given by the difference between f_1 and P :

$$F = f_1 - P = B\sin^2\varphi\cos\varphi - P$$ which gives:

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A Short-Period Vertical Seismograph with Magnetic Restoring Force.

$$\frac{\partial F}{\partial \varphi} = B \sin \varphi \, (2 \cos^2 \varphi - \sin^2 \varphi) = 0$$ and, hence,

$$tg^2 \varphi_0 = 2$$ for maximum f_1. Thus as m recedes from M along AB the restoring force F first grows to a limit corresponding to $\varphi = \varphi_0$. At greater distances f_1 diminishes, which can lead to negative values of $f_1 - P$ and hence the falling of the mass m. This is shown graphically in Fig.2. For small amplitudes of oscillation and for angles φ close to a right angle the restoring force can be considered quasi-elastic. Expressing the first equilibrium state of the system by the condition:

$$f_1' = P = f \cos \varphi = f \frac{h_o}{r_o} = A \frac{h_o}{r_o^3} = A \frac{h_o}{\sqrt{(h_o^2 + d^2)^3}}$$

and the restoring force:

$$F = f_1 - P = A \left\{ \frac{h_o + \Delta h}{\left[(h_o + \Delta h)^2 + d^2\right]^{3/2}} - \frac{h_o}{(h_o^2 + d^2)^{3/2}} \right\}$$

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A Short-Period Vertical Seismograph with Magnetic Restoring Force.

This gives approximately:

$$F \approx A \frac{d^2 - 2h_0^2}{(h_0^2 + d^2)^{3/2}} \Delta h = C\Delta h \quad ,$$

i.e., F is quasi-elastic in this approximation. Fig.3 shows a photograph and Fig.1 a schematic representation of the corresponding apparatus. The constant magnetic field is created by a magnet with dimensions 4 x 5 x 8 cm. At a distance 0.5 - 1 mm from its surface is the counterbalanced end of a weakly magnetized iron rod of length 90 mm and cross-section 0.5 x 1 cm. The rod is fastened along the radius of a circular copper or aluminium disc which rotates about a horizontal axis. Thus the end of the rod in the magnetic field was 11.5 cm from the axis of rotation. The rod and disc represent the pendulum, having a moment relative to

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A Short-Period Vertical Seismograph with Magnetic Restoring Force.

[illegible] of $K = 8 \times 10^{-5}$ kg/m^2. The system constitutes a seismograph with direct optical registration (the length of the optical lever being, A = 100 cm) and a magnification $V_0 \approx 90$. This apparatus was first tested in the Seismometric Laboratory of the Institute of Physics of the Earth, Ac. of Sciences, USSR. A trace of the oscillation is given in Fig.4, where the upper curve gives the oscillations of the seismograph platform with different periods, and the lower gives the oscillations of the seismograph with a natural period T = 0.5 sec. Without additional damping and in conditions close to resonance, the maximum magnification was approximately 500. Damping was noticed in ordinary oscillations owing to the damping action of the magnetic field. The natural oscillations of the pendulum without additional damping are given in Fig.5. Two cases were taken:(a) period of pendulum $T_1 = 0.09$ sec, damping $D_1 = 0.029$, corresponding to a magnification ~ 1600 , (b) $T_1' = 0.44$ sec, damping $D_1' = 0.065$ and maximum magnification 700 . The frequency characteristics of the seismograph for these two cases are given in Fig.6. These are calculated from the formula:

A Short-Period Vertical Seismograph with Magnetic Restoring Force.

$$U_1 = \frac{1}{\sqrt{(1 - u_1^2)^2 + 4D_1^2u^2}}$$, where $u_1 = T_\omega/T_1$ is the ratio of the periods of the arriving waves and of the seismograph and D_1 is the damping of the pendulum.

Optical registration is by a mirror attached to the edge of the disc. Using an ordinary registering apparatus with a horizontal axis of rotation of the recording drum, the light is reflected by two crossed, totally reflecting prisms (Fig.7). The period of natural oscillation can be altered by varying the distance of the constant magnet. This type

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of seismograph seems suitable for use with strong, close earth-
quakes. There are 7 figures and 4 Soviet references.

ASSOCIATION: Akademiya nauk SSSR, Institut Fiziki Zemli, Tsentral'-
naya seysmicheskaya stantsiya "Simferopol'" (Academy of
Sciences, USSR, Institute of Physics of the Earth, Central
Seismic Station "Simferopol")

SUBMITTED: May 28, 1957.

1. Seismographs--Operation 2. Magnetic fields--Application 3. Seis-
mographs--Analysis

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87968

S/049/60/000/010/004/014
E133/E414

3.9300

AUTHOR: Popov, I.I.

TITLE: The Dispersion of Long-Period Love Waves in the Continental and Ocean Crust Along the Great Circle Indonesia-Crimea

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No.10, pp.1458-1462

TEXT: Seismic waves have been recorded on a long-period, horizontal, electrodynamic seismograph at the Crimea. The characteristic periods of the pendulum and galvanometer are 60 sec and 36 sec respectively. The seismograph magnification is shown in Curve 1, Fig.1; (this is a plot of magnification (V) against period in sec). The apparatus was stabilized as suggested in Ref.10. Love waves of periods up to 74 sec were recorded from the earthquake of 1958, August 12 (19 h 25 m 05 s). The azimuth of the earthquake, as measured from the station, was 90° ± 2°. Two groups of Love waves were noted, one 41 min and the other 112 min, after the first P-waves arrived. The first group came

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The Dispersion of Long-Period Love Waves in the Continental and Ocean Crust Along the Great Circle Indonesia-Crimea

across the Eurasian continent (10300 km) and the second across the Pacific and Atlantic (29700 km). The dispersion of the Love waves was studied by methods mentioned in Ref.2,3 and 11. A sample recording is given in Fig.2. The group velocity of the first set of waves lay in the range 3.32 to 4.03 km/sec, that of the second set from 4.13 to 4.29 km/sec. A table is given of the velocities and periods of the waves. The track of the waves is given in Fig.3 and the experimental (dotted) and theoretical (continuous) dispersion curves are compared in Fig.4, in which the group velocity (km/sec) is plotted against the period (sec). Curve 1 is a good approximation for the Eurasian continent for an upper layer of thickness 40 km and wave velocity 3.5 k/s on top of a lower layer with wave velocity 4.5 k/s, the ratio of the densities of the two layers being 1.28. Curve 4 approximates waves travelling two-thirds of the way through the ocean crust (with a layer depth of 15 km) and one-third through continental crust (layer of 40 km).

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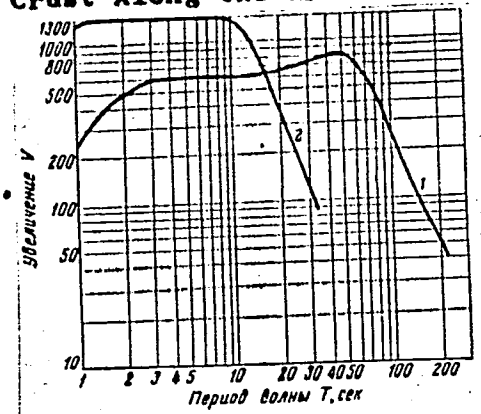
The Dispersion of Long-Period Love Waves in the Continental and Ocean Crust Along the Great Circle Indonesia-Crimea

Fig.1.



Фиг. 1. Частотная характеристика длиннопериодного горизонтального сейсмографа (1) в сопоставлении с характеристикой горизонтального сейсмографа общего типа СГК (2)

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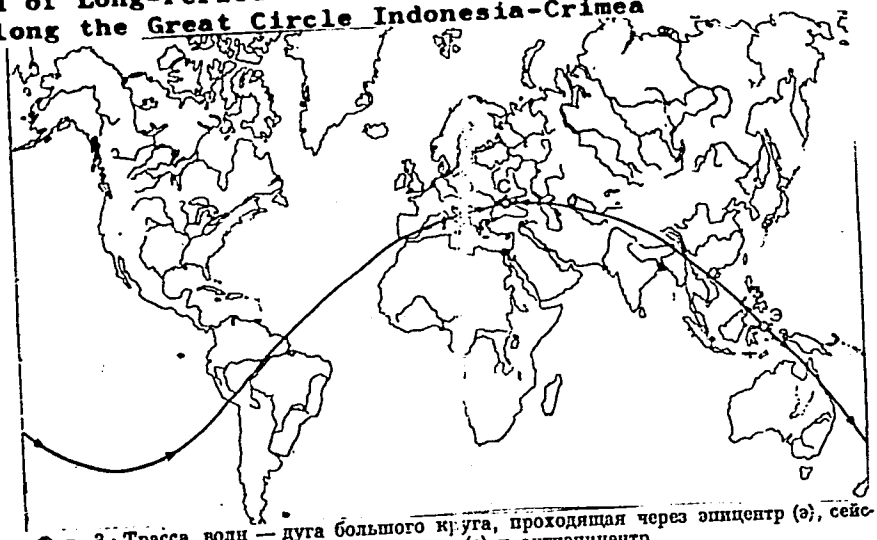
The Dispersion of Long-Period Love Waves in the Continental and Ocean Crust Along the Great Circle Indonesia-Crimea

Fig.3.



Фиг. 3. Трасса волн — дуга большого круга, проходящая через эпицентр (э), сейсмическую станцию (с) и антиэпицентр.

$\Delta_1 = 92°,4$; $\Delta_2 = 267°,6$

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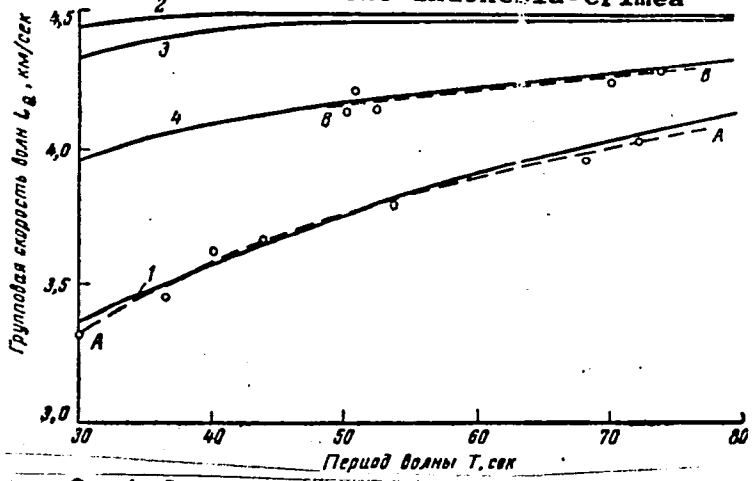
E133/E414

The Dispersion of Long-Period Love Waves in the Continental and Ocean Crust Along the Great Circle Indonesia-Crimea



Фиг. 4. Сопоставление экспериментальных кривых дисперсии групповой скорости волн Лява (A — A, B — B) с теоретическими кривыми дисперсии (1—3); 4 — комбинированная теоретическая кривая для второй трассы

Card 6/6

S/049/61/000/005/004/013
D218/D306

AUTHORS: Arkhangel'skiy, V.T., Kirnos, D.P., Popov, I.I., and Solovyev, V.N.

TITLE: Preliminary observations of long-period seismic waves at the Simferopol' station

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 5, 1961, 670-675

TEXT: This paper was first read at a seminar on surface waves which was held in the Department of Seismology and Seismic Service on October 1 - 5, 1960, at Simferopol'. The authors briefly report on a prototype vertical seismograph which was designed for detecting seismic waves with periods between 20 and 300 sec. The instrument is a modification of a vertical seismograph designed in 1959 in the Department of Seismology of the Institute of Physics of the Earth AS USSR. The modification was carried out in accordance with the recommendations given by the first of the present authors (Ref. 6: Izv. AN SSSR, ser. geofiz., no. 10, 1960). The pendulum

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Preliminary observations of ...

employed is illustrated schematically in Fig. 1. The reduced length of this arrangement is l_1 = 0.742 m and the moment of inertia is K_1 = 0.381 kg.m^2. The flat spring is made of elinvar which has a positive temperature coefficient of frequency (22 x 10^{-6}). The long-period galvanometer was made at the Seismometric Laboratory of the Department of Seismology and Seismic Service, Institute of Physics of the Earth, AS USSR. The period of the galvanometer may be adjusted to between 80 and 130 seconds. Its current constant is 2.2 x 10^{-10} amp/mm at one meter, and its electromagnetic damping constant is 72 ohms. The moment of inertia of the galvanometer frame is K_2 = 8.63 x 10^{-7} kg.m^2. The seismograph has been used to record long-period surface Rayleigh waves with periods in excess of 30 sec. Interesting results are said to have been obtained for Rayleigh waves due to the Chile earthquake of May 22, 1960. Waves with periods up to 480 sec were recorded. There are 5 figures, 1 table and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The 4 most recent references to English-language publications read as

Card 2/4 3

S/049/61/000/001/006/008
D226/D306

AUTHORS: Popov, I.I., and Solov'yev, S.L.

TITLE: Conference on the seismic zoning of the Crimea

PERIODICAL: Akademiya nauk SSSR. Seriya geofizicheskaya. Izvestiya, no. 1, 1961, 120 - 121

TEXT: A conference on Crimean seismology and seismic zoning took place at Simferopol' on October 6 - 8, 1960, the participants being the Seysmicheskiy sovet AN SSSR (Seismologic Council of the AS USSR), the "Simferopol'" Tsentral'naya seysmicheskaya stantsiya instituta fiziki zemli AN SSSR (Central Seismic Station of the Institute of Physics of the Earth, AS USSR), and the Crimean Branch of the Nauchno-tekhnicheskoye obshchestvo stroyindustrii (Scientific-Technical Society of the Building Industry). The aim of the conference was: 1) To attract the attention of both local and other experts to the study of Crimean earthquakes; 2) To remind builders of the need for providing for earthquakeproof buildings in ha[illegible]ar-

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dous seismic zones; 3) To familiarize the participants from various institutions with work being carried out on the theme of the conference. It was opened by S.V. Sosnitskiy, the assistant chairman of the Crimean Regional Executive Committee, and E.F. Savarenskiy, chairman of the Seismologic Council AS USSR. Seismologic papers were heard on the first day. I.I. Popov ("Simferopol'" Seismic Station) spoke of the history and present state of the study of Crimean earthquakes and gave some basic facts about earthquakes. S.V. Medvedev (Institute of Physics of the Earth AS USSR) outlined the chief aims of further work on making a more accurate scheme for the seismic zoning of the peninsula. O.I. Yurkevich (Seismic Department AS UkrSSR) spoke on the seismic zoning of Trans-Carpathia -- the second seismic region of the Ukraine, in particular on the use of multiple-leveling data in seismic zoning. A map of earthquake epicenters in the Black Sea basin was presented by A.Ya. Levitska (Institute of Physics of the Earth, AS USSR). Z.I. Aronovich ("Simferopol'" Seismic Station) reported in detail on the energetics of Crimean earthquakes. The second day of the conferen-

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Conference on the seismic ...

ce was devoted to building problems. Papers were heard by V.P. Umants ("Simferopol" Branch of 'Giprograd'), O.Z. Ioffe of Trest "Yaltastroy" (Yalta Building Trust) and V.N. Timofeyev (Yalta Branch of 'Giprograd') on the state of planning and construction of buildings for seismic areas of the Crimea as was the information of B.K. Karapetyan on the work of the Armyanskiy institut stroymaterialov i sooruzheniy (Armenian Institute of Building Materials and Construction) on problems of earthquakeproof construction and engineering seismology. Papers by G.A. Lychagin, Krymskaya geologicheskaya kompleksnaya ekspeditsiya (Crimean Geological Expedition Group) on geology of the Crimean Peninsula and M.V. Muratov, Moskovskiy geologorazvedochnyy institut (Moscow Geological Prospecting Institute) on Crimean neotectonics, and also reports by V.B. Sollogub (Geologic Institute, AS UkrSSR) on the study of crustal structure in southern areas of the Ukraine and A.A. Shimkus, Black Sea Station of the Institut okeanologii AN SSSR (Oceanologic Institute, AS USSR) on the study of crustal structure in the Black Sea basin, were heard on the last day. The conference adopted a

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ORESHKIN, P. T.; DEVYATKIN, V. A.; POPOV, I. I.

Thermal diffusion currents and the thermoelectromotive force in industrial refractories at high temperatures. Izv. vys. ucheb. zav.; chern. met. 7 no.6:184-190 '64. (MIRA 17:7)

1. Sibirskiy metallurgicheskiy institut.

POPOV, I. I.

Experimental Reserch in Formation by Waves of Stable Profiles of Upstream Faces of Earth Dams and Reservoir Shores.

report presented at the 7th International Conference on Coastal Engineering, The Hague, 21-27 Aug., 1960.

All-Union Sci. Res. Institute of Hydrotechnics im. B.E. VEDENEYEV.

POPOV, I.I.; VORONIN, P.A.; MATYUNIN, V.S.

Method of testing in mines of coal mining explosives for a tendency to burn out. Vzryv. delo no.52/9:217-221 '63. (MIRA 17:12)

1. Makeyevskiy nauchno-issledovatel'skiy institut po bezopasnosti truda v gornoy promyshlennosti.

POPOV, I.A., inzh.

Autonomous asynchronous generator with excitation from variable condensers. Elektrotekhnika 35 no.11:41-44 N '64. (MIRA 18:6)

POPOV, I.I.

Device for the automatic cutting of dowels. Gidroliz. i lesokhim. prom. 18 no.3:29 '65. (MIRA 18:5)

1. Vakhtanskiy kanifol'no-ekstraktsionnyy zavod.

ACC NR: AT7011649 SOURCE CODE: UR/0000/66/000/000/0001/0009

AUTHOR: Akulinichev, I. T.; Zhdanov, A. M.; Popov, I. I.

ORG: none

TITLE: Problems of biotelemetry during prolonged spaceflights

SOURCE: International Astronautical Congress. 17th, Madrid, 1966. Doklady. no. 11. 1966. Problemy biotelemetrii v dlitel'nykh kosmicheskikh poletakh, 1-9

TOPIC TAGS: biotelemetry, manned space flight, human physiology, space medicine, bioinstrumentation

ABSTRACT:

The selection of physiological, hygienic, and psychomotor parameters necessary for solving applied and research problems is one of the biggest problems confronting the manned spaceflight effort. Two contradictory situations render this problem more difficult: 1) High demand for medical information; 2) limited capacity of on-board radiotelemetric systems.

The problem of operational medical control of the condition of cosmonauts has been solved on the basis of

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dynamic analysis of a comparatively small number of preselected parameters. A more detailed analysis of health and working capacity can be realized through results of periodically programmed examinations of cosmonauts according to a program shown in this article and summarized as follows:

1) Operational medical control system results operating at a low continuous interrogation frequency and analyzed on board. Parameters include pulse rate, respiratory rate, body temperature, and cabin or space-suit pressure. 2) Periodic medical monitoring system operating at a high (A) or low (B) periodic; interrogation frequency with analysis taking place during communication periods. Parameters include cardiac bioelectricity (A), respiratory kinetograms (A), seismocardiograms (A), electro-oculography (A), cabin temperature (B), humidity (B), O_2 content (B), CO_2 content (B). 3) Working capacity tests conducted at a high (A) or low (B) periodic interrogation frequency with analysis taking place during communication periods. Parameters include coordination of movements (A), muscular strength (B), respiratory kinetogram (A), cardiac bioelectricity (A), electro-oculography (A), brain bioelectricity (A),

ACC NR: AT7011649

skin galvanic reactions (A). 4) Psychophysiological tests conducted at high (A) or low (B) periodic interrogation frequency with analysis taking place during communication periods. Parameters include the monitoring of test stimulus duration (B), test stimulus intensity (A), test completion accuracy (A), reaction tendency (A), and skin galvanic reactions (A). 5) Circulatory system tests conducted at a high (A) and low (B) periodic interrogation frequency. Parameters include cuff pressure (B), arterial oscillations (A), Korotkov tones (A), electroplethysmograms (A), cardiac bioelectricity (A), respiratory kinetograms (A , and seismocardiograms (A). 6) Respiratory-function tests conducted at a high (A) and low (B) periodic interrogation frequency. Parameters include respiratory kinetograms (B), volumetric flow (B), rate of volumetric flow (B), cardiac bioelectricity (B), cabin O_2 content (B), cabin CO_2 content (B), cabin humidity (B), cabin pressure (B), and cabin temperature (B). 7) Vestibular tests conducted at a high (A) and low (B) interrogation frequency. Parameters monitored include stimulus duration (B), stimulus intensity (A), skin galvanic reactions (A), cardiac bioelectricity (A), electro-oculography (A), and brain bioelectricity (A).

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ACC NR: AT7011649

Block diagrams of the above systems are given in the following figures.

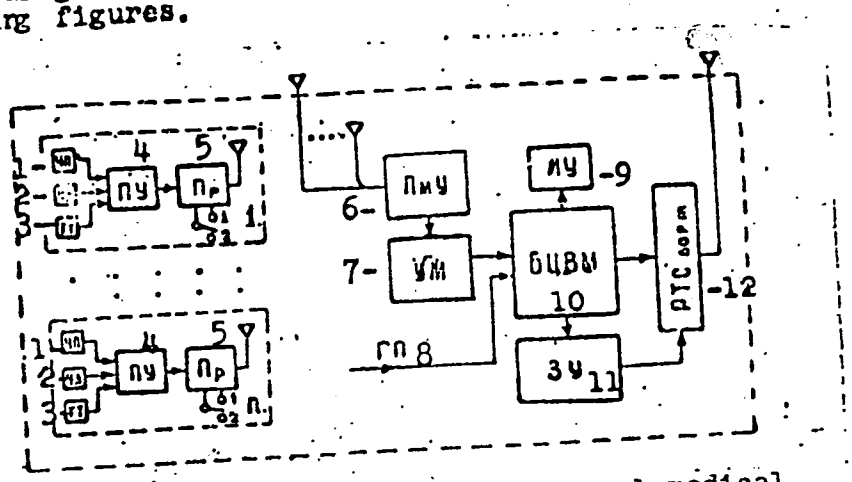

Figure 1. Functional diagram of an operational medical control system.
1. pulse rate; 2. respiration rate; 3. body temperature; 4. transducer-amplifier; 5. transmitter; 6. receiver; 7. power amplifier; 8. hygienic parameters; 9. readout gage;

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10. on-board digital computer; 11. data storage; 12. on-board component of the telemetry system.

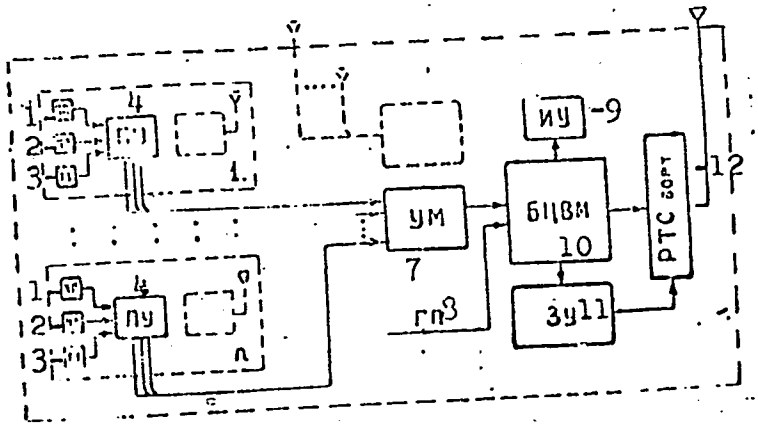


Figure 2. Functional diagram of an operational medical control system using a wired communication link between the cosmonaut and the on-board system.
1. pulse rate; 2. respiration rate; 3. body

temperature; 4. transducer-amplifier; 5. transmitter; 6. receiver; 7. power amplifier; 8. hygienic parameters; 9. readout gage; 10. on-board digital computer; 11. data storage; 12. on-board component of the telemetry system

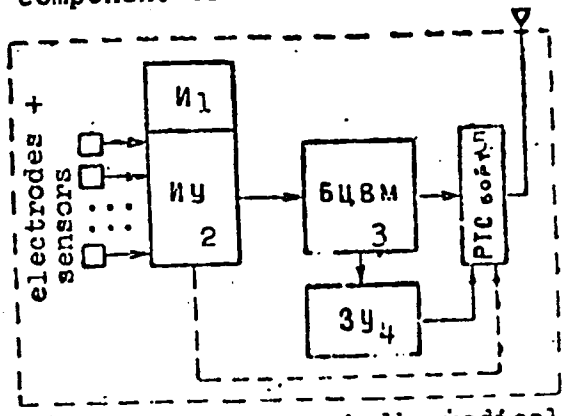


Figure 3. Functional diagram of a periodic medical examination and research system. 1. channel function readout; 2. measuring device; 3. on-board digital computer; 4. data storage; 5. on-board component of the telemetry system

ACC NR: AT7011649

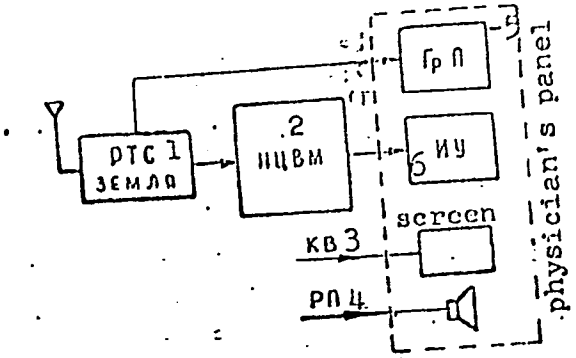


Figure 4. Earthside components of a medical control system.
1. earthside telemetry system; 2. earthside digital computer; 3. space TV system; 4. radiocommunications (voice); 5. graph plotter; 6. readout gage

Future telemetry systems will have to consider extravehicular activity by cosmonauts during future prolonged spaceflights. Small-scale (on-board and near-vehicular) telemetry systems present many prob-

Card 7/9

lems. The theoretical and experimental foundations for the construction of such systems have not yet been worked out. Therefore, further experimental and theoretical research is necessary to determine radio-wave propagation characteristics in closed spaces (cabins) and to construct radio-channel equipment which will reliably transmit biotelemetric information. The first stage of the solution of this problem was the Voskhod-2 flight. Uncomplicated hardware was used to transmit Leonov's pulse and respiration data to Belyayev.

The miniaturization and microminiaturization of biotelemetric hardware has also not been fully solved. In view of its dimensions, equipment used thus far must be taken as a compromise. The first stage of microminiaturization was micromodule construction. The bio-amplifier system developed as a first step in microminiaturization was used on Voskhod-1 as the basic circuit of the research device used by B. B. Yegorov.

Present-day electrodes and sensors are insufficient for prolonged spaceflights and those which can be incorporated into cosmonaut clothing are needed. In general,

ACC NR: AT7011649

a multitude of problems confront space biometrics and telemetry. The author has mentioned only a few, the solution of which will have a pronounced effect in accelerating the progress of cosmonautics and in increasing the safety of prolonged manned spaceflights. Orig. art. has: 4 figures and 1 table. [ATD PRESS: 5098-F]

SUB CODE: 06 / SUBM DATE: none

Card 9/9

ACC NR: AT7003838 SOURCE CODE: UR/3169/66/000/018/0094/0098

AUTHOR: Popov, I.I.; Kapitanova, S.A.

ORG: Institute of Physics of the Earth, AN SSSR (Institut fiziki Zemli AN SSSR)

TITLE: Azimuthal dependence of group velocities of Rayleigh surface seismic waves based on observations in Simferopol'

SOURCE: AN UkrSSR. Geo izicheskiy sbornik, no. 18, 1966. Geofizicheskiye issledovaniya stroyeniya zemmoy kory (Geophysical investigations of the structure of the earth's crust), 94-98

TOPIC TAGS: earth crust, seismic wave propagation, upper mantle, earthquake, Rayleigh wave, velocity profiling, group velocity dispersion, SHOCK WAVE VELOCITY

ABSTRACT: The results of observations of group velocity dispersion of Rayleigh surface waves conducted in the period 1957—1964 by the "Simferopol'" seismic station are presented. A standard SVK [Kirnos vertical system seismograph] was used in conjunction with a special long-period vertical seismograph to record 53 earthquakes whose foci were located in the Earth's crust and whose epicentral distances ranged from 3500 to 16,800 km. The magnitude of the earthquakes varied in the range 5 1/4 < M < 7 1/2, the periods of the dispersed waves were in the 10—100-sec interval, and

Card 1/3 UDC: none

the group velocities ranged from 2.7 to 4.0 km/sec. The azimuths from Simferopol' to the epicenters of most events were in the 0 to 90° interval, i.e., originating in Eurasia. The technique of calculating the azimuthal dependence of group velocities by periods made it possible to determine the direction of the wave paths corresponding to extremal velocity values, thereby indicating the generation and propagation of surface waves from the block regions having the greatest crustal thickness or - in the case of longer period waves - of the upper mantle. Fig. 1

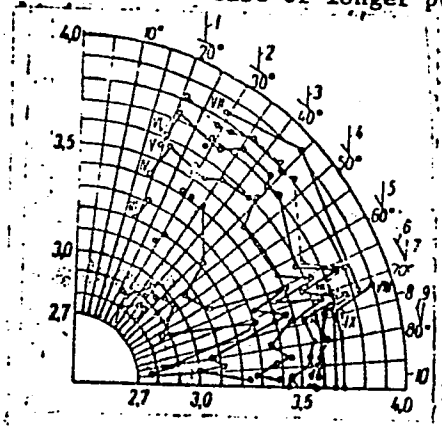


Fig. 1. Azimuthal diagram of the group velocities of Rayleigh waves

1 - East European plain, Arctic Ocean, Bering Sea, Aleutian Islands; 2 - Urals, Middle Siberian plateau, Verkhoyansk range, Sea of Okhotsk, Kamchatka; 3 - Stanovoy range, Sea of Okhotsk, Kurile Islands; 4 - Sayany, Khingan, Sea of Japan, Japan; 5 - Altay, Gobi desert, Yellow Sea, Japan; 6 - Gobi, Pacific Ocean, Solomon Islands, New Hebrides; 7 - Tien Shan, Gobi, East China Sea, Japan (south); 8 - Tien Shan, Pacific Ocean, Melanesia, Kermadek basin; 9 - Tien Shan, Northwest China; 10 - Pamirs, Tibet, Himalayas, South China Sea (Indonesia).

ACC NR: AT7003838

is an azimuthal diagram of the group velocities. It shows that in the case of azimuths approaching 66° the mean velocities decrease for all periods, owing probably to the presence of such mountain chains as the Tien Shan along the wave path. At azimuths of about 72—74°, the velocities increase because of the influence of the thin crust of the Gobi desert region. It was established that the method of studying the velocity dispersion of surface seismic waves over extended paths, though it yields only mean values of the parameters of the Earth's crust for great distances, nonetheless is sensitive to differences in the structure of the layered medium in different directions from the point of observation. Velocity differences as a function of azimuth are most readily discernable in relatively shorter-period surface waves (T = 10—35 sec), owing to the dispersing influence of the Earth's crust. This influence decreases as the period increases, until the influence of the upper mantle predominates. At this point, velocity differences are no longer dependent on azimuth, indicating the greater homogeneity of the upper mantle in comparison with the crust. [DM]

SUB CODE: 08/ SUBM DATE: 10May65/ ORIG REF: 003/ OTH REF: 002/
ATD PRESS: 5114

Card 3/3

POPOV, I.I., dotsent; YESHUTKIN, N.V., inzh.

Results of the investigation of the manifestation of rock pressure and conditions of the stability of mine workings at the eastern Kounradskiy Mine. Izv. vys. ucheb. zav.; gor. zhur. 7 no.10:22-26 '64. (MIRA 18:1)

1. Karagandinskiy politekhnicheskiy institut. Rekomendovana kafedroy geodezii i marksheyderskogo dela.

POPOV, I.I., dotsent; YEZHUTKIN, N.V., dotsent; [illegible]

Physicomechanical and elastic properties of Gul'shad deposit rocks and ore. Izv.vys.ucheb.zav.; gor.zhur. 7 no.12:16-20 '64. (MIRA 18:2)

1. Karagandinskiy politekhnicheskiy institut. Rekomendovana kafedroy teodezii i marksheyderskogo dela.

POPOV, I.I.

First works of I.V. Kurchatov. Priroda 52 no.9:94 '63.
(MIRA 16:11)

1. TSentral'naya seysmicheskaya stantsiya "Semferopol'"
Instituta fiziki Zemli AN SSSR.

POPOV, I.I.

Angles of incline of sides being worked in the Bogoslovskiy pits.
Trudy Inst. gor. dela UFAN SSSR no.5:113-116 '63. (MIRA 16:9)
(Karpinsk region--Strip mining) (Landslides)

GALADZHIY, F.M., kand. tekhn. nauk; POPOV, I.I., inzh.; ZENIN, V.I., inzh.

Study of the causes of the failure of reliable detonations of borehole charges with safety explosives in group blasting of coal. Vzryv. delo no.51/8:331-345 '63. (MIRA 16:6)

1. Makeyevskiy nauchno-issledovatel'skiy institut.
(Coal mines and mining) (Blasting)

POPOV, I.I.

Determining the possibility of applying short-delay blasting in seams subjected to coal and gas outbursts. Trudy MakNII 10:296-302 '60. (MIRA 15:10)
(Blasting) (Mine gases)

RUDAKOV, M.L.; POPOV, I.I.; LI, A.P.; DIDKOVSKIY, D.Z., otv.red.; BYKHOVSKAYA, S.N., red.izd-va; POLILUYEV, V.A., tekhn.red.; BERGSLAVSKAYA, L.Sh., tekhn.red.

[Prevention of sliding in opne-cut mines] Preduprezhdenie opolznei na kar'erakh. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 134 p. (MIRA 14:1)
(Strip mining) (Soil mechanics)

POPOV, I.I., dotsent

Basis for choosing several parameters and directions in mining when confronted with various coal deposit synclines. Izv. vys. ucheb. zav.; gor. zhur. no.3:30-34 '60. (MIRA 14:5)

1. Karagandinskiy politekhnicheskiy institut. Rekomendovana kafedroy geodezii i markshreyderskogo dela.
(Coal mines and mining)

POPOV, I.I., dotsent

Conditions of stability of internal dumps. Izv. vys.ucheb. zav.; gor. zhur. no.5:28-33 1960. (MIRA 14:3)

1. Karagandinskiy politekhnicheskiy institut. Rekomendovana kafedroy geodezii i marksheyderskogo dela.
(Strip mining)
(Soil mechanics)

POPOV, I.I., inzh.

Improving safety measures in blasting. Bezop.truda v prom. 4 no.2:25-27 F '60. (MIRA 13:5)
(Blasting--Safety measures)

AID P - 4721

Subject : USSR/Aeronautics - education

Card 1/1 Pub. 135 - 2/23

Author : Popov, I. K., Lt. Col.

Title : Military-scientific work of academy students

Periodical : Vest. vozd. flota, 7, 9-13, Jl 1956

Abstract : The author describes how to organize among the students the writing of military-scientific works at the Red Banner Air Force Military Academy. The article deserves attention.

Institution : None

Submitted : No date

POPOV, I.K., inzh., red.; PEVZNER, A.S., red. izd-va.; LAGUTINA, I.M., tekhn. red.

[Manual of consolidated indices of the cost of planning and research. Effective January 1, 1958] Spravochnik ukrupnennykh pokazatelei stoimosti proektnykh i izyskatel'skikh rabot. Vvoditsia v deistvie s 1 ianvaria 1958 g. Moskva, Gos. izd-vo lit-ry po stroit., arkhit.i stroit. materialam. Pt. 20. [Grain elevators, warehouses, and enterprises of the food industry] Predpriiatiia pishchevoi promyshlennosti i elevatorno-skladskoe khoziaistvo. Izd. 2., ispr. 1958. 65 p. (MIRA 11:12)

1. Russia(1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.

(Grain elevators)
(Warehouses)
(Food industry)

MASHINSKIY, V.L.; POPOV, I.K.[deceased]; KRIVOSHAPOV, I.S., red.

[Problems of the organization of production in nurseries, flower and greenhouse farms, and orchard and park management; brief lectures as an aid to correspondence teaching]Voprosy organizatsii proizvodstva v pitomnikakh, tsvetochno-oranzhereinykh i sadovo-parkovykh khoziaistvakh; kratkie lektsii v pomoshch' zaochnomu obucheniiu. Moskva, Vserossiiskoe ob-vo sodeistviia okhrane prirody i ozeleneniiu naselennykh punktov, 1960. 86 p. (MIRA 15:7)

(Plants, Ornamental)

POPOV, IL

To Fulfill the Collective Working Contracts. Leka Promishlenost (Light Industry), #9:5:Sep. 1955

NEKRASOV, V.I. (Leningrad); POPOV, I.M. (Leningrad); ESTLING, A.A. (Leningrad)

Modeling method used for investigating dynamics of electric trains. Elek. i tepl. tiaga 2 no.9:10-13 S '58. (MIRA 11:10)
(Electric railroads--Dynamics--Trains)

POPOV, I.M., inzh.

Choice of the parameters of shock absorbers for electric locomotives with a dual resilient suspension system. [Trudy] LIIZHT no.193:129-134 '62. (MIRA 15:12)

1. Leningradskiy institut inzhenerov zheleznodorozhnogo transporta.

(Electric locomotives)

POPOV, I.M., aspirant

Determining frequencies of natural vibrations of four-axle vehicles with a double system of elastic suspension. Izv.vys.ucheb.zav.; mashinostr. no.7:41-44 '59. (MIRA 13:6)

1. Leningradskiy institut zheleznodorozhnogo transporta.
(Railroads--Cars--Vibration)

POPOV, I.M., inzh.; CHERKASOV, Ye, B., inzh.; ESTLING, A.A., inzh.

Dynamic testing of models of electric rolling stock. Sbor.LIIZHT no.167:67-77 '59. (MIRA 13:5)
(Electric railroads--Rolling stock)

POPOV, I.M., inzh.

Selecting basic parameters for the mechanical part of high-speed electric locomotives. Izv.vys.ucheb.zav.; mashinostr. no.4:171-179 '62. (MIRA 15:7)

1. Leningradskiy institut zheleznodorozhnogo transporta.
(Electric locomotives)

POPOV, I.M.; STROYEV, N.S.

Sickness rate among the athletes of Smolensk in [illegible] [Study]
GIDUV no.35: 93-102'62. (MIRA 16:6)
(SMOLENSK—SPORTS MEDICINE)

POPOV, I.M.; ESTLING, A.A. (Leningrad)

Investigating the dynamics of electric locomotives at high speeds. Elek.i tepl.tiaga 3 no.10:35-37 O '59. (MIRA 13:2)

(Electric locomotives--Dynamics)

POPOV, I.M., zasluzhennyy vrach RSFSR.

Isolated subcutaneous injuries of the pancreas. Khirurgiia 34 no.7:31-32 Jl '58 (MIRA 11:9)

1. Iz khirurgicheskogo otdeleniya (zav. I.M. Popov) V. Ufaleyskoy gorodskoy bol'nitsy Chelyabinskoy oblasti.
(PANCREAS, wounds and injuries
case reports (Rus))

POPOV, I.M., zasluzhennyy vrach RSFSR

Cholaperitoneum without perforation of the biliary tract. Khirurgiia 34 no.9:115-116 S '58. (MIRA 12:4)

1. Iz khirurgicheskogo otdeleniya 1-y Verkhne-Ufaleyskoy gorodskoy bol'nitsy Chelyabinskoy oblasti (zav. I.M. Popov).
(PERITONITIS)

POPOV, I.M.

Acute intestinal obstruction due to a cyst of the appendix.
Khirurgiia no.5:76 My '56. (MLRA 9:9)

1. Iz khirurgicheskogo otdeleniya (zav. I.M.Popov) 1-y Verkhne-Ufaleyskoy gorodskoy bol'nitsy Chelyabinskoy oblasti.
(INTESTINES--OBSTRUCTION) (APPENDIX--TUMORS)
(CYSTS)

POPOV, I.M.

A case of invagination in pregnancy. Sov.med. 22 no.4:141-142 Ap'58
(MIRA 11:7)

1. Iz khirurgicheskogo otdeleniya Verkhne-Ufaleyskoy gorodskoy bol'nitsy Chelyabinskoy oblasti (glavnyy vrach S.M. Yeremenko).
(PREGNANCY, compl.
intussusception (Rus))
(INTUSSUSCEPTION, in preg.
case report (Rus))

POPOV, I.M., inzh.

Frequencies of the self-oscillations of electric locomotives with a two-stage elastic suspension. Vest. TSNII MPS 21 no.1:13-15 '62. (MIRA 15:2)
(Electric locomotives)

VALUYSKIY, Nikolay Tikhonovich; POPOV, Ivan Mikhaylovich, kand. ekonom. nauk; MOISEYEV, M.I., red.; DRAKHANOVA, Ye.N., red.; MARAKASOVA, L.P., tekhn. red.

[Undivided funds are the foundation of communal economy] Nedelimye fondy - osnova obshchestvennogo khoziaistva kolkhozov. Pod obshchei red. Moiseeva M.I. Moskva, Izd-vo "Sovetskaia Rossiia," 1961. 23 p. (MIRA 14:11)

1. Predsedatel' kolkhoza "Pobeda" Kantemirovskogo rayona Voronezhskoy oblasti (for Valuyskiy). 2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Moiseyev).
(Collective farms--Finance)

POPOV, Ivan Mikhaylovich; VASIL'YEV, V.N., red.; DROKHANOVA, Ye.N., red.; KUZNETSOVA, G.I., tekhn.red.

[Ways for a better use of production funds on collective and state farms] Puti luchshego ispol'zovaniia proizvodstvennykh fondov kolkhozov i sovkhozov. Moskva, Izd-vo "Sovetskaia Rossiia," 1960. 38 p. (Dlia slushatelei sel'skikh nachal'nykh ekonomicheskikh shkol i kruzhkov. Tema 3)

(MIRA 14:1)

(Agricultural administration)

POPOV, I.N., inzhener.

Use of reinforced concrete tubing for shaft linings in the Kuznetsk Basin. Shakht. stroi. no.7:28-29 Jl '57. (MLRA 10:8)
(Kuznetsk Basin--Shaft sinking)
(Precast concrete construction)

POPOV, I.N.; SOLOV'YEV, A.I.

Investigating kinematics of galvanometric mechanisms by dynamic methods. Priborostroenie no.12:9-10 D'62. (MIRA 17:5)

POPOV, I.N.

Training of students specializing in prospecting techniques at the Peking Geological Prospecting Institute. Trudy MGRI 34:53-54 '59. (MIRA 13:12)
(Peiping--Prospecting--Study and teaching)

POPOV, I. N.; NIKOLAYEV, S. V.; BONDARENKO, V. S.

Physicomechanical properties and breakage of rocks during forcing through by blasting with shaped charges. Izv. vys. ucheb. zav.p geol. i razv. 5 no.10:130-139 O '62. (MIRA 16:1)

1. Moskovskiy geologorazvedochnyy institut imeni Ordzhonikidze.

(Rocks—Testing) (Blasting)

POPOV, I.N.; RODINOV, N.S.

Using high-speed percussion drills horizontal test hole boring
Razved. i okh. nedr 26 no.2:29-32 Feb. '60 (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya (for Popov). 2. TSentral'noye konstruktorskoye byuro (for Rodionov).
(Boring machinery)

POPOV, I. N.

29227 Proizvodstvennaya praktika studentov sanitarno-gigiyenicheskogo fakul'teta pri shestiletnem sroke obucheniya. Gigiyena i sanitariya, 1949, No 8, s. 41-44

SO: Letopsi' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

CA Popov, I.N.

Determination of threshold of sulfur dioxide concentration by odor. I. N. Popov, E. F. Cherkasov, and O. L. Trakhtman (1st Moscow Med. Inst.). *Gigiena i Sanit.* 1952, No. 5, 16–20.—Concns. below 0.004 mg./l. cannot be detected by odor. At 0.006–0.008 level it was detectable by most people. G. M. Kosolapoff

POPOV, IN.; POPIVANOV, S.

Diagnosis and treatment of tuberculous epididimytis. Suvrem. med., Sofia 7 no.12:46-51 1956.

1. Iz Klinikata po ftiziologiia pri VMI-Sofiia (Direktor: prof. M. Mondeshki) i Katedrata po urologiia pri ISUL (Zav. katedrata: prof. A. Chervenakov).
(TUBERCULOSIS, MALE GENITAL,
diag. & ther. of epididmyitis (Bul))

POPOV, I.N. (Irkutsk).

Independent work of students in mathematics classes. Mat. v shkole no.1:35-40 Ja-F '58. (MIRA 11:1)
(Mathematics--Study and teaching)

POPOV, I. N.

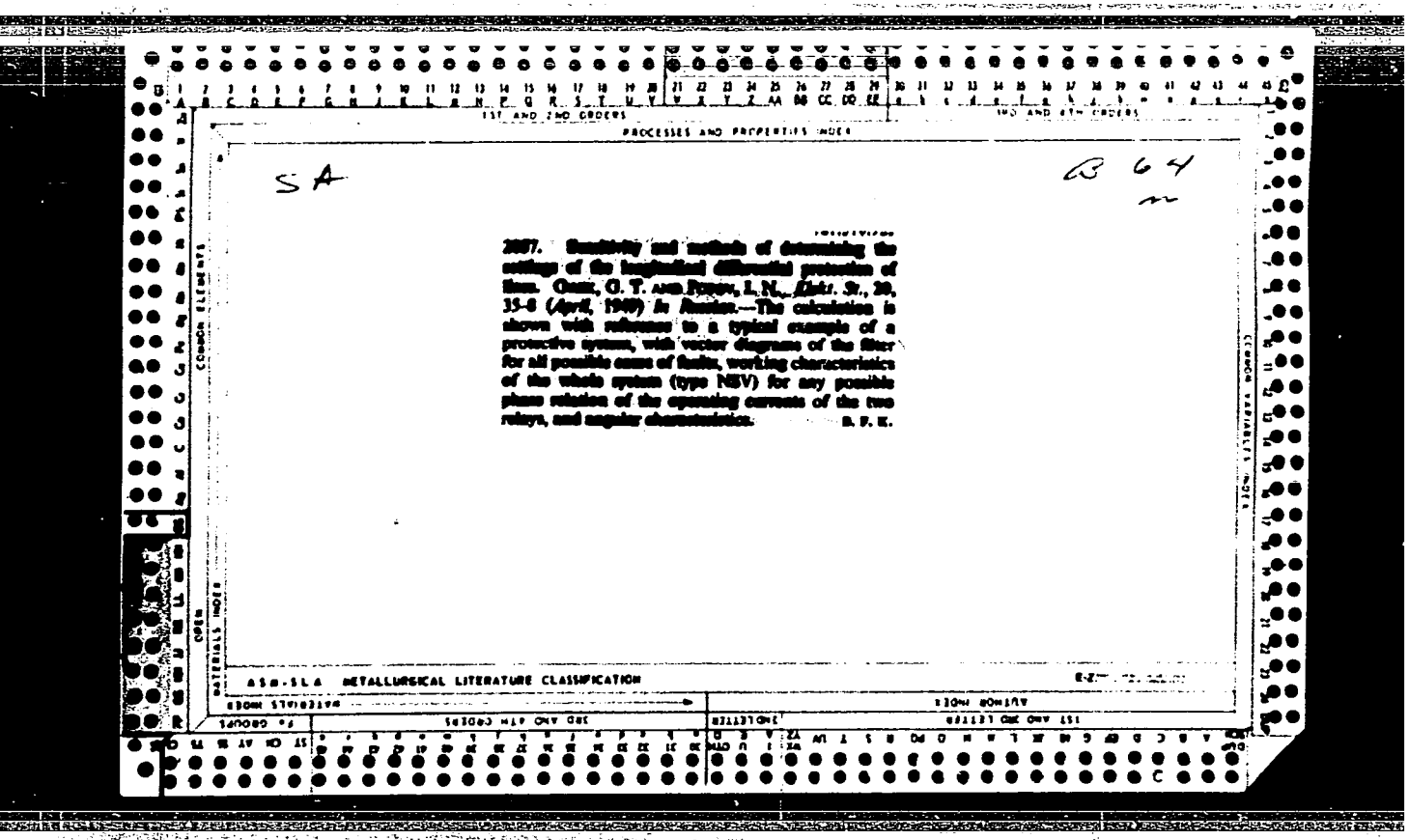
"An Apparatus for the Analysis of the Overload of a Generator," Elek. Stan., No. 4, 1949.

POPOV, I. N.

"The Excitability and Methods of Determining the Placing of a Lateral Differentical Live Guard," Elek. Stants., 4, 1949.

POPOV, I. N.

"Current Protection of Generator Stators from Grounding," Elek. Stants, No 6, 1949.



PROCESSES AND PROPERTIES INDEX

SA

G 64

2007. Sensitivity and methods of determining the settings of the longitudinal differential protection of lines. Ossic, G. T. and Popov, I. N., *Elektr. St.*, 20, 35-8 (*April*, 1949) *In Russian.*—The calculation is shown with reference to a typical example of a protective system, with vector diagrams of the filter for all possible cases of faults, working characteristics of the whole system (type NSV) for any possible phase relation of the operating currents of the two relays, and angular characteristics. B. P. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

POPOV, I. N.

PA 240T29

USSR/Electricity - Protective Equipment Grounds — Mar 52

"Sensitive Protection Against Grounding With Cable Instrument (Current) Transformers," Cand Tech Sci I. N. Popov, Cent Sci-Res Elec Lab, Min of Elec Power Stas

"Elektrichestvo" No 3, pp 38-43

Examines methods for sensitive protection against grounding (developed for overhead lines of peat enterprises) using toroidal cable instrument transformers. Gives basic relations for selection and

240T29

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calcn of transformers. Compares transformers with cores of different materials and concludes that Mo-permalloy cores are best. Such devices were produced experimentally by above lab in 1948-49 and, on basis of lab's developmental work, are now being produced by "Energopribor" Plant. Submitted 31 Aug 51.

240T29

1. SOLOV'YEK, I. I., PROF., ZEYLIDSON, E. D., ENG., KRIKUNCHIK, A. B., ENG., KHONUTOV, B. A., ENG., MOSKALEV, A. ., ENG., POPOV, I. N., ENG., TSAREV, M. I., ENG.

2. USSR (600)

4. Electric Circuits

7. Remarks to Ye. L. Sirotinskiy's article "Symbols and rules for drawing schemes of relay protection and automaticity." Eletrichestvo no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953, Unclassified.

POPOV, I. N.; PRONNIKOVA, M. I., Eng.

Dynamos

Controlling out-of-balance generator loads. Elek. sta., 23, No. 6, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

POPOV, I.N.

Application of schemes with operating alternating current. Energetik 1 no.4: 38-39 S '53. (MLRA 6:8)
(Electric circuits)

POPOV, I. N.

-- New type of cable insulation. I. N. Popov and S. N. Stanev. *Elektroenergiya* 1953, No. 5-6, 17-23; *Referat. Zhur., Khim.* 1956, No. 2230.—The compn. of cable insulation made from petroleum asphalt and rosin is improved by incorporating 15% powd. mica. This increases by 22% the dielec. strength, improves the technological properties of the material without affecting the other dielec. properties.

N. Vasileff

POPOV, I. N.

Subject : USSR/Electricity AID P - 1027

Card 1/2 Pub. 27 - 4/23

Authors : Fabrikant, V. L., Kand. of Tech. Sci., Dotsent, Smorodinskiy, Ya. M. and Popov, I. N., Kands. of Tech. Sci.

Title : Directional high-frequency relay protection of transmission lines

Periodical : Elektrichestvo, 11, 23-31, N 1954

Abstract : The author discusses the application of directional versus phase-angle differential high frequency relay protection, both systems using power-line carrier as a pilot channel. The aim of such protective devices is to provide restraining impulse voltage to block tripping of circuit breakers in certain faults, and causing back-feed tripping on a time-delay selective basis in specific instances. The author reports directional protection preferable to the phase-angle differential scheme. He gives a detailed description of the directional scheme in various areas of application. Five diagrams, 6 Russian references (1935-1953).

AID P - 1027

Elektrichestvo, 11, 23-31, N 1954

Card 2/2 Pub. 27 - 4/23

Institutions: Trust for the Planning and Investigation of District Heat and Electric Power Plants, Networks and Substations (TEPLOELEKTROPROYEKT) and Central Scientific Research Electrical Engineering Laboratory (TsNIEL)

Submitted : Jl 16, 1954

POPOV, I. ; MIKHNEV, K.

New type of low power, one-phase controlling transformer. p. 7

ELEKTROGENERGIIA. Vol. 7, No. 1, Jan. 1956

Sofiia, Bulgaria

So. East European Accessions List Vol. 5, No. 9 September, 1956

Popov, L. N.

15

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Improving the molding of electrical porcelain with the use of the electric current. L. N. Ponov and I. Ya. Yamakov. *Steklo i Keram.* 14, No. 8, 13–20(1957).—The use of metallic (Al) press-molds instead of plaster forms for shaping elec. porcelain was studied with a view to providing means for reducing losses by breakage and deformation on the removal of the piece after the pressing operation. The app. includes a metal form mounted in an elec. circuit through which a weak current (10–20 ma.) sets up electroösmotic action to deposit a film of water between the mold and the clay piece and so to provide the lubrication necessary for the easy removal of the latter from its seat. With clay-body water contents around 18% the time required to attain this condition is of the order of 15–20 sec. Scale drawings of the device are shown, and numerous tables of results of exptl. work are presented. H. L. Olin

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Principles of a short-circuit to ground relay protection system based on response to transients. Elektrichestvo no.2:14-19 F '62. (MIRA 15:2)

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ORG: none

TITLE: A ferrodynamic pickup of the reduced friction torque and moment of inertia of miniature ball bearings

SOURCE: IVUZ. Mashinostroyeniye, no. 8, 1966, 24-28

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ABSTRACT: The author proposes and theoretically justifies the use of the pickup loop of a ferrodynamic instrument as a pickup for the reduced friction torque and moment of inertia of miniature ball bearings. The ferrodynamic pickup (see Fig. 1) consists of the moving system of a D33 instrument with a pickup loop and support pins with negligible friction. Friction torque can be determined in one or two bearings simultaneously. In order to determine the reduced moment of inertia, it is necessary to know the moment of inertia I, the damping constant P of the loop, the angle of turn φ, and the velocity $d\varphi/dt$ and acceleration $d^2\varphi/dt^2$ of the loop with the bearing on the axis. The values of P and I are determined from

$$P = \frac{t_\varphi}{\pi m} W \left| \sin 2\pi m \frac{t_\omega}{t_\varphi} \right|,$$

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$$I = \frac{l_0^2}{(\pi m)^2} W \sin^2 \pi m \frac{t_w}{t_\varphi}.$$

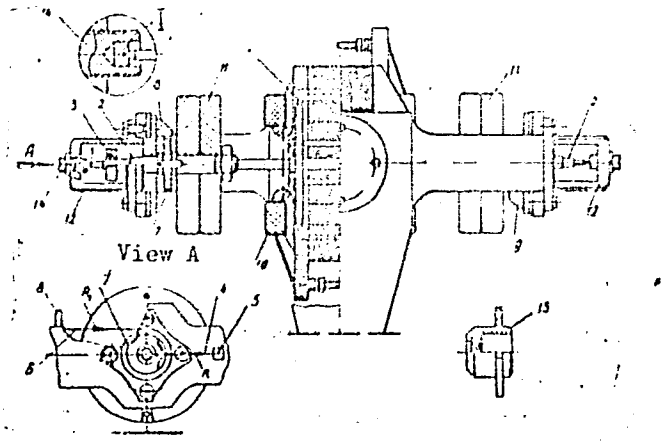

Fig. 1. Ferrodynamic pickup: 1 - loop; 2 - supports; 3 - test bearing

The reduced moment of inertia is determined from

$$I_n = -\frac{I\ddot{\varphi} + P\dot{\varphi} + W\varphi + M_T}{\ddot{\varphi}}.$$

Some experimental results are plotted. It is found that the minimum friction torque

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in the supports (when the load is not over 2 g) is less than 1% of the dry friction moment of a No. 23 miniature ball bearing. The existence of an optimum axial clearance at which the friction torque is minimal was confirmed. This paper was presented by A. I. Solov'yev, professor, doctor of technical sciences, Taganrog Radiotechnical Institute. Orig. art. has: 10 formulas, 2 diagrams, and 2 graphs.

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Card 3/3

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[Boring and blasting operations in making exploratory trenches in loose rocks] Primenenie burovzryvnykh rabot pri prokhodke razvedochnykh kanav v rykhlykh porodakh. Moskva, Nedra, 1965. 53 p. (MIRA 18:8)

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