ACC NR: AP[illegible]

tion enhances the interchange of ferrite to 175 from 135 kg/mm^2. Thus, the increase in the strength of 15G2AF steel following its normalizing from 1050°C is attributable to the segregation of fine-disperse vanadium nitrides in the structure of this steel as well as to the presence of decomposition products in the intermediate stage. Orig. art. has: 3 figures.

SUB CODE: 13, 20/ SUBM DATE: 28Oct65/ ORIG REF: 002/ OTH REF: 004

Card 3/3

GOL'DSHTEYN, M.M.

Effect of ionizing radiation on the submicroscopic structures of striated muscles. Radiobiologiia 4 no.1:23-28 '64. (MIRA 17:4)

GOL'DSHTEYN, M. M.
25887

Profilakticheskaya Vaktsinatsiya
I Vaktsinoterapiya Pri Tuberkuleze
Legkikh. Eksperim. Issledovaniye.
V SB: Voprosy Allergii I Immuni-
Teta Pri Tuberkuleze. L., 1948,
S. 156-206

SO: LETOPIS NO. 30, 1948

1. VASILEVA, V. K., Docent; [illegible]

2. USSR (600)

4. Pneumothorax

7. Problem of functional shifts in the nervous system in patients with pulmonary tuberculosis following artificial pneumothorax. Probl. tub. No. 1, 1953.

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

VASIL'YEVA, V.K.; GOL'DSHTEYN, M.M.; GUSEVA, Ye.A.

Changes in the latent period of cortical motor reaction in patients with pulmonary tuberculosis produced by therapeutic doses of phthivazid and streptomycin. Uch. zap. LGU no.239:8-17 '58. (MIRA 12:1)

1.Kafedra fiziologii cheloveka i zhivotnykh Leningradskogo gosudarstvennogo universiteta i Leningradskiy tuberkuleznyy institut.
(STREPTOMYCIN) (ISONICOTINIC ACID) (CEREBRAL CORTEX)

SEMENOV, A.D., prof., otv. red.; GOL'DSHTEYN, M.M., prof. red.; ZARNITSKAYA, B.M., red.; ZARNITSKAYA, B.M., starshiy tekhn. sotrudnik, red.; KUZNETSOVA, S.M., red.; RABINOVICH, A.M., prof., red.; CHAYKA, V.V., doktor med. nauk, red.; ZAREMICHNYY, B., tekhn. red.

[Transactions of the Leningrad Tuberculosis Research Institute; problems in the clinical aspects of tuberculosis] Voprosy kliniki tuberkuleza; trudy instituta. Leningrad, 1960. 272 p. (MIRA 14:5)

1. Leningrad. Leningradskiy nauchno-issledovatel'skiy institut. 2. Rukovoditel' podrostkovogo otdeleniya Leningradskogo gosudarstvennogo nauchno-issledovatel'skogo instituta tuberkuleza (for Goldshteyn). 3. Rukovoditel' fizioterapevticheskogo otdeleniya Leningradskogo gosudarstvennogo nauchno-issledovatel'skogo instituta tuberkuleza (for Zarnitskaya). 4. Rukovoditel' rentgenologicheskogo otdeleniya Leningradskogo gosudarstvennogo nauchno-issledovatel'skogo instituta tuberkuleza (for Rabinovich). 5. Rukovoditel' laboratorii klinicheskoy fiziologii Leningradskogo gosudarstvennogo nauchno-issledovatel'skogo instituta (for Chayka)

(TUBERCULOSIS)

ACCESSION NR: AP4015080 S/0205/64/004/001/0023/0028

AUTHOR: Gol'dshteyn, M. M.

TITLE: Effect of ionizing radiation on submicroscopic structures of striated muscles

SOURCE: Radiobiologiya, v. 4, no. 1, 1964, 23-28

TOPIC TAGS: striated muscle, submicroscopic muscle structure, radiation effect, muscle electric parameter, muscle swelling in water, muscle optical density, ionizing radiation, ohmic resistance, capacitive resistance

ABSTRACT: In the first of three experimental series, effects of radiation were determined by electric parameters of the muscle. Frog sural muscles were gamma-irradiated (Co^{60}, 134.4 krad dose, temperature 20±1°C). Ohmic resistance and capacitive reactance of muscles were measured with platinum electrodes before and after irradiation. In the second series the dynamics of irradiated muscles swelling in distilled water were investigated in pairs of symmetrical frog sartorius muscles. The control muscle was placed in a Ringer solution and the other muscle was irradiated (radiation dose not given).

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ACCESSION NR: AP4015080

Twenty minutes after irradiation both muscles were weighed and then submerged in distilled water. The muscles were then taken out, dried on filter paper, and weighed on torsion scales every 5 min for one hr. In the third series, optical density of frog sartorius muscles was investigated before and after radiation. Optical density of the muscles fixed in an isometric state was measured with an MF-4 unit. Results show that ohmic resistance of muscles decreases markedly at 1-100 kc 20 min after irradiation and remains steady at 1 mc. Capacitive reactance decreases slightly shortly after irradiation and drops significantly at all frequencies after 2.5 hrs. The swelling rate for irradiated muscles in distilled water increases 20 min after irradiation. Both control and experimental muscles pass through the same phases of swelling and then losing water with the rates of both processes accelerated for irradiated muscles. Optical density of irradiated muscles at first is somewhat reduced and then increases with the highest growth rate starting 3 hrs after irradiation. These radiation changes in the submicroscopic tissue structures of striated muscles appear to be related to increased membrane permeability and decomposition of lipoprotein complexes. Orig. art. has: 5 figures, 1 table.

Card 2/3

GOL'DSHTEYN, M.N., doktor tekhn.nauk (g. Leningrad-Petrovsk)

Problems in the construction and maintenance of the roadbed.
Zhel.dor.transp. 44 no.11:68-71 N '62. (MIRA 15:12)
(Railroad engineering)

GOL'DSHTEYN,M.N., kandidat tekhnicheskikh nauk

Swelling of soils and buckling of foundations. Tekh.zhel.dor.6 no.8:21-22 Ag'47. (MLRA 8:12)
(Soil mechanics) (Foundations)

GOL'DSHTEYN, L. N.

USSR/Engineering - Construction, Grounds Jan 52

"Methods for Shear Testing of Clay Grounds," Prof M. N. Gol'dshteyn, Dr Tech Sci

"Gidrotekh Stroi" No 1, pp 35-38

Summarizes results of discussion on problems of compacting earth masses and shear strength of cohesive grounds, materials on which were published in "Gidrotekh Stroi" No 9 - 12, 1951. Discusses sampling procedure for grounds and methods for detg shear strength of grounds under conditions of natural loading and under required load.

212T60

1. GOL'DSHTEYN, M. N., PROF.
2. USSR (60)
4. Sand
7. Sudden dilution of sand. Gidr. stroi. 21 no. 9, 1952.

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

1. GOL'DSHTEYN, M. N., Prof.

2. USSR (600)

4. Soil Mechanics

7. Soil mechanics. N. A. Tsytovich. Reviewed by Prof. M. N. Gold'dshteyn. Gidr. stroi. 21, No. 9, 1952.

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

1. [illegible], V. N., Prof.
2. [illegible]
4. Dams
7. Increasing the speed of [illegible], Gidr. stroi., [illegible], 1955.

9. Monthly List of Russian Accessions, Library of Congress, [illegible] 1955, Uncl.

GOL'DSHTEYN, M.N.[author]; SOKOLOV, S.S., inzhener [reviewer].

"Mechanical properties of soils." M.N.Gol'dshtein. Reviewed by S.S. Sokolov. Gidr.stroi. 22 no.8:47-48 Ag '53. (MLRA 6:8)
(Soil mechanics) (Gol'dshtein, M.N.)

DUNDUKOV,M.D., inzhener; SAMSONOV,V.N.; KARPENKO,F.A.; KRIGER,N.I.; KUZ'MIN,P.G., kandidat tekhnicheskikh nauk; SHELYAPIN,R.S., kandidat tekh. nauk; MAKSIMOV,O.N., inzhener; MALYSHEV,M.I., professor; RODSHTEYN,A.G., kandidat tekh.nauk; GOL'DSHTEYN,M.N professor; ABELEV,Yu.M ,professor.

Discussion of the problem of building on coarsely porous settling soils. Stroi. prom. 33 no.5:40-45 My '55. (MLRA 8:6)
(Soil mechanics)

GOL'DSHTEYN, M.N., professor, redaktor; RAK, S.M., kandidat tekhnicheskikh nauk, redaktor; BOBROVA, Ye.N., tekhnicheskiy redaktor

[Problems in soil engineering] Voprosy geotekhniki. Pod red. M.N. Gol'dshteina. Moskva, Gos. transp. zhel-dor. izd-vo, 1956. 193 p. (MLRA 10:3)

1. Dnepropetrovsk. Institut inzhenerov zheleznodorozhnogo transporta imeni L.M.Kaganovicha.
(Soil mechanics)

SOV/124-57-8-9481

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 8, p 131 (USSR)

AUTHOR: Gol'dshteyn, M. N.

TITLE: On the Structure and Compressibility of Soils (O strukture i szhimayemosti gruntov)

PERIODICAL: V sb.: Vopr. geotekhniki. Moscow, Transzheldorizdat, 1956, pp 9-30

ABSTRACT: Bibliographic entry

Card 1/1

GOL'DSHTEYN, M.N., doktor tekhnicheskikh nauk, professor.

Calculating wave protection revetments made with rock fill.
Gidr.stroi. 25 no.10:32-35 N '56. (MLRA 9:12)
(Shore protection)

SOV/124-58-10-11[illegible]

Translation from: Referativnyy zhurnal Mekhanika, 1958, Nr 10, p 144 (USSR)

AUTHOR: Goldshteyn, M. N.

TITLE: Creep and Creep Rupture Behavior of Different Clays (Polzuchest' i dlitel'naya prochnost' glinistykh porod)

PERIODICAL: Tr. Soveshchaniya po inzh.-geol. svoystvam gorn. porod i metodam ikh izucheniya. Moscow, 1957, pp 5-15

ABSTRACT: The well-known definitions of creep, relaxation, and creep rupture behavior of materials are given. An empirical relationship between creep-rupture behavior and test duration is derived by the author on the basis of experiments performed on different types of clay with both disturbed and undisturbed structures under uniaxial and triaxial compression. The creep-rupture behavior of illite clay for two different values of initial humidity is given as determined by experiments. It has been established that load removal and recovery influence the process of deformation only in cases when they take place prior to sample failure. Also established was the fact that failure under specific experimental conditions as a rule took place on reaching one and the same

Card 1/2

Creep and Creep Rupture Behavior of Different Clays

relative stage of deformation. On the basis of studies dealing with the internal stresses acting in clay a classification of the character of cohesion failure is given as well as a simplified rheological model of an elastic plastic viscous soil relaxation proposed by the author. A methodology of determining the creep rupture behavior of soils by testing of a single sample for triaxial compression is proposed based on the fact that the failure of soil samples occurs at an identical relative stage of deformation. It is pointed out that for conclusive confirmation of the indicated methodology and the scope of its applicability further investigations are necessary.

S R Meschan

Card 2/2

SOV/124-58-5-5870

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 133 (USSR)

AUTHORS: Gol'dshteyn, M.N., Ter-Stepanyan, G.I.

TITLE: Long-term Strength of Clay and the Creep in Depth of Slopes (Dlitel'naya prochnost' glin i glubinnaya polzuchest' sklonov)

PERIODICAL: V sb. Materialy k 4-mu Mezhdunar. kongressu po mekhan. gruntov i fundamentostr. Moscow, AN SSSR, 1957, pp 43-51

ABSTRACT: The first part (by M.N. Gol'dshteyn) investigates the influence of load removal and subsequent recovery on clay with stiff (plastic) and semisolid consistency. A rheological model and a simple logarithmic empirical formula for the long-term strength are presented. Preliminary experiments requiring confirmation by a more substantial investigation have shown that the relative deformation just prior to failure is independent of the duration of load application. A method of determining the long-term strength according to a single sample is suggested. In the second part (by G.I. Ter-Stepanyan) one of the preliminary phases of sliding, named flow in depth (creep in depth) of slopes is examined. A formula in the form of an

Card 1/2

SOV/.24-58-5-5870

Long-term Strength of Clay and the Creep in Depth of Slopes

integral is given for determining the time rate of the creep in depth. also, the differences between zones of the creep in depth and the surface slip are investigated.

G.S. Grigoryan

1. Clays--Mechanical properties
2. Clays--Creep
3. Mathematics

Card 2/2

GOL'DSHTEYN, M.N.

Using models for studying deformations in a foundation during freezing. Mat. po lab. issl. merzl. grunt. no.3:296-311 '57.
(Soil mechanics) (Foundations) (MIRA 10:11)

96-58-4-9/18

AUTHORS: Gol'dshteyn, M.N., Professor and Doctor of Technical Sciences; Gol'berg, I.Ya., Engineer

TITLE: On the Stability of Loess-Like Ground (O prochnosti lessovidnykh gruntov)

PERIODICAL: Gidrotekhnicheskoye Stroitel'stvo, 1958, Nr 4, pp 39-42 (USSR)

ABSTRACT: Numerous tests have been carried out in the Dnepropetrovsk Institute, Laboratory for Earth Engineering, pertaining to the question of stability of loess-like ground. Samples for these tests were taken from the district of Krasnaya Balka, which has the typical loess-like argillaceous soil with coefficient of relative setting capacity of 6% at a vertical pressure of 3 kg/sq cm. The authors arrived at the following conclusions: 1) Moistening of loess-like ground under all circumstances of strain leads to a marked decrease in the tested argillaceous soil of stability and resistance to dislocation. 2) Moistening of such earth without any lateral pressure leads to total loss of stability. However, surrounded by lateral pressure of 0.1 atm the test sample does not soak through but withstands an additional vertical load of 0.3 kg/sq cm. On removal of the lateral pressure

Card 1/3

the sample does not disintegrate, but it does break up at a vertical load of 0.40 - 0.65 kg/sq cm. The stability of the sample is influenced greatly by the amount of lateral pressure at the time of moistening. 3) Increased hydrostatic pressure at the time of moistening results in increased stability of the sample. 4) To investigate the influence of strain on stability and setting capacity 4 samples were put under varying additional load at the time of moistening. The test revealed that the increase of strain resulted in the increase of the coefficient of relative setting; in turn increased setting resulted in greater density and consequently also in greater stability. 5) In another series of tests, various kinds of liquids were used for moistening, such as saturated solutions of $CaSO_4$, $CaCO_3$, glycerin, ethyl alcohol, acetone, transformer oil, benzene, carbon-tetra-chlorid, kerosene, gasolene. These tests revealed that the stability of this earth depended on the nature of the moistening liquid or its dielectric constant: the greater the dielectric constant, the greater the activity of the liquid, and the more intense the absorption of the ground, resulting in turn, in a lowering of the stability. 6) The degree of stability depends upon a) the polarity of the moistening liquid;

On the Stability of Loess-Like Ground SOV/5-58-4-9/18

b) the chemical composition of the liquid; c) the nature of the salt and argillaceous cement.
There are 6 figures and 1 table, and 5 Soviet references.

AVAILABLE: Library of Congress

Card 3/3 1. Soils-Mechanical properties 2. Soils-Stability-Test results

AUTHOR: [illegible]

TITLE: Generalization of the Thermodynamic Equations of Irreversible Processes (Obobshcheniye uravneniy termodinamiki neobratimykh protsessov)

SOURCE: Zhurnal fizicheskoy khimii, 1954, Vol. [illegible], No. [illegible], pp. [illegible] (USSR)

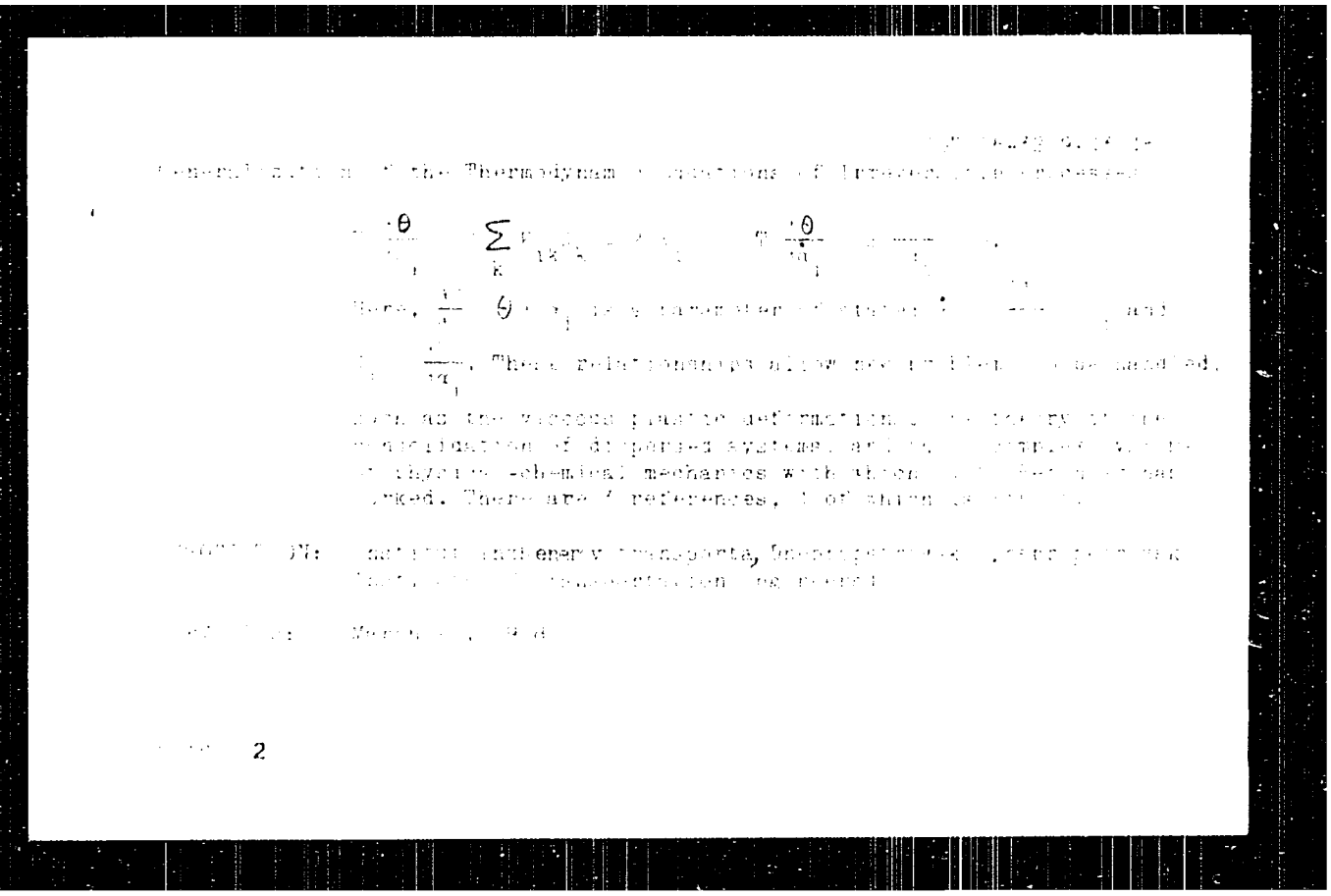
ABSTRACT: The basic thermodynamic equations for irreversible processes are the following:

$$J_i = \sum_k L_{ik} X_k \qquad L_{ik} = L_{ki} \qquad (i, k = 1, 2, \ldots)$$

$$\sigma = \frac{dS}{dt} = \sum_{ik} L_{ik} X_k X_i$$

In these equations $\frac{dS}{dt}$ is the rate of increase in entropy, usually designated as entropy exchange; X_i is the thermodynamic force and J_i the flow, which is considered to be a generalization for forces and displacements.

The author carries the equations [illegible] the following form:



GOL'DSHTEYN, M.N.; RABITSKAYA, S.S.

Methods for determining the long-time strength of soils. Osn., fund. i mekh. grun. no.4:11-14 '59. (MIRA 12:10)
(Soil mechanics)

GOL'DSHTEYN, M.N., doktor tekhn. nauk; MIZYUMSKIY, V.A., kand. tekhn. nauk

Effect of soil creep on earth pressure. Transp. strci. 9 no.4:42-44 Ap '59. (MIRA 12:6)
(Soil mechanics)

KV/69-21-1-5/21

24(8)

AUTHOR: Gol'dshteyn, M.N.

TITLE: The Thermodynamics of Irreversible Processess and Electro-osmotic Transfer in Dispersed Systems. (Termodinamika neobratimykh protsessov i elektroosmoticheskiy perenos v dispersnykh sistemakh).

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 1, pp 30-36 (U.S.S.R.)

ABSTRACT: The author describes the results of testing of the possibility of applying the principles of irreversible thermodynamics to the electro-osmotic phenomena in clay diaphragms. The experiments were carried out in a special electro-osmometer. It has been established that at any time, the sum of the electro-osmotic and filter transfer is equal to the transfer at the joint action of electric current and the hydraulic head, of the same quantities. At the same time, a continuous change in the filtration and osmosis coefficients takes place. Despite the unsteady state, the character of

Card 1/2

The Thermodynamics of Irreversible Processess, and Electro-osmotic Transfer in Dispersed Systems.

the process equation continues to hold, although Onsager's rule of entropy-increase is violated. The following scientists are mentioned by the author: B.G. Fedorov, B.M. Gutman and A.G. Kutepov. There are 1 table, 1 graph, 1 diagram and 10 references, 5 of which are Soviet, 3 English, 1 French and 1 German.

ASSOCIATION: Dnepropetrovskiy institut inzhenerov transporta (The Dnepropetrovsk Institute of Transportation Engineering)

SUBMITTED: November 14, 1957

5(4) SOV/[illegible]

AUTHORS: Gol'dshteyn, M.N. and Gutman, E.M.

TITLE: The Effect of an Ultrasonic High Frequency Field on Plastic Pastes

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 3, pp 272-275 (USSR)

ABSTRACT: The authors describe the results of an investigation intended to determine the effect of high-frequency ultrasound oscillations on changes in mechanical properties of different clays [illegible] in plastic pastes. For the sake of comparison, [illegible] was extended to coarse-grain [illegible]. For the experiments a special dilatometer was used, the scheme of which is illustrated by a diagram (Figure 1). The piezoelectric ultrasound radiator was barium titanate. The pastes were under a vertical load (porous piston) of 2 kg/cm^2. The experiments have shown that high-frequency ultrasound oscillations cause an increase

Card 1/3

The Effect of an Ultrasonic High Frequency Field on Plastic Pastes

in volume of highly dispersed pastes, which proceeds approximately in a linear direction during the ultrasound treatment. In a series of experiments the dilatations of montmorillonite pastes reached 0.074 mm/min in a vertical direction. During the investigation of coarse-grained earth (sands) the described effect could not be observed; ultrasound causes a solidification. The same could be observed with regard to dry powders of highly-dispersed clays. An increase of the soaking of the clay sample and of the intensity of the vibrations causes an increase in dilatation. The presence of Na^+ ions in the porous solution strengthens this effect. A diminution of the polarity of the liquid, which fills the pores of the paste, the described effect becomes considerably weaker and wholly disappears for non-polar liquids. The effect of dilatation, apparently, is caused by the fact that ultrasound intensifies the linkage processes of polar molecules of the liquid and, in the case of montmorillonite, also increases the "access-

Card 2/3

AUTHOR: [illegible]

The Effect of an Ultrasonic High Frequency Field on Plastic Deformation

[illegible] surface of the [illegible]. The [illegible] [illegible] diagram and [illegible] [illegible] English.

ASSOCIATION: Dnepropetrovskiy [illegible] (Dnepropetrovsk Institute of Railroad Engineers)

SUBMITTED: 24 June, 1957

Card 2/2

GOL'DSHTEYN, M.N.

Some problems in the development of soil mechanics. Osn., fund. i mekh.grun. 2 no.1:8-10 '60. (MIRA 13:6)
(Soil mechanics)

BEREZANTSEV, Vsevolod Glebovich, doktor tekhn. nauk, prof.; KSENOFONTOV, Aleksandr Ivanovich, kand. tekhn. nauk, dots.; PLATONOV, Yevgeniy Vladimirovich, prof.; SIDOROV, Nikolay Nikolayevich, kand. tekhn. nauk, dots.; YAROSHENKO, Vsevolod Aleksandrovich, kand. tekhn.nauk, dots.; GOL'DSHTEYN, M.N., doktor tekhn. nauk, prof., retsenzent; TERLETSKIY, V.P., inzh., retsenzent; LAPIDUS, L.S., inzh., retsenzent; ZHEREBTSOV, I.V., inzh., retsenzent; GLOTOV, N.M., inzh., retsenzent; SILIN, K.S., inzh., retsenzent; SURODEYEV, V.P., inzh., red.; KHITROV, P.A., tekhn. red.

[Soil mechanics and foundation engineering] Mekhanika gruntov, osnovaniia i fundamenty. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 339 p. (MIRA 14:8)

(Soil mechanics) (Foundations)

GOL'DSHTEYN, M.N. (Dnepropetrovsk)

Strength of clayey soils. Osn., fund. i mekh. grun. 3 no.5 3-7 '61. (MIRA 14:7)
(Clay)

GOL'DSHTEYN, M.N.; REZNIKOV, O.M.

Methods of investigating the mechanical properties of naturally bedded soils. Osn., fund.i mekh.grun. 4 no.5:27-29 '62. (MIRA 15:12)

(Soil mechanics)

PECK, Ralph Brazelton; HANSON, W.E.; THORNBURN, T.H.; DUNIN, K.N. [translator]; **GOL'DSHTEYN**, M.N., red.

[Earthwork and foundations] Osnovaniia i fundamenty. Obshchaia red. i predisl. M.N.Gol'dshteina. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1956. 335 p. (MIRA 15:6)
Translated from the English.
(Foundations)

GOL'DSHTEYN, M.N.; BEREZANTSEV, V.G.

Teaching the course, "Foundations." Osn., fund., i meth. grun. 4 no.6:1-2 '62. (MIRA 16:1)

(Foundations)

GOL'DSHTEYN, M.N.; GORBATOV, S.P.; REZNIKOV, O.M.

Bearing capacity and compressibility of sandy foundations under deep footings. Osn., fund. i mekh. grun. 4 no.6:3-6 '62. (MIRA 16:1)

(Foundations) (Sandy soils)

GOL'DSHTEYN, M. N.; TUTKEVICH, A. Ya.; LALIMOV, I. S.

Investigation of mudflows. Vop geotekh no. 5:3-23 '62.
(MIRA 17:5)

[redacted], M. N.; [redacted], Z. [redacted]

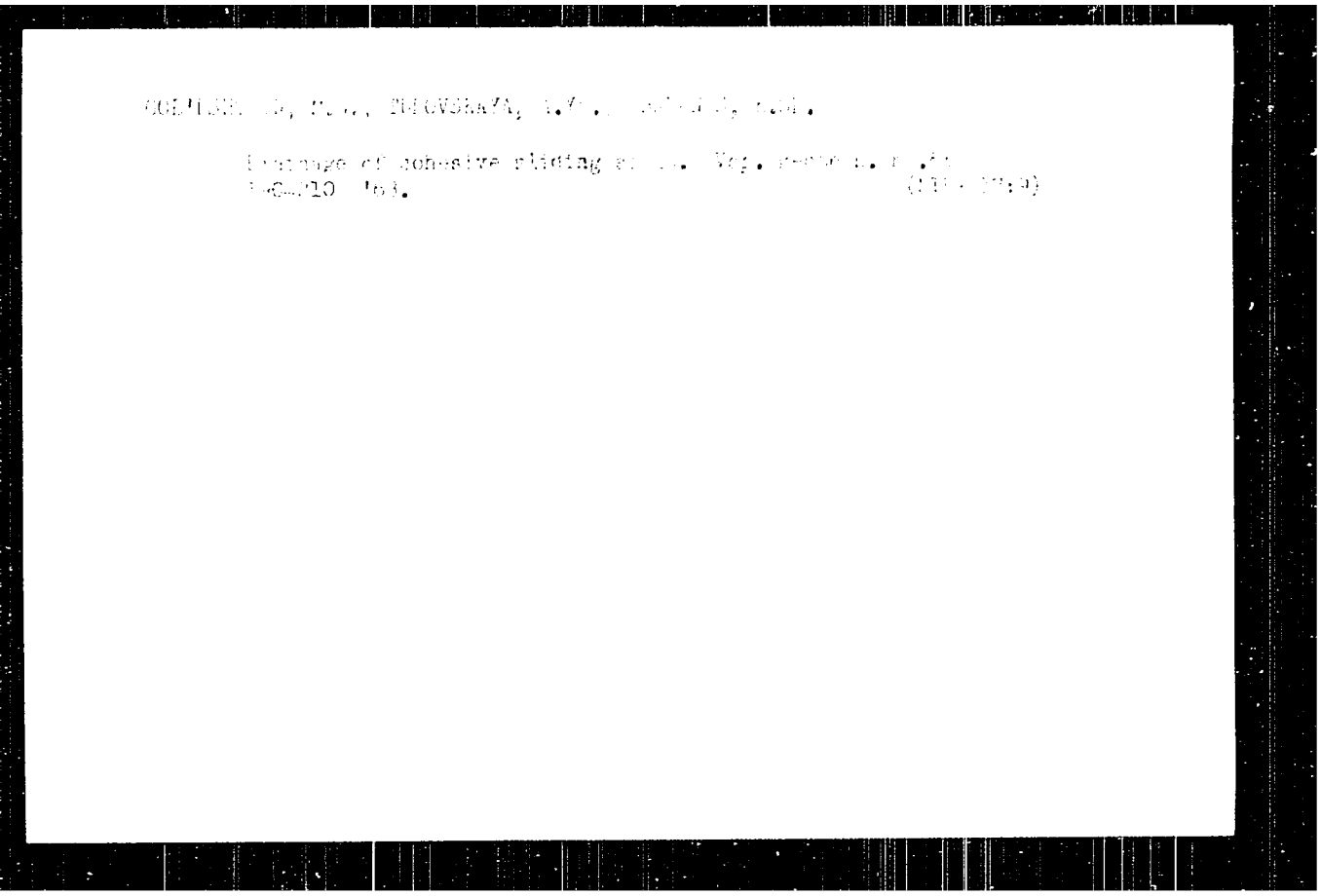
Method of testing soils for creep and lasting stability.
Vop geotekh no. 5:93-120 '62. (MIRA 17:5)

GOL'DSHTEYN, M.N.; GOL'DSHTEYN, V.M.

Theory of the vibratory sinking of untapered piles. Vop. geotekh. no.6:3-19 '63. (MIRA 17:9)

GOL'DSHTEYN, M.N.; BABITSKAYA, S.S.

Method of testing cohesive soils for stability. Vop. geotekh. no.6:135-189 '63. (MIRA 17:9)



GOL'DSHTEYN, M.A., prof.; ZHEREBTSOV, I.V.; TOL'SKAYA, S.Ye.; FRISHMAN, M.A.; LEVCHKOV, I.S.; ROZENBERG, A.M.; FELASHOV, D.A.; TSERKOVNITSKAYA, A.I.; LAPTEVS, I.S.; YAKOVLEV, B.V.; GURENKO, Ye.N.; VICHEREVIN, A.Ye., red.

[Preventing the deformation of tracks and structures overlaying mine workings.] Preduprezhdenie deformatsii puti i sooruzhenii nad shakhtnymi podrabotkami. Moskva, Transport, 1964. 46p. (Voprosy geotekhniki, no.8) (MIRA 18:2)

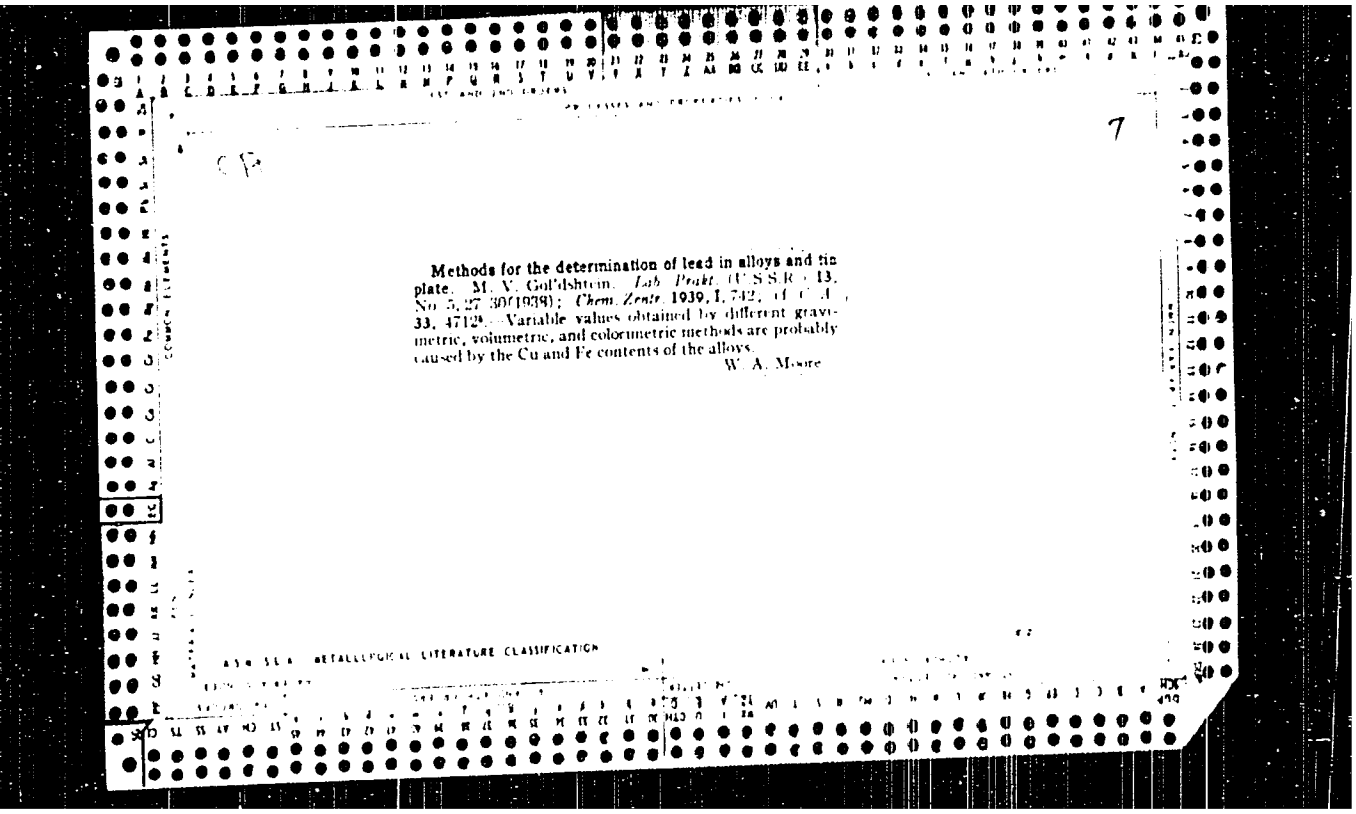
GOL'DSHTEYN, M.N. (Dnepropetrovsk)

Problem of the strength of soils. Osn. fund. i mekh. grun 6
no.1-27 29 '64. (MERA 17:12)

CHERNOCH, S. [Cernoch,S.]; SEVARTS, V.V.[translator]; MEL'TSER, K.Ye.[translator]; GOL'DSHTEYN, M.S.[translator]; DULA, I.Ya.[translator]; SEVARTS, I.V.[translator]; TARLOVICH, L.V.[translator]; ACHERKAN, N.S., prof., doktor tekhn. nauk, red.; GIL'DENBERG, M.I., red.izd-va; TIKHANOV, A.Ya., tekhn. red.

[Handbook on the manufacture of machinery in two volumes] Spravochnik po machinostroeniiu v dvukh tomakh. Moskva, Mashgiz, Vol.1. 1963. 734 p. Translated from the Czech. (MIRA 16:12)

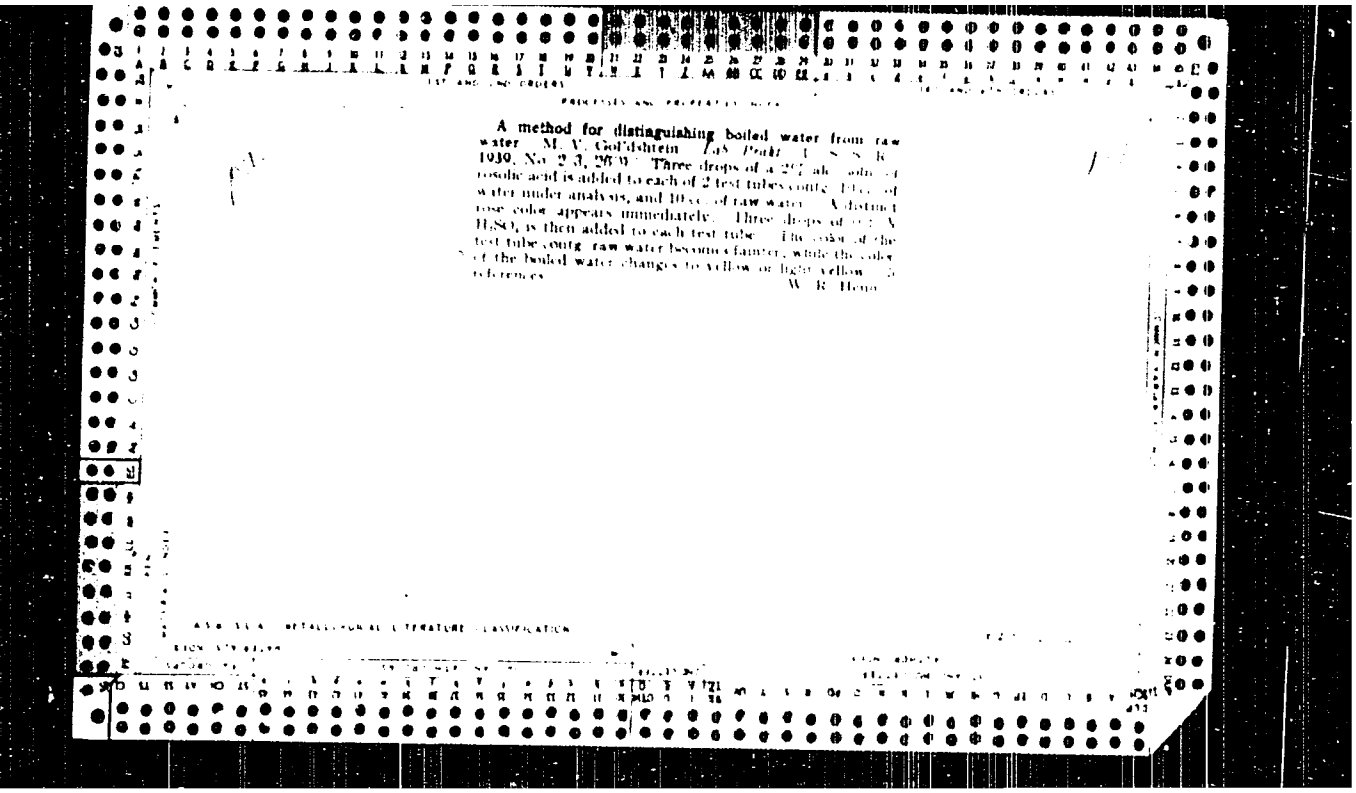
(Mechanical engineering) (Metalwork)



Methods for the determination of lead in alloys and tin plate. M. V. Gol'dshtein. *Lab. Prakt.* (U.S.S.R.) 13, No. 5, 27–30(1939); *Chem. Zentr.* 1939, I, 742. (*C.A.*, 33, 4712⁹.)—Variable values obtained by different gravimetric, volumetric, and colorimetric methods are probably caused by the Cu and Fe contents of the alloys.

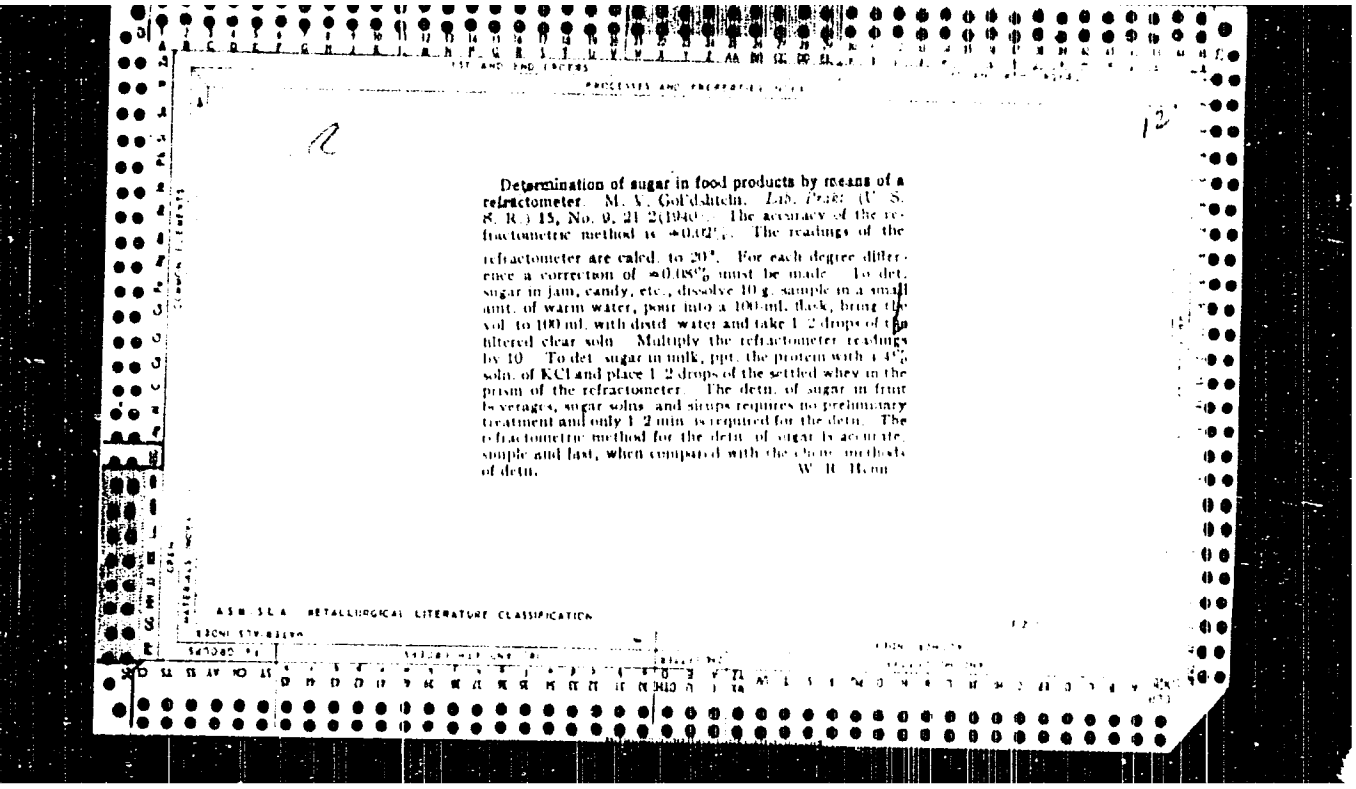
W. A. Moore

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000515710018-3"



A method for distinguishing boiled water from raw water. M. V. Gol'dshtein. *Gig. i Sanit.* U.S.S.R. 1930, No. 2-3, 29-30. Three drops of a 2% alcoholic solution of cresolic acid is added to each of 2 test tubes containing 10 cc. of water under analysis, and 10 cc. of raw water. A distinct rose color appears immediately. Three drops of 0.2 N H_2SO_4 is then added to each test tube. The color of the test tube containing raw water becomes fainter, while the color of the boiled water changes to yellow or light yellow. 5 references.

W. R. Horne



Determination of sugar in food products by means of a refractometer. M. V. Gol'dshtein. *Izv. Pishch. Prom.* (U. S. S. R.) 15, No. 9, 21-2(1940). The accuracy of the refractometric method is ±0.02%. The readings of the refractometer are calcd. to 20°. For each degree difference a correction of ±0.08% must be made. To det. sugar in jam, candy, etc., dissolve 10 g. sample in a small amt. of warm water, pour into a 100-ml. flask, bring the vol. to 100 ml. with distd. water and take 1-2 drops of the filtered clear soln. Multiply the refractometer readings by 10. To det. sugar in milk, ppt. the protein with 4% soln. of KCl and place 1-2 drops of the settled whey in the prism of the refractometer. The detn. of sugar in fruit beverages, sugar solns. and sirups requires no preliminary treatment and only 1-2 min. is required for the detn. The refractometric method for the detn. of sugar is accurate, simple and fast, when compared with the chem. methods of detn.

W. R. Boon

GOL'DSHTIK, M.A.

Heating thin wire with alternating current. Inzh.-fiz.zhur. 5 no.9:90-93 S '62. (MIRA 15:8)

1. TSentral'nyy kotloturbinnyy institut imeni I.I.Polzunova, Leningrad.

(Electric heating) (Wire)

24-58-12-4/27

AUTHOR: Gol'dshtik, M.A. (Leningrad)

TITLE: Twisted Current of Incompressible Liquid in a Circular Tube (Zakruchennyy potok neszhimayemoy zhidkosti v krugloy trube)

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye tekhnicheskikh Nauk, 1958, Nr 12, pp 24-31 (USSR)

ABSTRACT: The following assumptions are made: a) the liquid is ideal and incompressible: b) the motion is turbulent; c) the process is stationary and d) the flow is axially symmetric. The first three assumptions lead to the following equations of motion:

$$\text{grad } P = V \times \text{rot } V \qquad \left(P = \frac{p}{\rho} + \frac{v^2}{2}\right) \qquad (1.1)$$

Here p is the static pressure; ρ is the density of the liquid and v is the modulus of the velocity vector $\underline{V}$. The last assumption means that it is possible to introduce a function through the relations

$$v_z = \frac{1}{r}\frac{\partial \psi}{\partial r} \; ; \qquad v_r = -\frac{1}{r}\frac{\partial \psi}{\partial z} \qquad (1.3)$$

if the equation of continuity $\text{div } \underline{V} = 0$ is obeyed.

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Twisted Current of Incompressible Liquid in a Circular Tube

From Eq.1.1 one can easily show that

$$\frac{\partial \psi}{\partial z}\frac{\partial p}{\partial r} = \frac{\partial \psi}{\partial r}\frac{\partial p}{\partial z} \qquad (1.4)$$

and this is fundamentally satisfied if $P = P(\psi)$ (Eq.1.5). If Eq.1.2 is multiplied crosswise by not $\frac{V}{r}$ then $rV_\varphi = \Phi(\psi)$ (Eq.1.6). Using in accordance Eq.1.5 and 1.6 one obtains from Eq.1.3

$$r\frac{\partial}{\partial r}\frac{1}{r}\frac{\partial \psi}{\partial r} + \frac{\partial^2 \psi}{\partial z^2} + \Phi\Phi' - r^2 P' = 0 \quad \left(\Phi' = \frac{d\Phi}{d\psi},\ P' = \frac{dP}{d\psi}\right) \qquad (Eq.1.7)$$

The special case of Eq.1.7 when $\Phi = \sqrt{2}\psi$ and $P' = 0$ has been discussed in the literature in some detail (Ref.3-5). The present work is concerned with the solution of Eq.1.7 in more general cases when this equation is non-linear. In particular, the cases are

Card 2/3

Twisted Current of Incompressible Liquid in a Circular Tube

considered where $\mathbb{D} = \sqrt{a}\Psi$ and [illegible] (Eq.2.1 and 2.5 respectively). With these forms, the solution of Eq.1.7 is derived and is given by Eq.4.1 . There are 4 figures and 9 Soviet references.

SUBMITTED: 18th December 1957.

Card 3/3

AUTHOR: Gol'dshtik, M. A. (Leningrad)

TITLE: On the Theory of Pneumatric Apparatus (K teorii pnevmometricheskikh priborov)

PERIODICAL: Izvestiya Akademii nauk SSSR OTN, Mekhanika i mashinostroyeniye, 1959, Nr 2, pp 191-194 (USSR)

ABSTRACT: The inertia of a pressure tube (Fig. 1) placed in a flow having the velocity w_0 at an instant t_0 is investigated by the author. It is assumed that the left end of the tube ($z = 0$), is affected by the pressure $p_0 = p_c + 1/2\sigma w_0^2$, where p_c - static pressure in the flow, ρ - density of gas; the right end of the tube ($z = l$) is affected by the pressure $p_1 = \gamma h$, where γ - specific weight of the filler of the micromanometer. The pressure p_1 is defined as a function of the gas input q in the tube. This is expressed as Eq (1) (S - cross-section of the micromanometer tube) which can be written as Eq (2) when $q = q(t)$ (w - gas velocity in tube). The equation of motion, Eq (3) (ν - kinematic gas viscosity) can be written as Eq (5) when Eqs (2) and (4) are considered. The formula (5) can be

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On the Theory of Pneumetric Apparatus

solved when Eq (8), written as Eq (11), is derived. Multiplying Eq (11) by $2\pi r$ and integrating it in respect to r in the interval $(0, R)$, the expression (12) is obtained, from which the value of W can be determined as Eq (15), from which the values of q and b are found (Eqs 18 and 21). The value of $t = T$ for $h = 0.001$, is found from Eq (22), where μ_1 represents the first root of the formula (23). The latter can be solved graphically by the application of the formula:

$$y = \frac{J_2(x)}{x^4 J_0(x)} ;$$

when the roots are defined as points of intersection of the curves y and (4) and the horizontal $y = \lambda = \text{const}$. Fig 2 illustrates the function $y(x)$ in the interval

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On the Theory of Pneumetric Apparatus

$0 \leqslant x \leqslant 2.405$. As it can be seen, this function has the minimum at $x = 1.71$ which is equal to [illegible]. At $\lambda > 0.0852$, the point of intersection of $y = \lambda$ with the left segment of $y(x)$ gives the first root of Eq (23), while the point of intersection with the right-hand segment gives the second root. At $\lambda = 0.0852$ both roots are equal and Eq (15) ceases to be significant since eq (14) in this case will have a double meaning. For $\lambda < 0.0852$ the Eq (23) will have no roots in the above interval but its first root will be determined in the interval $5.136 \leqslant x \leqslant 5.520$. The relationship of the first root of Eq (23) and the parameter λ is illustrated in Fig 3. The parameter λ can be determined as follows:

$$l = 0.1 \text{ m}, \quad \rho = 0.122 \frac{\text{kg sec}^2}{\text{m}^4}, \quad \nu = 15 \times 10^{-6} \frac{\text{m}^2}{\text{sec}},$$

$$S = 4\pi \times 10^{-6} \text{m}^2, \quad \gamma = 800 \frac{\text{kg}}{\text{m}^3}, \quad \text{then} \quad \lambda = \frac{1.355 \times 10^{-20}}{R^5}.$$

Card 3/5 In the case when $\lambda > 1$, the first root of Eq (23) can be

On the Theory of Pneumetric Apparatus

found from Eqs (24) and (25). The error of using Eq (25) instead of Eq (22) is not greater than 1%. In the example given above, the value of T is calculated from the formula:

$$T = \frac{2.32 \times 10^{-14}}{R^4}$$

The effect of the hose connecting the tube with the micromanometer can be determined from the relation:

$$\frac{\Delta p_L}{\Delta p_l} = \frac{L}{l}\left(\frac{d}{D}\right)^4 \quad , \text{ where}$$

Δp_L and Δp_l are the rate of pressure decrease along the hose and tube respectively, L - length of hose, d -

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On the Theory of Pneumetric Apparatus

diameter of tube, D = diameter of hose. For L = 2m, η = 0.1 m, d = 1 mm, D = 5 mm

$$\frac{\Delta p_L}{\Delta p_\eta} = \frac{20}{625} = 3.2\% ,$$

which represents a negligible amount. There are 3 figures and 1 Soviet reference.

SUBMITTED: December 1, 1958.

Card 5/5

AUTHOR: Gol'dshtik, M. [illegible]

S/170/59/002/10/003/[illegible]
B115/[illegible]

TITLE: Thermoanemometers With Automatic Compensation of the Change in Flow Temperature

PERIODICAL: Inzhererno-fizicheskiy zhurnal, 1959, Vol 2, Nr 10, pp 10-18 (USSR)

ABSTRACT: In the present paper thermoanemometers are suggested, the electric measuring schemes of which do not have the disadvantages of those formerly used (dependence of read values on flow temperature and on the thermal inertia of the sensitive element). The "weight velocity" γW in a steady flow is measured by means of an arrangement (Fig 1) shown schematically. For this purpose, a [illegible] is used. The model of this arrangement was developed at the T.KTI. Figure 2 shows a circuit diagram for measurement of the relative turbulent pulsations in a gas flow with variable temperature. In the circuit diagram considered, a diode of the type [illegible] 6D6A, and a [illegible] of the type [illegible] are used. Measurements [illegible] advantages over those of the device of the type [illegible] models of the device [illegible] produced at the [illegible]

Card 1/3

AUTHOR: Gol'dshtik, M.A. SOV/170-59-3-15/20

TITLE: An Approximate Solution of the Problem of a Whirling Laminar Flow in a Circular Tube (Priblizhennoye resheniye zadachi o laminarnom zakruchennom potoke v krugloy trube)

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 3, pp 100-105 (USSR)

ABSTRACT: The author considers the axial-symmetric flow of a viscous incompressible liquid in a circular tube and writes down differential equations describing such a flow. Applying the theory of boundary layer and rewriting the equation system in a dimensionless form the author makes use of a method similar to that of Bussinesq who solved the problem of the development of laminar flow in the initial section of a circular tube. In the result he obtains a closed system of linear relations which is then solved by the operational method. The analysis of the solution obtained (Formulae 26 and 27) shows that if the whirl of the flow is sufficiently intense, then at a certain distance from the entrance to the tube a return flow along the axis may arise. This conclusion qualitatively agrees with experimental data which show that indeed an axial reversed flow arises in the intensely whirled flows. The

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GOL'DSHTIK, M.A.

Secondary flow arising near a sphere rotated in a viscous fluid. Inzh.-fiz. zhur. no.3:79-82 Mr '60. (MIRA 13:10)

1. TSentral'nyy kotloturbinnyy institut im.Polzunova, Leningrad. (Fluid dynamic)

S0877
S/170/60/003/02/03/026
B008/B005

10.2000

AUTHORS: Gol'dshtik, M. A., Leont'yev, A. K., Palayev, I. I.

TITLE: The Movement of Fine Particles in a Turbulent Flow

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 2, pp. 17-24

TEXT: An analytical method of integrating the equation of motion for the particles in a turbulence- or cyclone combustion chamber or in a turbulence heater is suggested. The flow in the combustion chamber is divided into 2 zones in which the velocity equation is determined by the relations (1), (2), and (3): the zone of quasi-steady rotation near the axis in which the tangential velocity is distributed according to formula (1): $v_\beta = \omega r$; $0 \leq r \leq r_0$; the zone of quasi-potential flow (2) $v_\beta = \frac{c}{r}$; $r_0 \leq r \leq R$, R = radius of the combustion chamber, where the relation $\omega r_0 = \frac{c}{r_0}$ holds. [illegible] the peripheral velocity there is also a radial velocity component in the flow which is directed toward the rotational axis and is distributed

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like the peripheral velocity, i.e. (3) $v_r = -\lambda r$ $(0 \leqslant r \leqslant r_0)$; $v_\varphi = -\frac{A}{r}$ $(r_0 \leqslant r \leqslant R)$; $\lambda r_0 = \frac{A}{r_0}$. The equation of motion of the particle in the range $0 \leqslant r \leqslant r_0$ will look like this: (4) $\frac{d\vec{w}}{d\tau} = (\vec{w} - \vec{v}) - \Gamma\frac{\vec{g}}{g}$, (5) $\vec{w} = N\frac{d\vec{r}}{d\tau}$, and the relations (1), (2), and (3) will assume the following form: (6) $v_\varphi = r$ $(0 \leqslant r \leqslant 1)$, $v_\varphi = \frac{1}{r}$ $(r \geqslant 1)$; (7) $v_r = -Mr$ $(0 \leqslant r \leqslant 1)$, $v_r = -\frac{M}{r}$ $(r \geqslant 1)$. The designations are: $\alpha = \frac{18\mu g}{d^2\gamma_T}$, $\Gamma = \frac{g}{\alpha v_0}$, $N = \frac{\alpha r_0}{v_0}$, $M = \frac{A}{r_0 v_0}$; $\vec{w}$, $\vec{v}$ = vectors of the particle and gas velocity; $\vec{g}$ = vector of the gravitational acceleration g; t = time; $\vec{r}$ = radius vector indicating the position of the particle; μ = dynamic viscosity coefficient; d = particle diameter; γ_T = specific gravity of the particle; $\tau = \alpha t$ = nondimensional time. In the range $0 \leqslant r \leqslant 1$, equation (4) can be written down as follows:

$\frac{d^2z}{d\tau^2} + \frac{dz}{d\tau} + (M - i)\frac{z}{N} = -\frac{\Gamma}{N}$ (8) where $z = x + iy$ is a complex coordinate of the particle. The character of the particle movement depends on the

quantity of the parameter μ. At $\mu > 1$, the particle has no equilibrium orbit. At $\mu < 1$, if $\tau \to \infty$, the particle tends toward the position of equilibrium (Fig. 1). At $\mu = 1$, the particle has an equilibrium orbit. It represents the circular line of the radius r_∞ the center of which is shifted with respect to the origin of coordinates, and is situated in the point (x_1, y_1). The relation $\mu \leq 1$ is equivalent to the inequality $M \geq \frac{1}{N}$ or $v_{r_0} \geq \frac{v_{\varphi_0}^2}{\alpha r_0}$. For the range $r \geq 1$, the transition to complex coordinates is not rational since the solution cannot be expressed by analytical functions. By the method of conjugation of asymptotic representations of the solution for long and short periods, an approximate analytical solution is obtained. An example of calculation is given (Figs. 2 and 3). There are 3 figures and 2 references, 1 of which is Soviet.

ASSOCIATION: Politekhnicheskiy institut im. M. I. Kalinina, g. Leningrad (Polytechnic Institute imeni M. I. Kalinin, City of Leningrad)

S/170/60/003/011/010/016
B011/B056

AUTHORS: Goldshtik M A Leont'yev A K

TITLE: The Rebound of a Sphere From a Solid Surface

PERIODICAL: Inzhenerno fizicheskiy zhurnal 1960 Vol 3 No 11 pp. 85 88

TEXT: It is assumed that a spherical particle rebounding from a wall moves under an angle of β and with the velocity w towards the surface thereby performing a rotation with the angular velocity ω. Using laws of mechanics, the rebound quantities β', w' and ω' of the particle are calculated in consideration of the sliding at the instant of impact. In this derivation, the theorem of the conservation of the tangential velocity component of the center of mass is used. Experimental checking was carried out by means of sugar balls whose diameter was 5 mm. They were dropped from a height of 3 m onto an inclined mirror, on which occasion they were illuminated and photographed. The white sugar balls had been colored with black ink on one side so that a determination of the angular velocity after the impact was possible. The general theory for

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The Rebound of a Sphere From a Solid Surface

S/170/60/003/011/010/016
B019/B056

$\omega = 0$ leads to the relation $\omega' \frac{d}{2} = \frac{2}{7}(w'_{tan} - w_{tan})$ which was experimentally checked. The results are graphically represented in Fig. 3. Due to the deviations of the sugar balls from the spherical shape considerable scattering may be observed, however, the above-mentioned law of conservation is considered to be proven. There are 3 figures and 4 references: 1 Soviet, 1 German, 1 French, and 1 British.

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut im. I. I. Polzunova (Central Institute of Steam Turbines imeni I. I. Polzunov), Gosudarstvennyy institut prikladnoy khimii g. Leningrad (State Institute of Applied Chemistry, Leningrad)

SUBMITTED: May 6, 1960

Card 2/2

S/040/60/024/04/03/023
C 111/ C 333

AUTHOR: Gol'dshtik, M. A. (Leningrad)

TITLE: A Paradoxical Solution of the Navier-Stokes Equations

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol 24, No. 4, pp. 610-621

TEXT: The author formulates a boundary value problem for the Navier Stokes equations and finds a rigorous stationary solution which contains a function satisfying the Riccati equation. The solution is paradoxical inasmuch as: 1.) the problem possesses no bounded solution for Reynold numbers > 8, 2.) there exists a unique, everywhere (except at the origin of coordinates) solution for $Re < 4.8096$

There are 3 figures, and 5 references: 3 Soviet, 1 German and 1 American

SUBMITTED: March 21, 1960

Card 1/1

GOL'DSHTIK, M. A.

Cand Phys-Math Sci - (diss) "Problem of the waterspout as an example of the non-existence of solutions to Nav'ye-Stokes equations with large Reynolds numbers." Leningrad, 1961. 10 pp; (Leningrad Order of Lenin Univ imeni A. A. Zhdanov); 180 copies; price not given; (KL, 6-61 sup, 192)

BOGDANOV, L.A., inzh.; GOL'DSHTIK, M.A.

Effect of the rotation of the wall on separation process in a cyclone. Teploenergetika 8 no.4:58-60 Ap '61.
(MIRA 14:8)

1. TSentral'nyy kotloturbinnyy institut.
(Separators (Machines))

GOL'DSHTIK, M.A. (Leningrad)

Flow in a guide apparatus. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.5:178-190 S-O '62. (MIRA 15:10)
(Fluid dynamics)

GOL'DSHTIK, M.A.

Approximate calculation of the maximum efficiency of a cyclone ash remover. Inzh.-fiz. zhur. 5 no.6:105-109 Je '62. (MIRA 15:12)

1. TSentral'nyy kotloturbinnyy institut imeni I.I. Polzunova, Leningrad.
(Ash disposal)

S/170/62/005/010/007/009
B104/B186

AUTHOR: Gol'dshtik, M. A.

TITLE: Prandtl tube with a thermistor angle gage

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 10, 1962, 82 - 85

TEXT: To improve the efficiency of existing pneumatic probes, an instrument for measuring rates and directions of flow was devised in the form of a Prandtl tube with a pair of tungsten wires (of 20μ diameter) forming a V on its nose, the axis of this arrangement coinciding exactly with that of the Prandtl tube. The wires are heated by a current of 200 - 300 ma and their temperatures depend on the cooling conditions. When a flow of air strikes the tube with the wires at an oblique angle the wires will be at different temperatures. The difference in the resistances of the two wires caused by the temperature difference is measured by a bridge circuit and is used for adjusting the Prandtl tube. At a current of 240 ma the sensitivity of the experimental arrangement is 6 - 7μa/degree. Finally, a device is described which operates with an EMB-01 (EPV-01) potentiometer and is used to adjust the Prandtl tube in an

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S/170/62/005/010/007/009
Prandtl tube with a thermistor... B104/B186

air flow automatically. There are 5 figures.

ASSOCIATION: Tsentral'nyy kotloturbinyy institut imeni I. I. Polzunova, g. Leningrad (Central Boiler and Turbine Institute imeni I. I. Polzunov, Leningrad)

SUBMITTED: February 22, 1962

Card 2/2

S/020/62/147/006/009/034
B104/B180

AUTHOR: Gol'dshtik, M. A.

TITLE: The mathematical model of separated flows of an incompressible liquid

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 6, 1962, 1310-1313

TEXT: The flow is investigated in a flat bounded region B whose contour Γ is smooth in parts (Fig. 1). The current function introduced in the usual way satisfies the boundary condition $\Psi|_\Gamma = \psi(s)$ at Γ. $\psi(s)$ is assumed to be steady, non-negative, and non-zero only on section ABC of the contour. The problem consists in determining γ the dividing line between the domains of definition of the two functions Ψ_1 and Ψ_2 that satisfy the equations $\Delta\Psi_1 = 0$, $\Delta\Psi_2 = \omega$, the boundary conditions $\Psi_1|_{EACF} = \psi(s)$, $\Psi_2|_{EKF} = 0$ and the conditions $\Psi_1 = \Psi_2 = 0$ and $\partial\Psi_1/\partial n = \partial\Psi_2/\partial n$ along γ. Since on these assumptions $\Psi_1 \geq 0$ and $\Psi_2 \leq 0$, the problem can be reduced to finding a continuously differentiable Ψ

Card 1/3

The mathematical model of ...

function that satisfies equations

$$\Delta\Psi = f(\Psi) = \begin{cases} \omega & \text{при } \Psi < 0, \\ 0 & \text{при } \Psi \geq 0 \end{cases} \qquad (1.2)$$

$$\Psi|_\Gamma = \varphi(s). \qquad (1.3).$$

By generalizing the Laplace operator according to V. I. Smirnov (Kurs vysshey matematiki - Higher Mathematics Course, 4, M., 1951) the integral equation

$$\Psi(z) = \Psi_0(z) - \frac{\omega}{2\pi} \int_{B^-} \ln \frac{1}{|w(z, \zeta)|} d\xi\, d\eta. \qquad (1.4)$$

is obtained which is equivalent to the problem (1.2)-(1.3). Here $\Psi_0(z)$ is a harmonic satisfying the condition (1.3), B^- is the region within which Ψ is negative, $w(z\,\zeta)$ is an analytic function mapping B onto a unit circle whose center ζ is in B; $\zeta = \xi + i\eta$, $z = x + iy$. The solution arrived at for a one-dimensional problem is given by

The mathematical model of ...

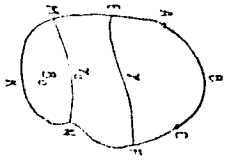
$$\Psi = \begin{cases} x - \omega\xi\,(1 - {}^1/_2\xi)\,x + {}^1/_2\omega x^2, & x \leqslant \xi; \\ x - {}^1/_2\omega\xi^2\,(1 - x), & x \geqslant \xi. \end{cases} \qquad (2.2).$$

For $\omega < 8$, the problem offers only a trivial solution, while for $\omega > 8$ there are two solutions which merge for $\omega = 8$: $\xi_1 = \xi_2 = 1/2$. The solutions are verified and their properties are discussed. Finally the authors consider a flow travelling round a square well at a rate that is uniform in infinity. There are 2 figures.

PRESENTED: April 17, 1962, by V. I. Smirnov, Academician

SUBMITTED: April 11, 1962

Fig. 1



Card 3/3

S/179/63/000/001/016/031
E191/E135

AUTHOR: Gol'dshtik, M.A. (Leningrad)

TITLE: Contribution to the theory of the Ranque effect (swirled gas stream in a vortex chamber)

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, no.1, 1963, 132-137

TEXT: C.D. Fulton (Refrigeration Engineering, no.5, 1950,) was the first to advance an explanation of the Ranque effect. In a long tube, the entry is assumed to contain a "free" vortex and a uniform distribution of total enthalpy. Along the tube, the free vortex gradually transforms into solid rotation causing a redistribution of the total enthalpy. Variations of the Fulton theory were considered by several Russian authors and basic criticisms were advanced from which it follows that the main effect observed must be explained by flow analysis in the nozzle cross-section itself. The vortex chamber with negligible axial flow is considered, based on the paper on the vortex vacuum pump by M.G. Dubinskiy (Izv.AN SSSR, OTN, no.3, 1956). The gas enters

tangentially at the periphery and leaves through round central apertures in the side faces. A discussion, supported by the author's previous experiments (Teploenergetika no.2, 1961) shows that both in the outside and inside zones (separated by a cylinder with the radius of the lateral aperture) the flow is essentially plane. The case of laminar flow is considered first. Profiles of the distribution of the tangential velocity components expressed in terms of the peripheral entry velocity are shown. A non-dimensional number proportional to the Reynolds number has a decisive effect on the distribution pattern. The actual value of the entry velocity depends on the ratio of the pressures at entry and exit. The validity of the analysis depends on the radial velocity component being negligible compared with the tangential. At small Reynolds numbers, the radial velocity can nevertheless reach a high level which may cause a blocking of the flow, previously observed. The analysis of the turbulent flow in a vortex chamber uses the conception of "turbulent viscosity" and a corresponding "turbulent Reynolds number". Experiments show that under turbulent conditions the velocity fields do not depend on the entry velocity. This confirms the validity of the turbulent viscosity conception, by

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which the turbulent Reynolds number depends only on the design parameters of the chamber and not on the entry velocity. Apart from this new property, the relationships derived for the laminar case are preserved. The present theory agrees well with the author's experiments, as quoted above. The cooling effect previously measured (V.S. Martynovskiy and V.N. Alekseyev, Zh. tekhn. fiziki, v.26, no.10, 1956) are shown in a graph together with the theoretical maxima. With an available pressure drop of 8 atmospheres, a cooling effect of 66 °C can be obtained. The suggestion is made to experiment with a light, freely turning impeller inside the chamber. This would assist a velocity distribution nearer solid rotation and thereby increase the temperature separation effect.
There are 5 figures and 1 table.

SUBMITTED: September 16, 1961

Card 3/3

GOL'DSHTIK, M.A.; SHABAT, A.B. (Novosibirsk):

"A model of incompressible flow with separation."

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

KUMATELADZE, S.S.; LEONT'YEV, A.I.; [illegible], N.A.; GOL'DSHTIK, M.A.; [illegible], B.P.; DAVYDOVA, I.V.; DAVZHIK, G.A.; KIRILLOVA, N.N.; KALENKOV, I.G.; KASKVICHEVA, V.K.; KELCIEV, B.P.; LUKHIN, V.A.; LUKHINA, M.V.; [illegible], A.K.; FELOSOV, V.K.; KHABAKHPASHEVA, Ye.M.; CHELOKOV, L.C.; SHTAKOVSKAYA, L.I., red.

[Heat and mass transfer and friction in a turbulent boundary layer] Teplomassoobmen i trenie v turbulentnom pogranichnom sloe. Novosibirsk, Sod.-ind. otdel Sibirskogo otd-niia AN SSSR, 1964. 276 p. (MIRA 17:1)

L 21555-66 EWT(d)/EWT(l)/EWP(m)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(k)/EWA(h)/
ACC NR: AP6009060 SOURCE CODE: UR/0207/66/000/001/0123/0124
ETC(m)-6/EWA(1) IJP(c) IG/WW/EM

56
58
B

AUTHOR: Gol'dshtik, M. A. (Novosibirsk); Sorokin, V. N. (Novosibirsk)

ORG: none

26

TITLE: Rotation of a cylinder at the edge of a flow

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 123-124

TOPIC TAGS: air flow, liquid flow, flow research, rotation

ABSTRACT: Experiments were conducted in which ebonite cylinders 3.5, 7, and 10 mm in diameter were introduced into 10-, 30-, and 60-mm axisymmetric flows and 10 x 50-, 20 x 152-, and 152 x 250-mm plane flows of air and water, respectively. Reynolds numbers for air flow ranged between 10^4 and 4.10^5, and for water Re = $1.5.10^3$—5.10^4. Corresponding Reynolds numbers for the cylinders were 10^3—4.10^4 and 10^3—3.10^4. In the experiments, a cylinder capable of rotating about a fixed, low-friction axis was introduced laterally into the flow. As the cylinder entered the flow, its rotation was clockwise and increased to a maximum as it moved inwards; this rate dropped to zero as the axis of the cylinder coincided with the edge of the flow. Further penetration into the flow resulted in a counterclockwise motion, the attainment of a maximum rotation rate, and the eventual stopping of rotation. By varying flow dimensions, it was learned that cylinder rotation against the basic flow circulation is a local effect occurring at the edge of any flow whose size [sic] exceeds the radius of the

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ACC NR: AP6009060

cylinder. It was also learned that the change of rotation also holds true for spheres. Two graphs in the article serve to illustrate the phenomenon and various parameter relationships. It is stated that there is as yet no theoretical explanation for the observed phenomenon. Orig. art. has: 2 figures. [LB]

SUB CODE: 20/ SUBM DATE: 23Mar65/ ATD PRESS: 4219

Card 2/2 BIG

L 26617-66 EWT(d) IJP(c)

ACC NR: AP6013929 SOURCE CODE: UR/0207/66/000/002/0106/0109

AUTHOR: Gol'dshtik, M. A. (Novosibirsk)

ORG: none

TITLE: A class of exact solutions for Navier-Stokes equations

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1966, 106-109

TOPIC TAGS: Navier Stokes equation, axisymmetric flow, incompressible fluid, hydrodynamic theory

ABSTRACT: The author considers steady-state axially symmetric flow of a viscous incompressible fluid. Equations are given which describe this flow in a cylindrical coordinate system. This system of equations is reduced to two ordinary differential equations of third and second order respectively. A class of solutions is found for these Navier-Stokes equations and two problems are given based on the motion of a viscous fluid in a semi-infinite tube of given radius for a hydrodynamic intreptation of this class of solutions. Orig. art. has: 4 figures, 15 formulas.

SUB CODE: 20/ SUBM DATE: 08Apr64/ ORIG REF: 001/ OTH REF: 002

Card 1/1

11 июня

(с 18 до 22 часов)

Д. П. Василевский,
Р. Р. Арнольд

[illegible]

А. А. [illegible],
Н. Н. [illegible]

[illegible]

А. А. [illegible]

[illegible]

В. А. [illegible]

[illegible]

12 июня

(с 10 до 16 часов)

М. В. [illegible],
О. В. [illegible]

[illegible]

М. Г. Арутюнов

[illegible]

14. СЕКЦИЯ ЭЛЕКТРОННО-ВЫЧИСЛИТЕЛЬНОЙ ТЕХНИКИ

Руководитель Л. И. Гутенмахер

13 июня

(с 10 до 16 часов)

Совместное заседание с секцией полупроводниковых приборов

В. И. [illegible]

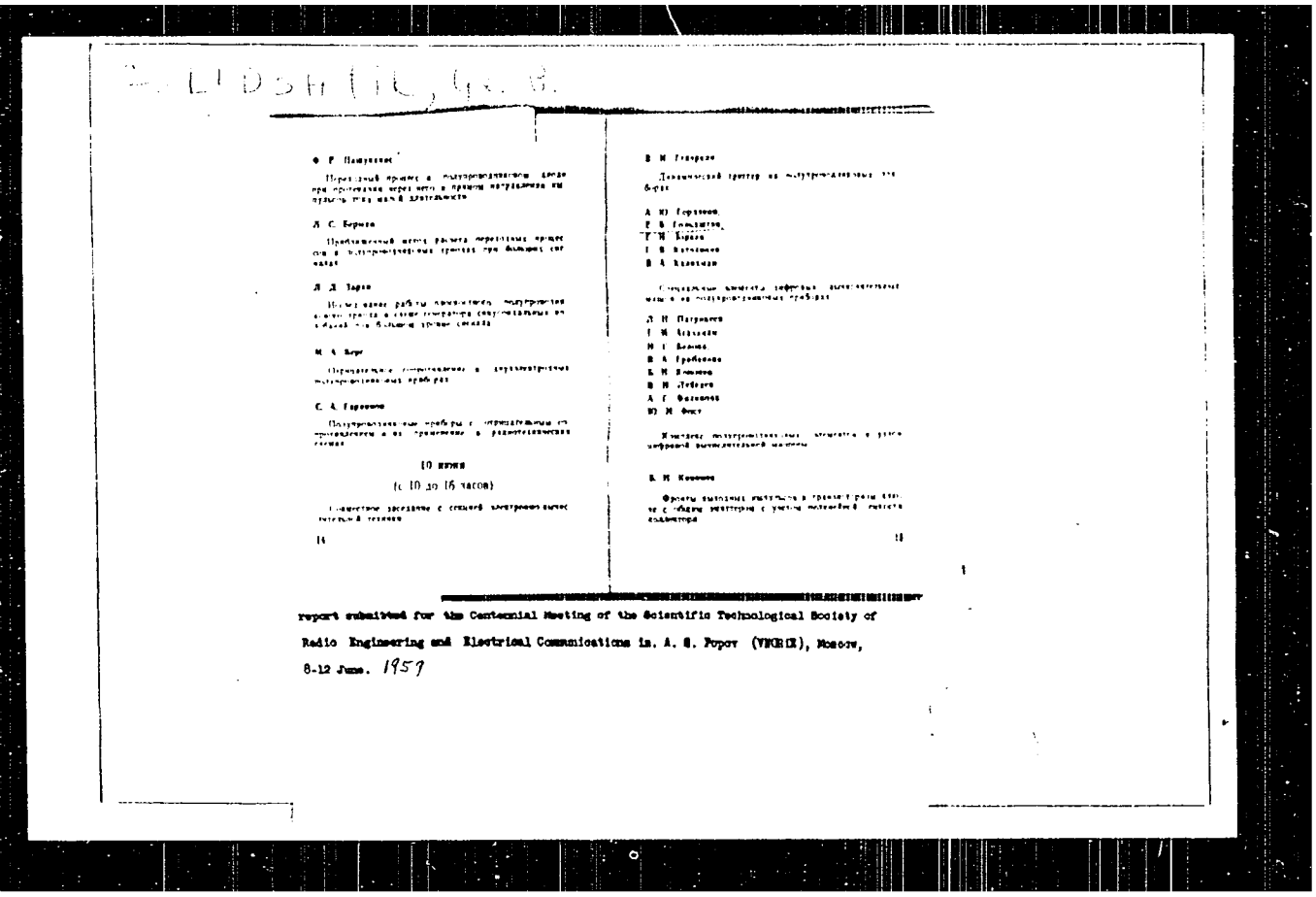
[illegible]

А. Ю. [illegible],
Р. Б. [illegible],
Е. Н. [illegible],
В. А. [illegible],
Г. В. [illegible]

[illegible]

Л. Н. [illegible],
Т. М. [illegible],
М. С. [illegible],

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORiE), Moscow, 8-12 June. 1959



report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June. 1959

ACCESSION NR: AT4037681 S/2865/64/003/000/0089/0103

AUTHOR: Gol'dshvend, B. L.; Gusarov, B. G.; Lobanov, A. G.; Sinyak, Yu. Ye.; Tereshchenko, A. P.; Chizhov, S. V.; Shilov, V. M.

TITLE: The recycling problem under prolonged spaceflight conditions

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 89-103

TOPIC TAGS: manned space flight, life support, closed ecological system, waste recycling, respiration, toxicology, algae, nutrition, photosynthesis

ABSTRACT: Biological recycling of wastes on spaceships can utilize both aerobic and anaerobic methods. Apparently liquid wastes can be processed by means of aerobic oxidation, while solid wastes require anaerobic methods. The advantages of the aerobic method are: the high speed of processing in an aerotank, oxidation of organic substances down to CO_2, and the ability to control the speed of the process by means of regulating the rate of oxygen flow. The disadvantage of this method is the large amount of oxygen required. The advantages of the anaerobic method consist of the absence of large air requirements and a small energy requirement. The disadvantages of this latter process are the slow rate of processing

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and the production of a large amount of harmful gases, particularly methane, making the mixture explosive. Another method which can be utilized in a closed ecological system is a biological method of processing wastes with participation of photosynthesis of algae. The advantage of this method is that it takes place in the light and the oxygen required for bacterial oxidation of organic substances is obtained from the photosynthetic activity. Bacterial mineralization of organic substances is accompanied by photosynthetic building up of cell bodies of the algae. Consequently, this process involves the utilization of substances contained in human and animal wastes for obtaining algae which can, in turn, serve as a source of food for man and animals. The following are the chief disadvantages of the above indicated biological methods: small probability of complete recycling of wastes; the difficulty in obtaining products which are qualitatively and quantitatively constant; the uncertainty of adaptation on the part of microorganisms to unknown space-flight conditions (the possibility of mutations, etc.); the difficulty in controlling the rate of the processes; and the possibility of the appearance and accumulation of toxic by-products. Physicochemical methods of waste recycling can also be used. By means of these methods, it is possible to separate the soluble from the insoluble parts, extract useful substances from solvents, provide for combustion of insoluble substances to obtain gases and solids, and synthesize the gases and solids into required substances. Recycling of wastes based on

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ACCESSION NR: AT4037681

physicochemical methods can include the following: extraction of substances from wastes which can be used directly, mineralization of organic substances, obtainment of products of definite chemical composition from ash and gases, and synthesis of nourishing solutions. The recycling of carbon and nitrogen in a closed ecological cycle can be performed by physicochemical processes. CO_2 gas exhaled by man can be used directly by plants. Soluble carbon compounds can also be utilized by plants for nourishment. Insoluble carbon compounds can be transformed into CO_2 by means of heat treatment. The CO_2 thus obtained can either be stored for supply purposes or can go directly to the greenhouse. Nitrogen products found in wastes can be extracted and used for feeding plants and possibly even animals. The remaining nitrogen compounds can be used for mineralization, which can be accomplished by various physicochemical means. An outline of such a scheme utilizing physicochemical processes can include the following: a unit for the collection of wastes, from which the products proceed to a second unit where those that can be utilized by man or other living organisms are extracted directly. The remaining substances proceed to a mineralization unit. While the gases produced during the mineralization process are trapped and separated, the insoluble inorganic salts are transformed into soluble ones in the next unit. Part of them go to living organisms while the remainder go to a unit for obtaining inorganic compounds. The by-products thus obtained are then converted into nourishing mixtures.

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At the present time it is difficult without experimental data to make a precise evaluation of this type of cycle, but it is possible to estimate the weight of such a cycle as 400 to 500 kg for a crew of five. Even if this weight were to be doubled, it would still be considerably less than the required weight of mineral salts for green houses in a life-support system based on stored supplies. A good recycling system should have the following characteristics: a minimum system of units necessary for processing wastes, use of common processes for transformation of elements contained in wastes into definite compounds, a maximum rate of processing these products, the inclusion of only those substances which are involved in the recycling. In addition to the above, it should have the following characteristics: minimum weight and size, minimum energy requirements, simple reliable construction, use of stable and highly resistant materials, means of preventing toxic substances from seeping out into the space cabin, and absence of processes not required for recycling. A comparison of biological methods, on the one hand, and physicochemical methods, on the other, shows that the latter have a number of advantages, including the possibility of complete recycling of wastes, short duration of the recycling process, the possibility of obtaining separate substances and required nourishing solutions of predetermined composition, and the use of processes which are widely used in chemical engineering. The disadvantages include high energy utilization and complexity of equipment. However, these are offset, to

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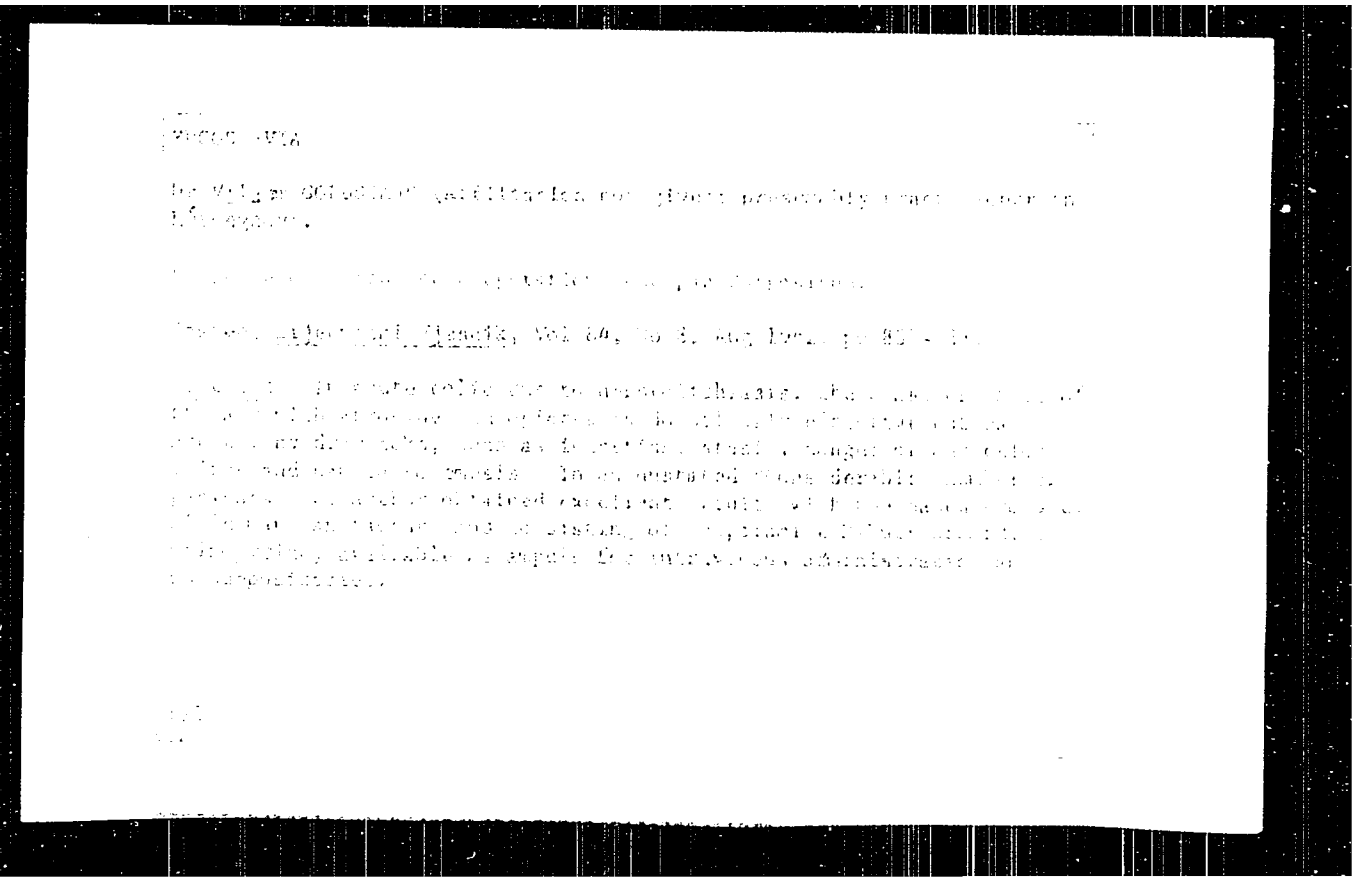
a certain extent, by the use of solar energy and the latest materials and methods of physicochemical processing. It should be noted that each mission requires the recycling of only those products required by that mission. This means that, in some cases, life-support systems will require only the regeneration of water. The fact that physicochemical processing has been very well studied in comparison to biological processing makes it probable that physicochemical recycling will be used in the first experimental closed ecological systems. However, it should be borne in mind that the optimum system of utilization will be based on the use of biological as well as physicochemical processes.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: PH, LS NO REF SOV: 022 OTHER: 008

Card 5/5



GOLDSTEIN I., DULCE M., SASSY T. and MANOLIANU A. Clinica I-a Medicala Bucuresti. Leptospirozele leptospirosis Revista Stiintelor Medicale, Bucharest 1940, 1/3 (233-235)

The observation of a case of leptospirosis icterohaemorrhagiae (rare in Rumania) forms the occasion for a review of the different types of leptospirosis and their dirgnosis.

Enachesco - Bucharest (XX, 4,6)

SO: Medical Microbiology & Hygiene Section IV, Vol. 3, No. 7-12

LUPU, Gh.N. academician,; GOLDSTEIN, I.,; PAPAZIAN, H.,; KAHAN, A.

Clinical problems in rheumatic diseases. Probl. ter., Bucur. Vol. 1:161-167 1954.

(ARTHRITIS, RHEUMATOID
diag. & ther., problems)
(RHEUMATIC HEART DISEASE
diag. & ther., problems)