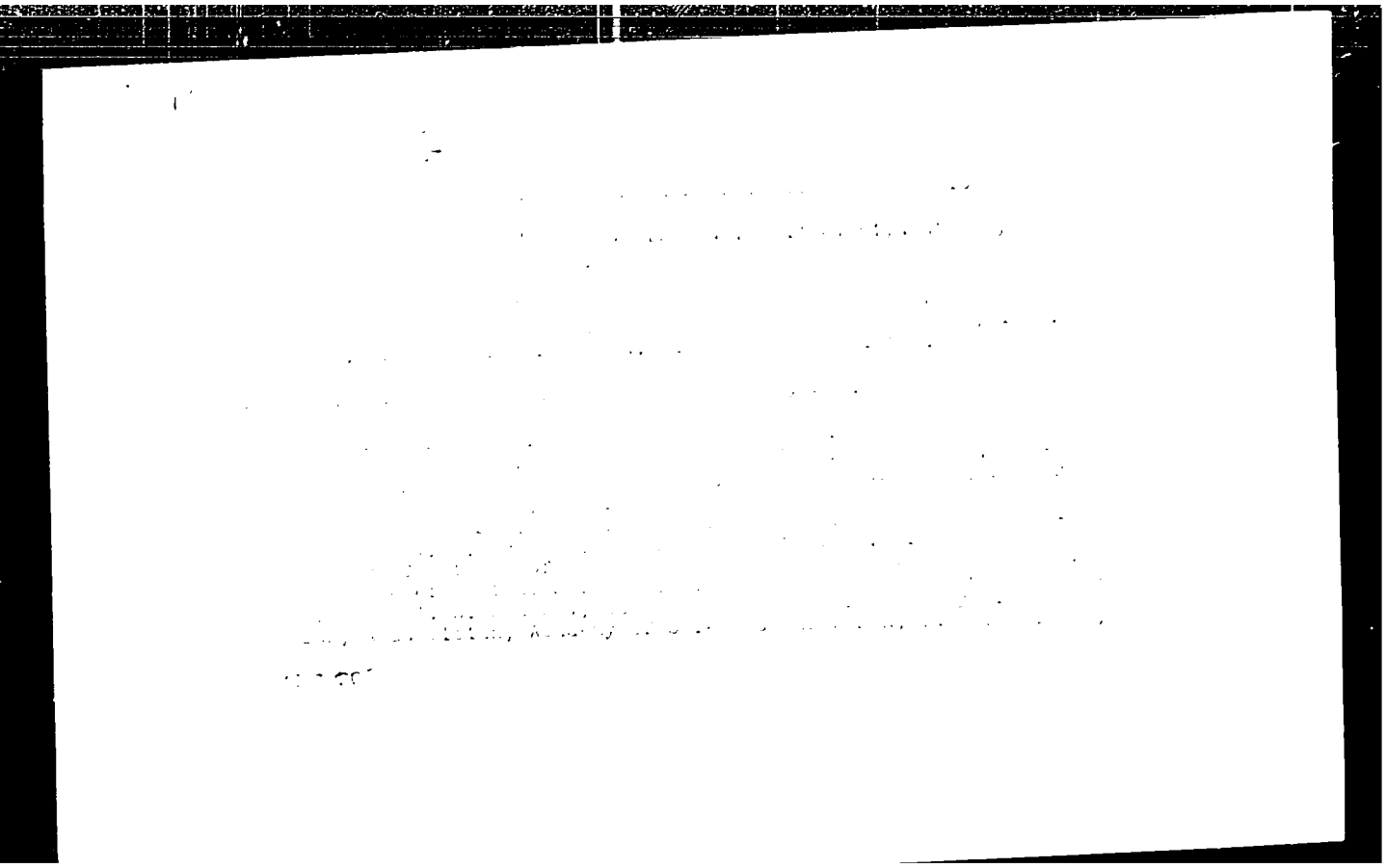
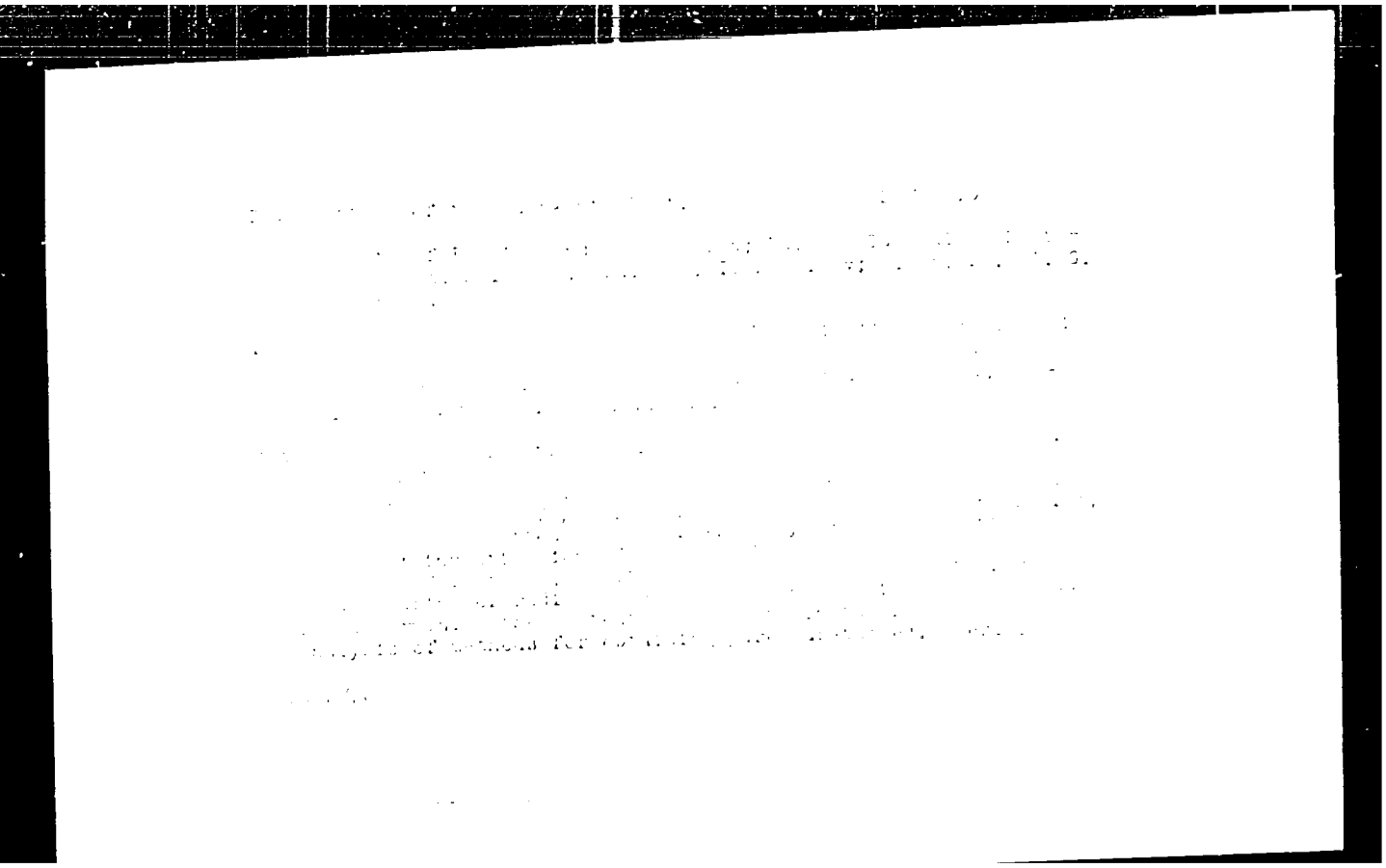
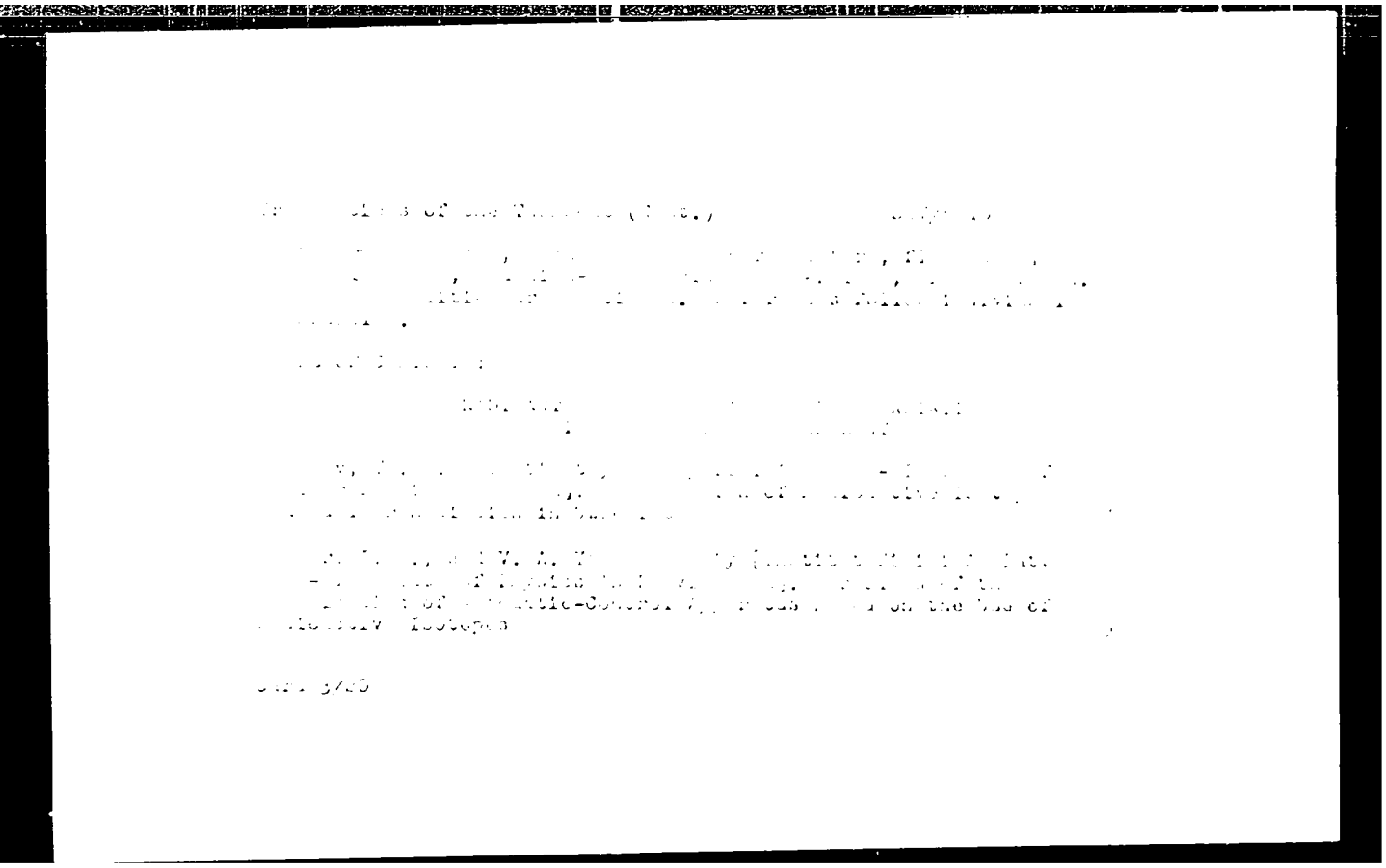
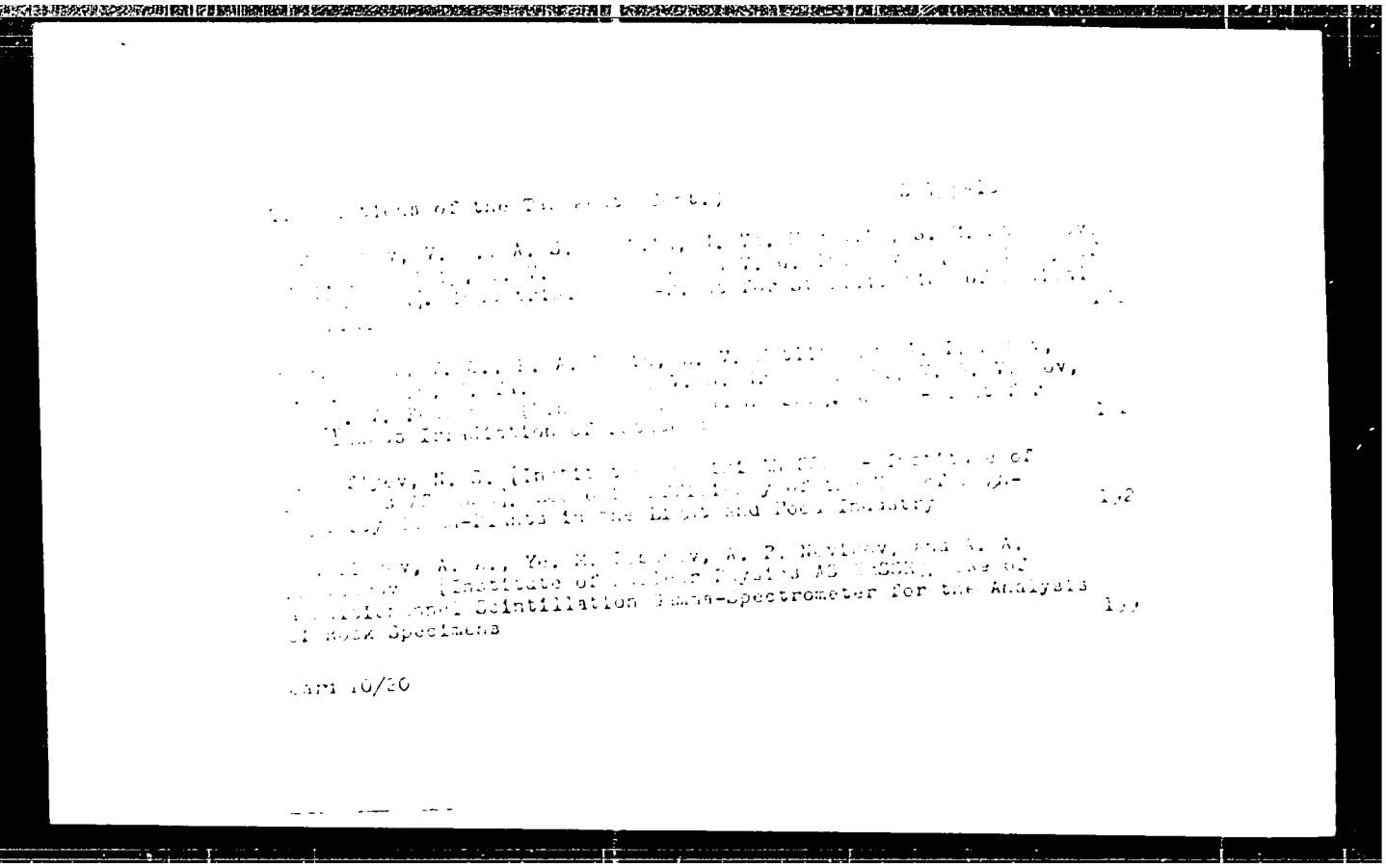








PETROV, A.V.

Water vole in Omsk Province. Zashch.rast.ot vred.i bol. no.6:53-54 N-D '59. (MIRA 13:11)
(Omsk Province--Field mice--Extermination)

DORMAKOVICH, Petr Andreyevich; MIKHALKOV, Aleksandr Vladimirovich; PETROV, Aleksandr Vasil'yevich; POYARKOV, K.M., red.; BORUNOV, N.I., tekhn. red.

[Manufacture and maintenance of gas-discharge light fixtures] Izgotovlenie i obsluzhivanie gazosvetnykh ustanovok. Moskva, Gosenergoizdat, 1962. 54 p. (Biblioteka elektromontera, no.72) (MIRA 15:12)

(Fluorescent lamps) (Fluorescent lighting)

USSR/Chemical Technology - Chemical Products and Their Application. Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62306

Author: Usov, P. G., Petrov, A. V.

Institution: None

Title: Deformation of Articles Made from Red Clay on Firing

Original Periodical: Izv. Tomskogo politekhn. in-ta, 1956, No 83, 156-162

Abstract: Study of the effects of addition of 2% Na_2CO_3 and 10% $CaCO_3$ to red clays of different mineralogical and dispersive composition on the temperature of deformation under load. Addition to red clays, having a low content of fine fractions (<0.001 mm), of Na_2CO_3 and $CaCO_3$, affects the temperature of deformation of samples under load less drastically than clays containing higher percentages of fine fractions. Deformation of samples made from red clays containing $CaCO_3$ occurs sharply and within a narrow temperature interval and the deformation sets in at higher temperature. Presence of alkalies

Card 1/2

PETROV, A.V.; PASECHNIK, A.F.; RUBINOVA, L.Ye.

[Glass fibers] Tkani iz stekla. Tomsk, Tomskoe knizhnoe izd-vo, 1959. 29 p. (MIRA 13:8)
(Glass fibers)

PETROV, A.V., kand.tekhn.nauk, dots., inzh.-polkovnik v otstavke

Derivation and analysis of projective dependence formulas and application of the theory of errors to photogrammetry. Trudy MIIGAIK no.34:43-77 '59. (MIRA 13:6)

1. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii.
(Aerial photogrammetry)

PETROV, A.V., polkovnik meditsinskoy sluzhby; LOGZIN, V.S., mayor meditsinskoy sluzhby

Endolumbar pneumotherapy and oxygen therapy in treating severe forms of lumbosacral radiculitis. Voen.-med.zhur. no.12:69-72 '59. (MIRA 14:1)

(NERVES, SPINAL—DISEASES) (OXYGEN THERAPY)

L 23881-65 EWT(m)/EPF(n)-2/EPR/EWP(t)/EWP(b) Pe-4/Pu-4 IJP(c) JD/JG/MLK

ACCESSION NR: AT5002759 S/0000/64/000/000/0066/0070

AUTHOR: Bibikova, V.I. (Doctor of technical sciences); Marunova, K.V.; Karyakin, A.V.; Petrov, A.V.

B+1

TITLE: Extraction method of obtaining pure ammonium perrhenate

SOURCE: Vsesoyuznoye soveshchaniye po probleme reniya. 2d, Moscow, 1962. Reniy (Rhenium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 66-70

TOPIC TAGS: rhenium, rhenium extraction, ammonium perrhenate, tributyl phosphate, potassium perrhenate, rhenium refining

ABSTRACT: The authors studied an extraction method for obtaining ammonium perrhenate from potassium perrhenate, which was found to be extracted best by tributyl phosphate from weakly acidic media (0.3 N HCl). The optimum conditions for this extraction were established, and a flow diagram of the process based on this extraction and resulting in ammonium perrhenate as the end product is given. The ammonium perrhenate obtained is sufficiently free of impurities to be used for the preparation of pure rhenium metal. The effectiveness of the purification of rhenium during extraction and reextraction was checked by using radioactive isotopes (Ir^{42}, $Ni^{59, 63}$, $Sn^{113, 123}$, Ca^{45}, S^{35}, Mo^{99},

Card 1/2

L 25881-65

ACCESSION NR: AT5002759

Fe^{55}, ^{59}, and Cu^{64}). From the results obtained, the coefficients of purification, distribution, and separation were calculated. Infrared spectra of tributyl phosphate saturated with 0.3 N HCl and of tributyl phosphate rhenium extracts were found to be similar and led the authors to the conclusion that the extraction of rhenium proceeds via a hydration - solvation mechanism with the formation of the hydroxyl ion, H_3O^+, with the participation of water. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 06Aug64 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 002

Card 2/2

AKSENENKO, Vasiliy Danilovich, kand. tekhn. nauk, inzhener-podpolkovnik; PETROV, Aleksandr Vladimirovich, inzhener-polkovnik; POCHTAREV, N.F., kand. tekhn. nauk, inzhener-polkovnik, red.; SRIBCHIS, N.V., tekhn. red.

[Planetary and hydraulic transmissions] Planetarnye i gidravlicheskie peredachi. Moskva, Voen.izd-vo M-va obor. SSSR, 1961. 245 p. (MIRA 15:2)
(Automobiles—Transmission devices)
(Vehicles, Military—Transmission devices)

L 06402-67 EWT(d)/EWP(1) LJP(c) BB/GG
ACC NR: AT6024281 SOURCE CODE: UR/2976/66/000/005/0066/0074

AUTHOR: Petrov, A. V.

ORG: none

TITLE: Certain principles in the design of permanent memory systems

SOURCE: Moscow. Vysshaye tekhnicheskoye uchilishche. Vychislitel'naya tekhnika, no. 5, 1966, 66-74

TOPIC TAGS: electromagnetic memory, data storage, computer storage device, magnetic circuit, ferrite core memory

ABSTRACT: The author describes various types of permanent and semi-permanent digital data storage systems intended for "read-only" operations. All devices considered in this paper are based on magnetic effect. The permanent storage systems include fixed matrices of electrical elements, e. g., diodes, resistors, transformers, capacitors, and others; the semi-permanent storage systems also make use of matrices containing sensing devices, but the actual information storage is in terms of various switching mechanisms, perforated cards, patch-boards and related devices. In the ferrite core permanent memory variation of mutual inductance between the primary and the secondary windings of special transformers is used to indicate the "0" and "1" logic states. The transformers are arranged in an x-y matrix. The ferrite cores are inserted to increase

Card 1/2

137 1957 12-23638

Translation from: Referativnyy Zhurnal Metallurgiya 1957 Nr 12 p (USSR)

AUTHOR: Petrov, A. V.

TITLE: How to Increase the Productivity of Old-type Blooming Mills (Uvelicheniye proizvoditel'nosti blyuminga starogo tipa)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, Ukr. resp. pravl., 1956, Vol 1, pp 86-91

ABSTRACT: At the Yenakiyevo metallurgical plant a series of operations were performed in order to increase the productivity of the blooming mills (established in 1897) and of the connected production sections. A new design of the blooming mill rolls was developed and adopted, which permitted to lower the number of passes from 19 to 17 for a final cross-section of 200 x 230 mm; a new system of rolling (R) was adopted for the 800 mm mill (the R of the R 24 rail in three stands instead of two, as well as the rolling of square stock in two stands instead of one; the initial cross section of the blooms was increased from 200 x 230 mm to 240 x 260 mm during the R of square and sheet billets, and from 175x175 mm to 205x185 mm during the R of tractor treads.)

Card 1/2

137 [illegible] 58

How to Increase the Productivity (cont.)

The operation of the converters was specialized and the time for the heating of the rail metal in the not in set furnace was reduced by 30 percent. The steps indicated and the employment of limited mechanization for certain functions (improved system for the removal of scale, the installation of a mechanical support with the shear, the introduction of conveyor for the removal of the trimmed blooms, etc.) resulted in a 46 percent increase in the output of 1954 as compared with 1950 and a 54 percent increase as compared with 1940.

V. D

1. Blooming Mills-Production

Card 2/2

PETROV, A.V.

Sprayer for lubricating ingot molds. Sbor.rats.predl.vnedr.v proizv. no.5:16-17 '60. (MIRA 14:8)

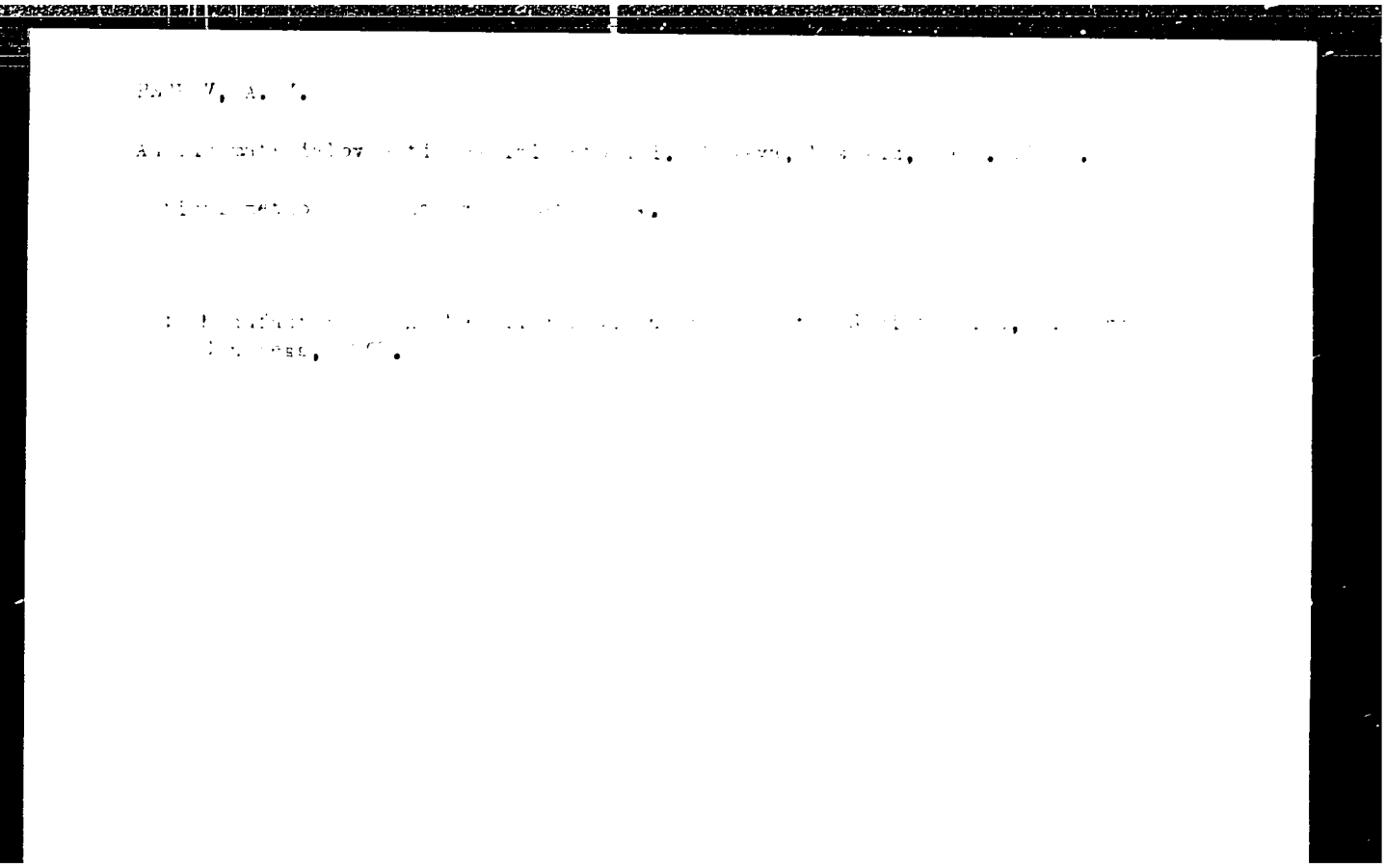
1. Novolipetskiy metallurgicheskiy zavod.
(Foundries--Equipment and supplies)

PETROV, A.V., tokar'.

Improved cutter holder. Gidroliz.i lesokhim.prom. 9 no.5:23 '56.
(MLRA 9:11)

1. Khakasskiy gidroliznyy zavod.
(Cutting tools)

PETROV, A. V.



KOSTYUKEVICH, N.I., inzh.; TELIN, P.P., inzh.; PETROV, A.V., inzh.; SHATOV, B.M., red.; ZELENETSKAYA, L.V., red.; YERSHOVA, T.S., tekhn.red.

[Reference manual for the new agricultural machinery] Katalog-spravochnik po novoi sel'skokhoziaistvennoi tekhnike. Moskva, Izd-vo M-va sel'. khoz.RSFSR, 1959. 98 p. (MIRA 13:6)

1. Russia (1917- R.S.F.S.R.) Glavnaya inspektsiya po mekhanizatsii sel'skogo khozyaystva.
(Agricultural machinery)

PETROV, A.V., inzh.; DAVYDOV, S.A.

Blasting under shelters. Mont.i spets.rab. v stroi. 24 no.12: 20-21 D '62. (MIRA 15:12)

1. Trest Soyuzvzryvprom.
(Blasting)

L 22643-65 EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b) Pf-4 JD/HM

ACCESSION NR: AP5001170 S/0135/64/000/012/0018/0019

AUTHOR: Slavin, G. A. (Candidate of technical sciences); Petrov, A. V. (Candidate of technical sciences)

TITLE: Automatic Tig welding of parts with different wall thicknesses

SOURCE: Svarochnoye proizvodstvo, no. 12, 1964, 18-19

TOPIC TAGS: automatic welding, tungsten arc welding, Tig welding, weld seam quality

ABSTRACT: Modern machine-building makes wide use of air-tight joints between thick and thin parts. This is accomplished either by contact welding or soldering. However, these methods are complicated and do not ensure stable quality of the weld joints. Experiments performed by the authors, as well as practical experience, have shown that parts thicker than 0.15 mm may be welded to massive parts by the Tig welding method. The technique utilizes a tungsten arc impulse shielded by argon. When this method is used, the warping of the edge of the thin part is decreased as the ratio between the pause and the electrical impulse becomes higher. This method also leads to smaller gaps between the thin and massive parts. The molten bath is circular with a high surface tension, thus lowering leakage of metal through the gap. The introduction of additional metal into the bath sharply de-

Card 1/2

L 22643-65
ACCESSION NR: AP5001170

creases the effect of thermal variations on the shape of the seam. Tig welding also leads to lower residual stress. Burning of the thin sheets was eliminated by using a rotating welding head. The described Tig welding method ensures high quality seams when thin and massive parts are joined together. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: IE, MM

NO REF SOV: 000 OTHER: 000

Card 2/2

1. MAKARICHEV, I. Z.; MORDUKHOVSKIY, M. I.; PETROV, A. YA. Engs.

2. USSR (600)

4. Milling Machinery

7. Increasing the productivity of the ball drum mill 2?2/?60. Elek. Sta. 23 no. ?, 1952.

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

NENASHEVA, Nina Ivanovna, ptichnitsa. Prinimal uchastiye PETROV, A.Ya., zootekhnik. ZOLOTUKHIN, B.V., red.; SEMENCHUK, S.I., red.; YASHEN'KINA, Ye.A., tekhn.red.

[Producing 1,000,000 eggs per year] 1,000,000 iaits v god. Kuibyshev, Kuibyshevskoe knizhnoe izd-vo, 1960. 14 p. (MIRA 14:1)

1. Kuybyshevskaya ptitsefabrika (for Nenasheva).
(Kuybyshev--Eggs--Production)

PETROV, A.Ye.

Water resources in the area of Amangel'dy deposits. Trudy Inst. geol.nauk AN Kazakh.SSR no.2:129-150 '59.
(MIRA 13:4)

(Amangel'dy District--Hydrology)

KOVALEVSKIY, Ye.P.; PETROV, A.Z.; MARTYNENKO, V.P., otv.red.; SHOROKHOVA, red.izd-va; IL'INSKAYA, G.M., tekhn.red.; POLILUYEV, V.I., tekhn.red.

[K-57 and KU-57 coal cutter-loader] Ugol'nye kombainy K-57 i KU-57. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 70 p. (MIRA 14:1)
(Coal mining machinery)

SVETOCHEV, N.; PETROV, A., nauchnyy sotrudnik

Worm cutter-loader. Mast.ugl. 9 no.7:18-19 Jl '60. (MIRA 13:7)

1. Zamestitel' glavnogo inzhenera shakhty No.3 "Grankovskaya" kombinata Tulaugol' (for Svetochev). 2. Podmoskovnyy nauchno-issledovatel'skiy ugol'nyy institut (for Petrov).
(Coal mining machinery)

9.9867
24.4600

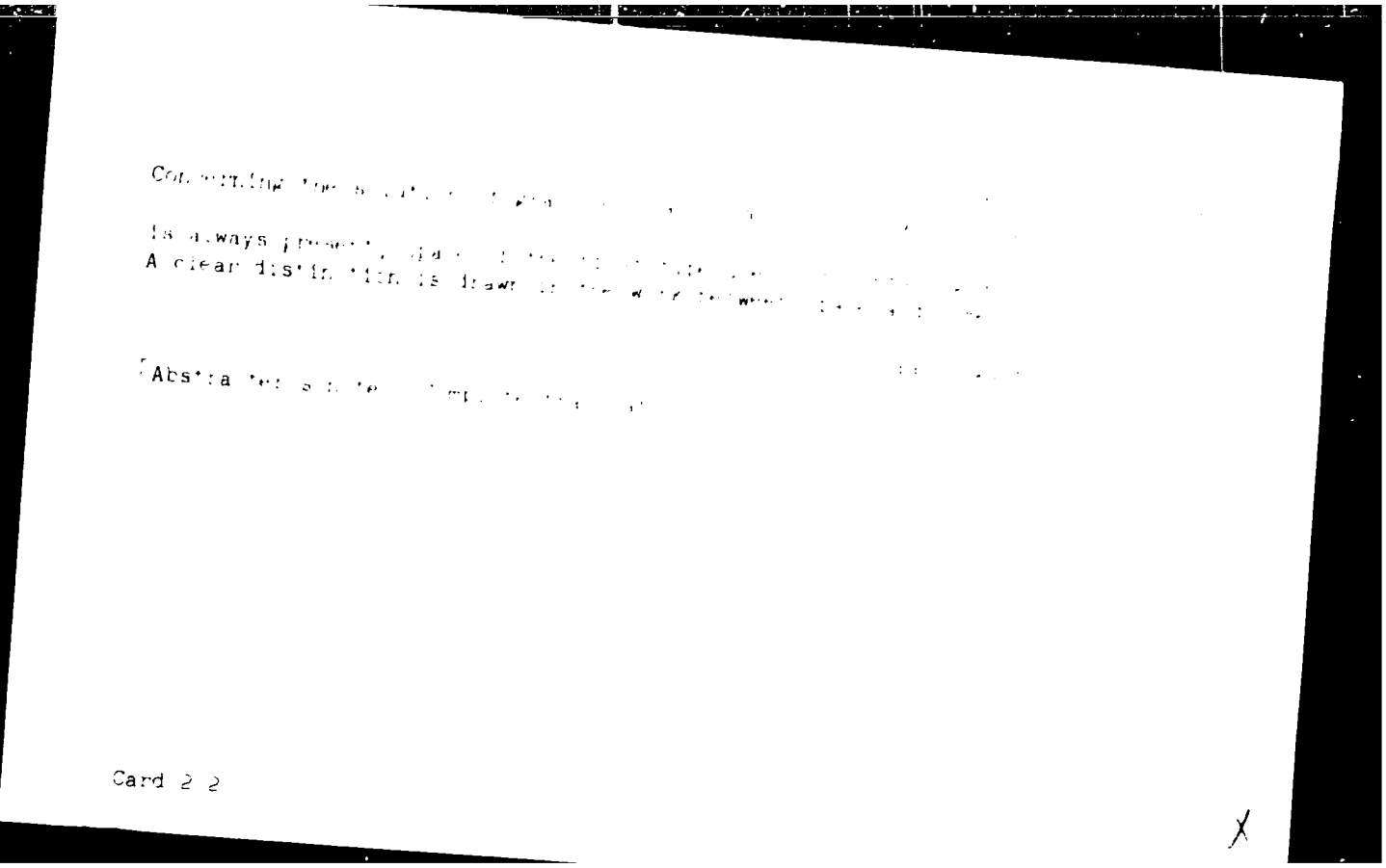
AUTHOR Petrov, A Z

TITLE Concerning the [illegible]

PERIODICAL Referativnyy zhurnal. Fizika [illegible]
(Ucn. zap. Kazanskogo [illegible]

TEXT The author exp[illegible] and [illegible] investigation of Einstein's equations [illegible] shown that the number of arbitrary [illegible] equations differs [illegible] different types [illegible] first type, arbitrariness in the general solution is determined tions of three arguments and five functions of two arguments; second type, it is determined by two and nine [illegible] space of the third type, by thirteen [illegible] of analysis of boundary and [illegible] contrast to spaces of the second and third types [illegible]

Card 1/2



Card 2 2

PETROV, A. Z.

2

Petrov, A. Z. On the curvature of Riemann spaces. Doklady Akad. Nauk SSSR (N.S.) 65, 211–214 (1948). (Russian)

The author defines "quadratic" curvature for a Riemann space as a curvature determined by two divectors. It is a scalar invariant expressed in terms of the fundamental tensor and the Riemann-Christoffel tensor. The author proves that a space of constant curvature is also of constant quadratic curvature and that a V_4 of constant quadratic curvature is of constant curvature. A V_4 of constant quadratic curvature is an Einstein space. The author is apparently unaware of the reviewer's paper [Proc. Nat. Acad. Sci. U. S. A. 17, 43–47 (1931)], where similar definitions are given and more general theorems are proved.

H. S. Knebelman (Pullman, Wash.).

Source: Mathematical Reviews, Vol 10, No. 1

USSR/Mathematics - Tensor Analysis 11 Nov 51
(Gravitational Field)

"Spaces That Determine Gravitational Fields,"
A. Z. Petrov, Kazan State U imeni Ul'yanov-Lenin

"Dok Ak Nauk SSSR" Vol LXXXI, No 2, pp 149-152

Sets up the problem of detg the general soln of the tensor eq $R_{ij} = kg_{ij}$, namely the condition which the Ricci tensor of the fundamental Einstein metric $ds^2 = g_{ij}dx^i dx^j$ satisfies. Submitted 15 Sep 51 by Acad I. G. Petrovskiy.

199T85

PETROV, A. Z.

Mathematical Reviews
Vol. 14 No. 10
Nov. 1953
Geometry

7-13-54
LL

2

Petrov, A. Z. On gravitational fields. Sto dvadcat' pyat' let neevklidovoĭ geometrii Lobačevskogo, 1826–1951 [One hundred and twenty-five years of the non-Euclidean geometry of Lobačevskiĭ, 1826–1951], pp. 179–186. Gosudarstv. Izdat. Tekh.-Teor. Lit., Moscow-Leningrad, 1952. 7.60 rubles.

A classification of Einstein manifolds T_4, $ds^2 = g_{ij}dx^i dx^j$, $R_{ij} = kg_{ij}$, is possible by associating to every point P the local Klein space R_6 of the bivectors, with transformation group

$$\eta^{\alpha'} = A_\alpha{}^{\alpha'}\eta^\alpha, \quad A_\alpha{}^{\alpha'} = 2A^{[ij]}_{[i'j']}, \quad A_{i'}{}^{i} = (\partial x^i/\partial x^{i'})_P,$$
$$g_{i\alpha}g_{j\beta} - g_{i\beta}g_{j\alpha} \to g_{\alpha\beta}, \quad \alpha, \beta, \cdots = 1, \cdots, 6.$$

If the "bivector curvature"

$$K = \frac{R_{ijkl}v^{ij}v^{kl}}{(g_{ik}g_{jl} - g_{il}g_{jk})v^{ij}v^{kl}} \to \frac{R_{\alpha\beta}v^\alpha v^\beta}{g_{\alpha\beta}v^\alpha v^\beta} \quad (v^{ij} \to v^\alpha),$$

then the elementary divisors of the matrix $\|R_{\alpha\beta} - Kg_{\alpha\beta}\|$ give at most 23 types. Of these no more than 9 types can represent real gravitational fields: 1) T_4 with real stationary curvature [(11)(11)(11)], [(1111)(11)], [(111111)]; 2) T_4 with complex stationary curvature [$\overline{11}\ \overline{11}\ \overline{11}$], [$\overline{(11)}\overline{(11)}\ \overline{11}$], [$\overline{(11)}\overline{(11)}(11)$]; 3) T_4 [(33)]. The ds^2 of the first two types is computed; to the second type belong the solutions of Schwarzschild, Kottler and Delsarte. The third type, [(111111)], is the space of constant curvature with local Minkowski metric. *D. J. S.* (Cambridge, Mass.).

Petrov, A. Z.

13

Petrov, A. Z. On spaces of maximal mobility which define a gravitational field. Dokl. Akad. Nauk SSSR (N.S.) 105 (1955), 905–908. (Russian)

1

Math

La variété Riemannienne V_4 avec l'élément linéaire $ds^2=g_{\alpha\beta}dx^\alpha dx^\beta$ définie le champ gravitationel si dans chaque point l'élément ds détermine la géométrie de Minkowski et le tenseur fondamental $g_{\alpha\beta}$ et le tenseur de Ricci satisfont à l'équation $R_{\alpha\beta}=\varkappa g_{\alpha\beta}$ où $\varkappa$ est une constante arbitraire. L'auteur a montré dans un travail récent qu'il existe seulement trois types de ces espaces. Dans cet article on étudie la question si tous les types d'espaces possèdent le groupe des mouvements d'ordre maximum. On construit d'abord un espace à 6 dimensions, localement centre-affin, formé par les bivecteurs et dans lequel il existe les tenseurs symétriques R_{ab}, g_{ab} ($a, b=1, \ldots, 6$) avec $\det|g_{ab}|\neq 0$. Trois types du champ de la gravitation correspondent aux trois caractéristiques de la matrice $\|R_{ab}-\lambda g_{ab}\|$. On peut obtenir deux parties univoques de chaque caractéristique et pour cette raison on peut dire que nous avons trois couples de racines complexes conjugées de l'équation (1) $|R_{ab}-\lambda g_{ab}|=0$. En partant de l'équation de mouvement $v_{(a\beta)}=0$ et des conditions d'integrabilité de cette équation on démontre les

1/2

PETROV, A.Z.

théorèmes: 1) Si les racines de l'équation (1) sont diverses, les espaces du premier et du second type avec le groupe de mouvements d'ordre maximum sont symétriques. Les espaces du troisième type ne peuvent jamais être symétriques. 2) Si les racines de l'équation (1) sont égales, les espaces du premier type avec le groupe de mouvements d'ordre maximum possèdent la courbure constante. Si deux racines de l'équation (1) sont différentes, les espaces possèdent le groupe de mouvements à 4 paramètres. 3) L'espace du second type avec le groupe de mouvements d'ordre maximum possèdent le groupe transitif à 6 paramètres. 4) Les espaces du troisième type possèdent le groupe de mouvements d'ordre $m \leq 4$. L'auteur donne aussi les formules pour ds^2 des espaces mentionés.

F. Vyčichlo (Prague).

PETROV, A.Z. (Kazan')

Einstein's spaces with stationary curvatures. Uch.zap.Kaz.un. 115 no.10:18 '55. (MLRA 10:5)

(Spaces, Generalized)

PETROV, A.Z.

Ordinary gravitational fields with real stationary curvatures. Uch. zap. Kaz. un. 115 no.14:41-52 '55. (MLRA 10:4)
(Field theory)

PETROV, A. Z. Doc Phys-Math Sci -- (diss) "Spaces determined by fields of gravitation." Kazan', 1957. pp cm. Min of Higher Education USSR. Moscow State Univ im M. V. Lomonosov. Faculty of Mechanics and Mathematics, 1 copies (KL, 21-,)

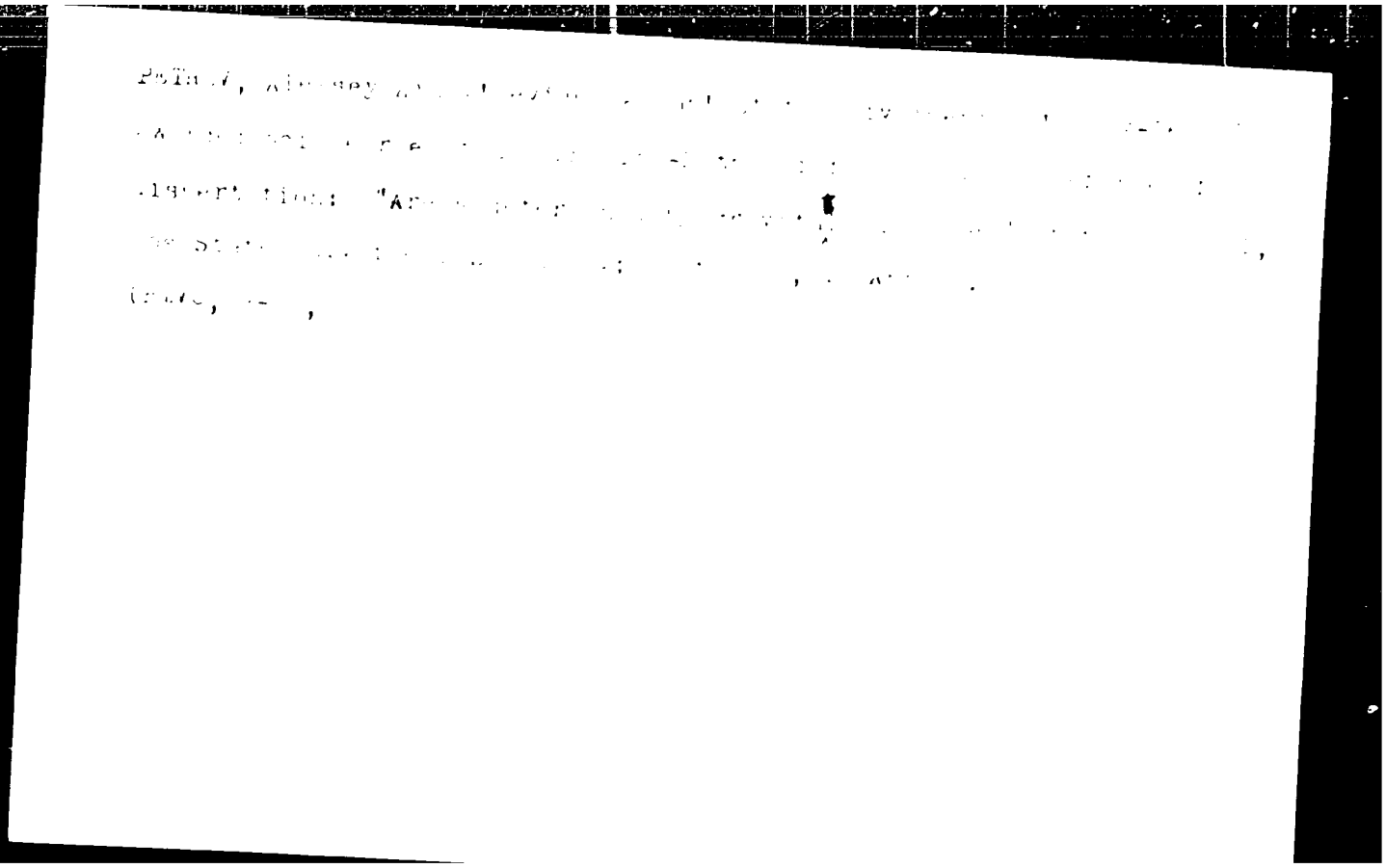
-5-

PETROV, A.Z.; ZATVORNIKOV, S.V.

Motions in irreducible Riemann symmetrical spaces of the first class. Uch. zap. Kaz. un. 117 no.9:35-40 '57. (MIRA 13:1)

1.Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina. Kafedra geometrii.

(Spaces, Generalized)



AUTHOR: Petrov, A.Z.

SOV/140-58-6-22,27

TITLE: Classification of the Fields of Gravitation of General Form (Klassifikatsiya poley tyagoteniya obshchego vida)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958, Nr 6, pp 226-232 (USSR)

ABSTRACT: Let the space V_4, defined by a certain distribution and motion of the matter, have the metric $ds^2 = g_{\alpha\beta}(x)dx^\alpha dx^\beta$. Let it satisfy the condition $R_{\alpha\beta} - \frac{R}{2} g_{\alpha\beta} = \lambda T_{\alpha\beta}$ for Einstein fields, where $R_{\alpha\beta}$ is the Ricci-tensor, R is the curvature, $T_{\alpha\beta}$ is the energy momentum tensor. The author introduces the so-called space-matter-tensor P as follows:

$$P_{\alpha\beta\gamma\delta} = R_{\alpha\beta\gamma\delta} - S_{\alpha\beta\gamma\delta} \text{ , where}$$

$$S_{\alpha\beta\gamma\delta} = \frac{\lambda}{2}(g_{\alpha\gamma}T_{\beta\delta} - g_{\alpha\delta}T_{\beta\gamma} + g_{\beta\delta}T_{\alpha\gamma} - g_{\beta\gamma}T_{\alpha\delta}).$$

With the aid of the tensor $P_{\alpha\beta\gamma\delta}$ the author succeeds in extending his earlier result [Ref 1,2] on the classification of Einstein spaces to the more general case if about $T_{\alpha\beta}$ no further assumptions are given. The classification of the fields of

Card 1/2

Classification of the Field of Gravitation of General Form SOV/[illegible]

gravitation is combined with the algebraic structure of $P_{\alpha\beta\gamma\delta}$

The present paper is published instead of Petrov, A.Z.: On symmetric fields of gravitation (submitted March 3, 1958). There are 6 references, 4 of which are Soviet, 2 American, 1 French, and 1 English.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova-Lenina (Kazan' State University imeni V.I.Ul'yanov-Lenin)

SUBMITTED: October 23, 1958

Card 2/2

PETROV, A.Z.

Symmetric gravitation fields. Izv.vys.ucheb.zav.; mat. no.2:189-197 '59. (MIRA 12:5)

1. Kazanskiy gosudarstvennyy universitet im. V.I.Ul'yanova-Lenina.

(Field theory)

16(1)

AUTHORS: Petrov, A.Z., Kaygorodov, V.R., and Abdullin, V.N. 4325 SOV/140-59-6-16/29

TITLE: Classification of General Gravitational Fields With Respect to the Motion Groups. I

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1959, Nr 6, pp 118-130 (USSR)

ABSTRACT: Like in the papers of Cartan and others [Ref 1,2,3] the classification of the gravitational fields is reduced to the determination of the V_4 which are invariant with respect to certain motion groups. This method is applied very systematically by classifying known results into a scheme and filling up the existing gaps (e g V_4 with G_2, V_4 with G_3, acting transitively or intransitively on non-isotropic or isotropic surfaces of transitivity)
The authors mention G I Kruchkovich, and I P.Yegorov.
There are 15 references, 8 of which are Soviet, 3 Italian, 1 Roumanian, 1 German, 1 French, and 1 American

ASSOCIATION: Kazanskiy gosudarstvennyy universitet imeni V I.Ul'yanova-Lenina (Kazan' State University imeni V I.Ul'yanov-Lenin)

SUBMITTED: December 13, 1958

Card 1/1

PETROV, A.Z.; KAYGORODOV, V.R.; ABDULLIN, V.N.

Classification of general type gravitation fields with respect to motion groups. Part 2. Izv.vys.ucheb.zav.; mat. no.1:175-187 '60. (MIRA 13:6)

1. Kazanskiy gosudarstvennyy universitet imeni V.I.Ul'yanova-Lenina.

(Gravitation)

24 4200

AUTHORS: Petrov, A Z , Kaygorodov, V [illegible], and Abdul[illegible]

TITLE: Classification of the Gravitational Fields of General Form According to the Groups of Motions III

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 19[illegible] No 4, pp 158 - 169

TEXT: The present paper is a continuation of (Ref 1,2) of the authors and is based on the notions and considerations of these earlier papers The classification of general gravitational fields is continued for some further cases Amongst other things the authors give suitable canonical forms of the metric tensor ; § 5 Gravitational fields admitting non transitive groups of motion G_4 on V_3 ; the authors find 16 different types of gravitational fields § 6 Gravitational fields admitting a non transitive group G_4 on V_3^* ; 10 different types are given § 7 Gravitational fields admitting simply transitive groups of motion ; 14 different

Card 1/2

Classification of the Gravitational Fields of General Form According to the Groups of Motions III

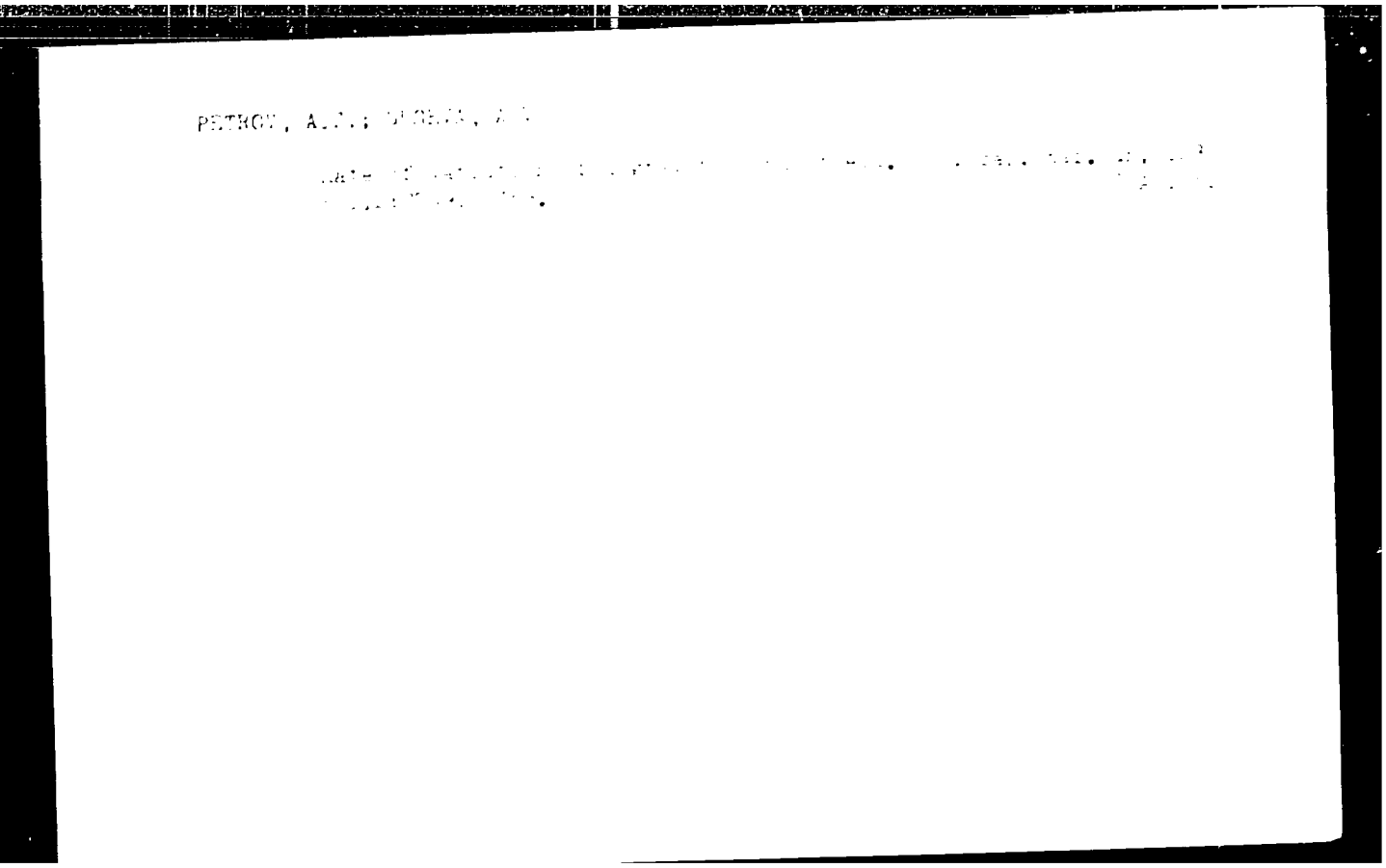
S/140/60/000/004/012/027 XX
C111/C222

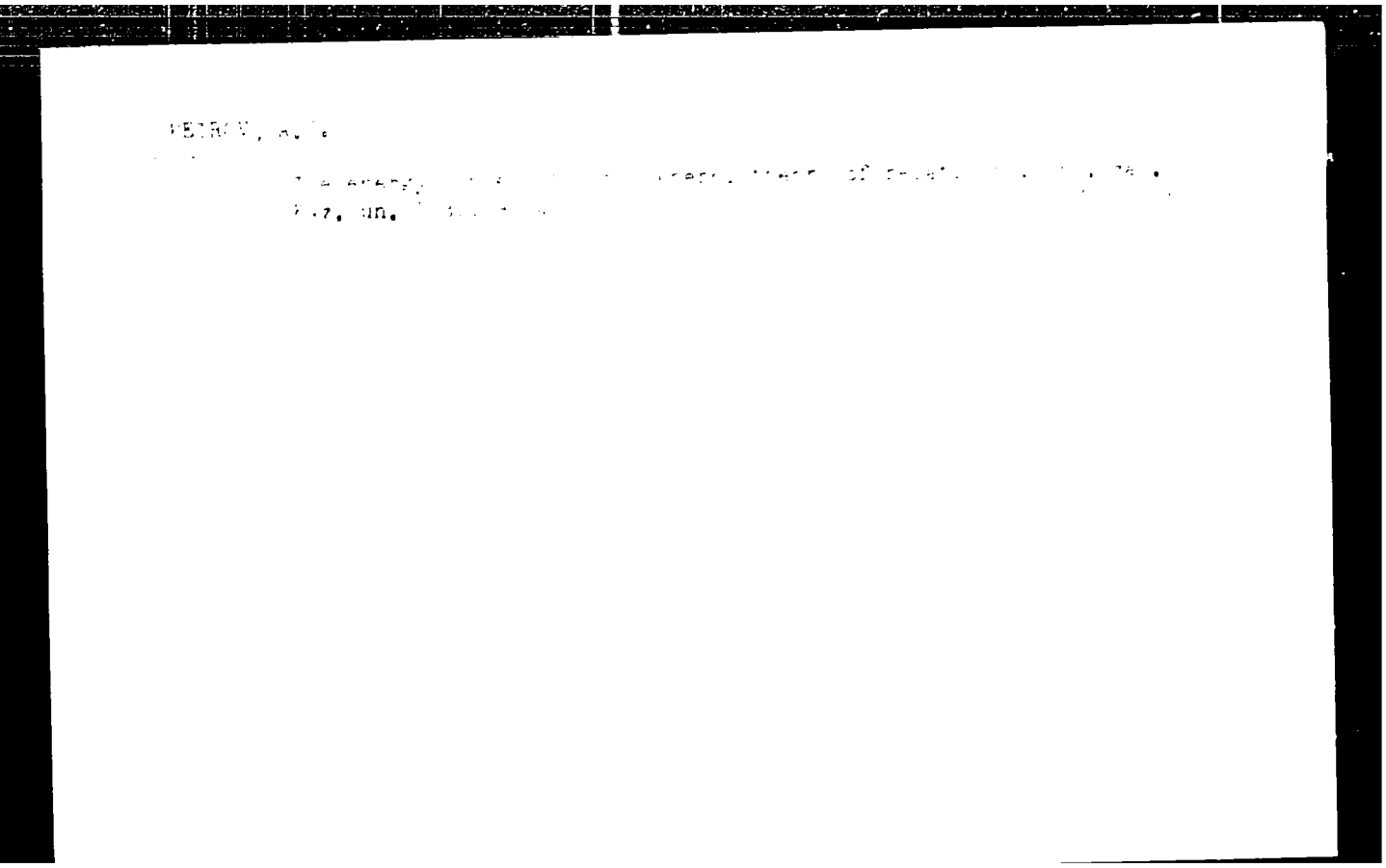
types are given. It is announced that gravitational fields with G_r, $r \geq 4$ will be considered in the next publication.
There are 5 references: 4 Soviet and 1 American.
[Abstracter's note: The meaning of the numerical results could not completely be understood since the used symbols, notions and considerations are not explained in the paper. (Ref. 1, 2) are papers of the same authors in Izvestiya vysshikh uchebnykh zavedeniy Matematika 1959 No. 6 and Izvestiya vysshikh uchebnykh zavedeniy Matematika, 1960, No. 1.]

ASSOCIATION: Kazanskiy gosudarstvennyy universitet imeni V.I. Ul'yanova Lenina (Kazan' State University imeni V.I. Ul'yanov Lenin)

SUBMITTED: December 30, 1959

Card 2/2





ACC NR: AM6036120 Monograph UR/

Petrov, Aleksey Zinov'yevich

New methods in the general theory of relativity (Novyye metody v obshchey teorii otnositel'nosti) Moscow. Izd-vo "Nauka". 1966. 495 p. biblio., index. 7000 copies printed.

TOPIC TAGS: quantum theory, relativity theory, gravitational field, Einstein space field theory

PURPOSE AND COVERAGE: This book is intended for scientists, graduate students, and advanced students of physics and mechanics-mathematics departments. The intensive development of field theory in modern physics, and particularly the theory of field gravitation within the framework of Einstein's theory of relativity, demanded the application of modern mathematical methods. This book discusses the application of invariant-group methods to the problems of the general theory of relativity.

TABLE OF CONTENTS [Abridged]

Card 1/2 UDC: 530.12

[illegible]EVYY, [illegible], red., [illegible], red., [illegible], [illegible],

[Philosophical problems in Einstein's theory of gravitation and in relativistic cosmology] Filosofskie problemy [illegible] tiagoteniia Einshteina [illegible] kosmologii. Kiev, Naukova dumka, [illegible]. [illegible] [illegible]

[illegible] Sovetskaya [illegible] [illegible]. [illegible] Kazanskiy gosudarstvennyy universitet (for [illegible]). Institut [illegible] AN Ukrainskoy SSR ([illegible]).

PETROV, A.Z.

Centrally symmetrical gravitational fields. Zhur.eksp.i teor. fiz. 44 no.5:1525-1533 My '63. (MIRA 16:6)

1. Kazanskiy gosudarstvennyy universitet.
(Gravitation)

L 10229-63 EPR/EWT(1)/BDS--AFFTC/ASD--Ps-4--WW

ACCESSION NR: AP3000045 S/0056/63/044/005/1525/1533

AUTHOR: Petrov, A. Z. 59 51

TITLE: On centrally-symmetrical gravitational fields

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 44, no. 5, 1963, 1525-1533

TOPIC TAGS: Relativity, gravitational waves, central symmetry

ABSTRACT: It is shown that the well known statement of Birkhoff (Relativity and Modern Physics, Cambridge, 1923, p. 256) to the effect that any centrally symmetric gravitational field in vacuum should be a static field, and thus determined by a Schwarzschild matrix (apart for a coordinate transformation) is true only under some additional conditions. The conditions, under wihich the solution of the centrally-symmetric field equations in vacuum are sought, are rigorously analyzed. A physical interpretation is presented for these conditions. The general solution of these equations is found to be generally nonstatic and containing an irremovable functional arbitrariness. The additional conditions are equivalent to certain assumptions regarding the wave properties of the

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L 10229-63

ACCESSION NR: AP3000045

2

Einstein field equation solutions. A centrally-symmetrical field in vacuum, capable of supporting shock waves, is discussed and the solutions with shock waves investigated. Orig. art. has: 28 formulas.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazan' State University)

SUBMITTED: 11Oct62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: PH NR REF SOV: 008 OTHER: 012

Card 2/2

PETROV, A.Z.; RAYKHODOV, V.R.; ABDULLIN, V.N.

Classification of general-type gravitational fields by groups of motions. Part 4. Izv. vys. ucheb. zav.; mat. no.1:[illegible] 15:1

1. Kazanskiy gosudarstvennyy universitet imeni V.[illegible] Ul'yanova-Lenina.

(Gravitation)
Groups, Theory of

PHASE I BOOK EXPLOITATION SOV/6023

Petrov, Aleksey Zinov'yevich

Prostranstva Eynshteyna (Einstein spaces) Moscow, Fizmatgiz, 1961.
463 p. 15,000 copies printed.

Ed.: A. F. Lapko; Tech. Ed.: N. Ya. Murashova.

PURPOSE: This book is intended for those specializing in theoretical mathematical physics, especially in the theory of relativity.

COVERAGE: The book is concerned with the study of spaces lying at the foundation of the general theory of relativity and their generalizations to any number of measurements. The author has limited himself to a discussion of those problems of interest to physicists and mathematicians which have not been treated in the standard works in the field. This explains the emphasis on the mathematical side of problems and the particular attention given to four-dimensional spaces with a Lorentz-type signature. Some of the latest developments in the field which have been reported in the voluminous periodical literature have been

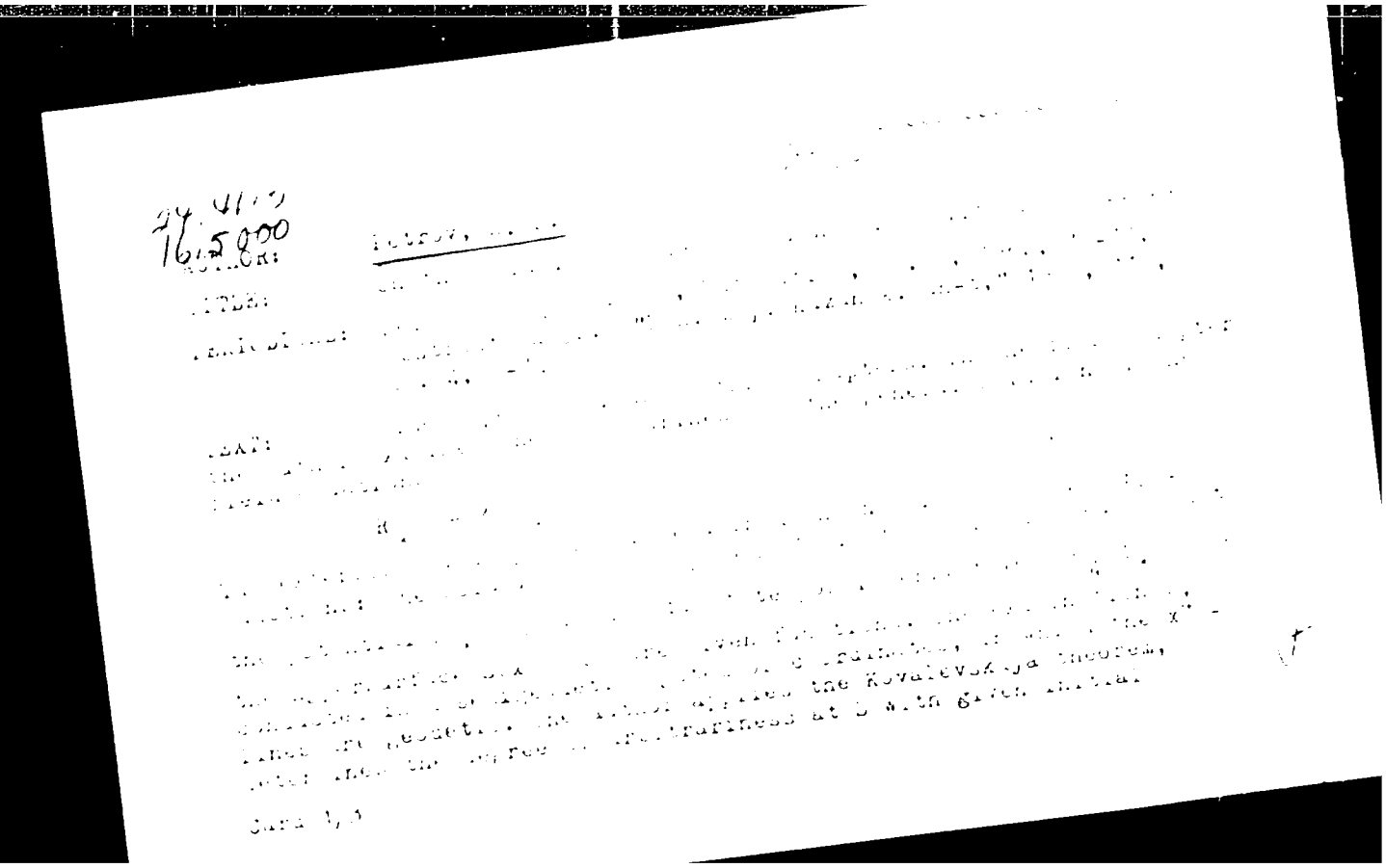
Card 1/

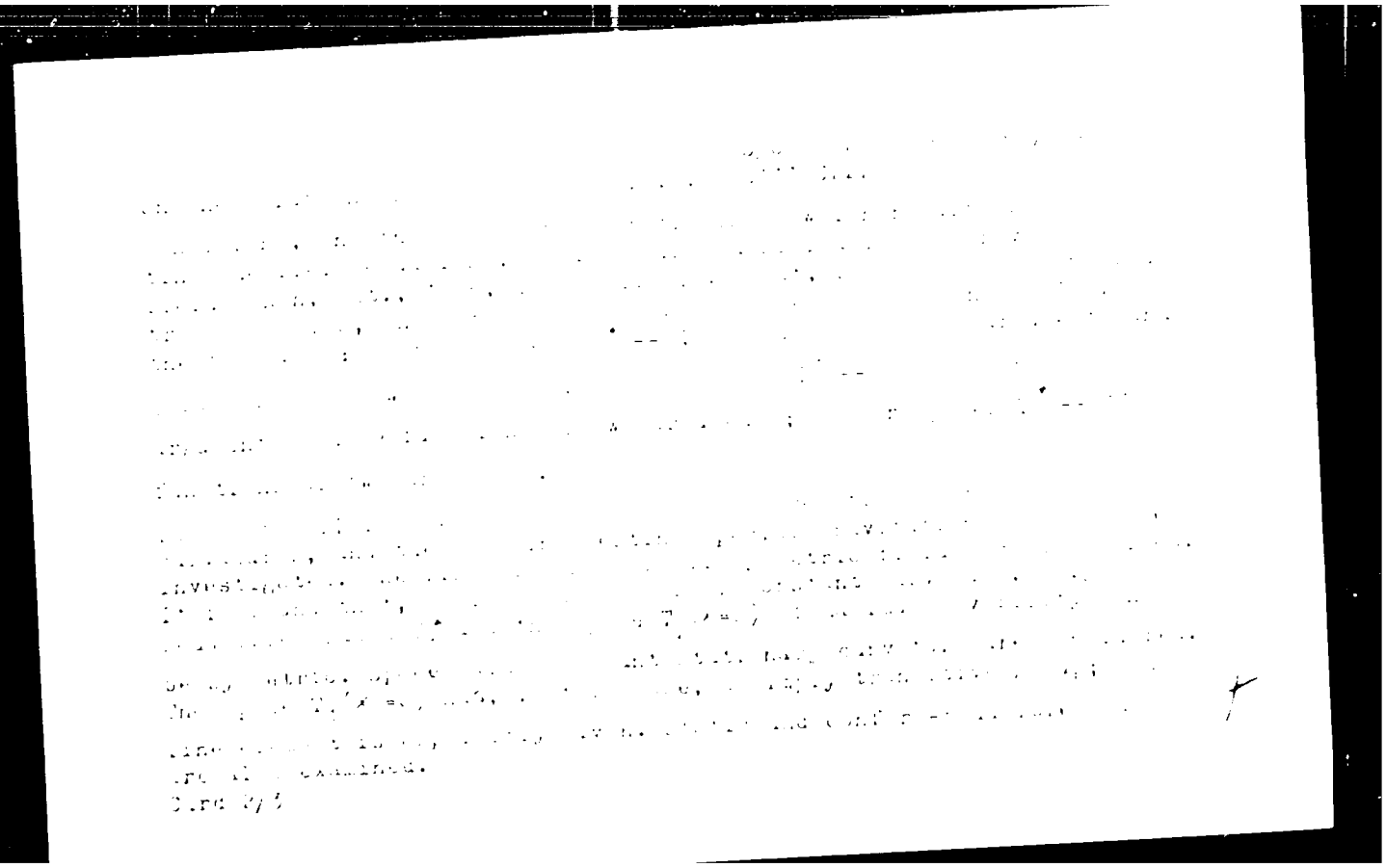
included in the present work. Appropriate references to the bibliography have been made in the case of problems which the author has not, for one reason or another, been able to deal with here. Attention is focused on problems which are of the greatest current interest. These include the application of Lie groups to the study of fields of gravitation, the Cauchy problem, methods for the invariant study of Einstein spaces, etc. The author has attempted to bring the reader to a better understanding of the refined methods of investigation required for the study of problems such as gravitational radiation, the behavior of elementary particles, the interaction of fields, etc. The author thanks A. P. Lapko. There are 362 references, mostly Soviet, English, and German, but with some French and Italian.

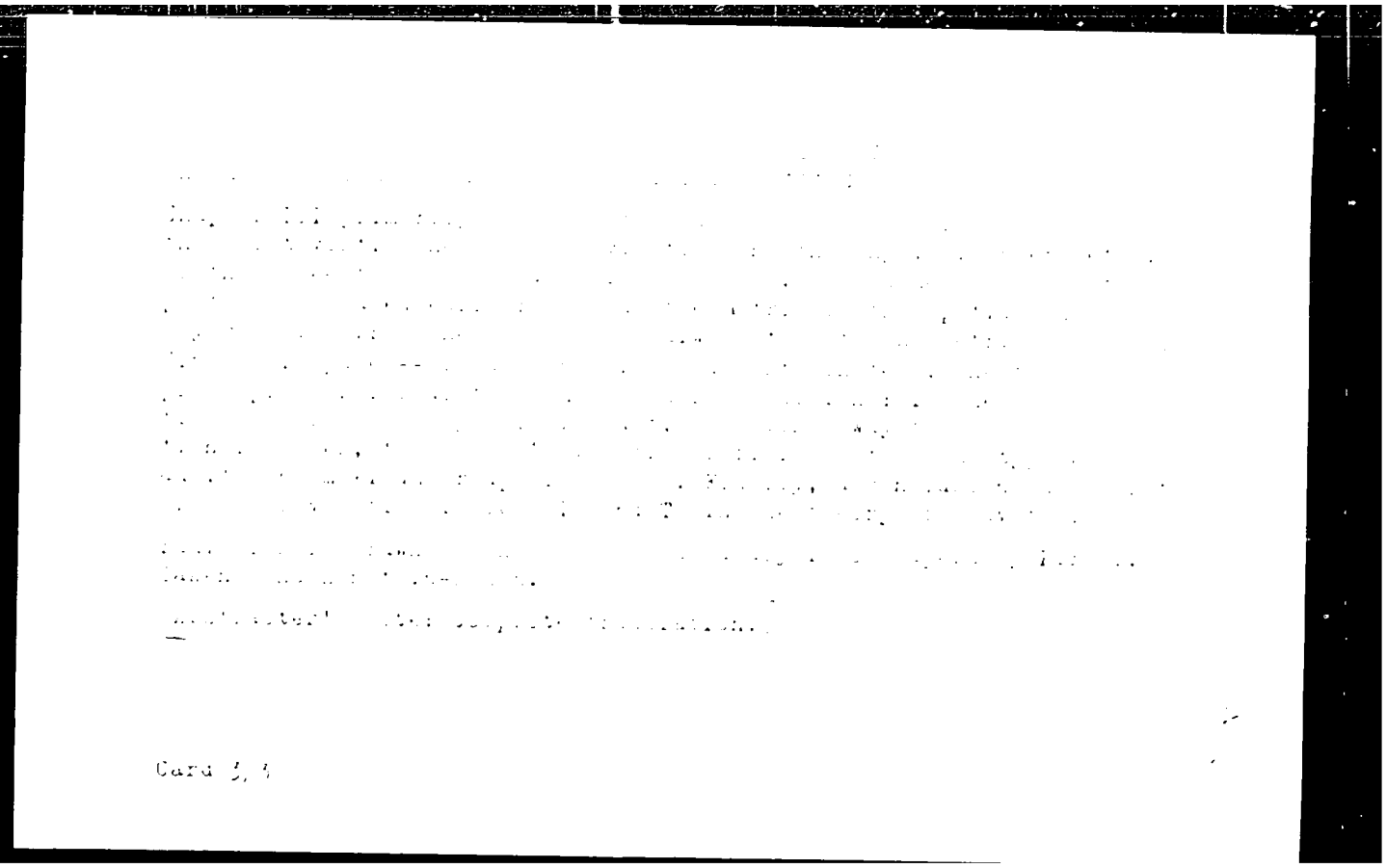
TABLE OF CONTENTS:

Einstein spaces

SOV/6023







Card 3/4

PETROV, A.Z.; KUZNETSOV, I.M., red.; SEMENOV, Yu.P., tekhn. red.

[Space, time, and matter; elementary outline of the modern theory of relativity] Prostranstvo-vremia i materiia; elementarnyi ocherk sovremennoi teorii otnositel'nosti. Kazan', Izd-vo Kazanskogo univ., 1961. 79 p. (MIRA 15:1)
(Relativity (Physics))

PETROV, A.Z.

Geodesic representation of Einstein spaces. Izv. vys. ucheb. zav.; mat. no.2:130-136 '61. (MIRA 14:3)

1. Kazanskiy gosudarstvennyy universitet imeni V. I. Ul'yanova-Lenina.

(Spaces, Generalized)

S/140/60/000/004/[illegible]/[illegible]
D[illegible]/D406

24 4200

AUTHORS: Petrov A.Z., Kaygorodov V.R. and Abdullin V.N.

TITLE: Classification of the gravitational fields of a general form according to the groups of motions. III

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika no. 4, 1960, 155-169

TEXT: This paper is a continuation of earlier investigations by the authors published in this journal under the same title (Ref. I. Izv. vuzov, Matem. no. 6, 1959; Ref. 2. II. Izv. vuzov, Matem., no. 1, 1960) and its subject is the classification of the real gravitational fields of a general form admitting the transitive and non-transitive groups of motions G_4. All designations are the same as in the earlier two papers. The first describes the gravitational fields admitting non-transitive groups of motions G_4 on V_3. Each group of motions G_r ($3 \leq r \leq 5$) in V_4 admits a sub-

Card 1/8

20299

S/[illegible]40/60/000/004/0[illegible]/0[illegible]
D22[illegible]/D306

Classification of the . .

group $G_{r...}$ as cited by I. P. Yegorov (Ref. 1: O invariantnykh preobrazovaniyakh affinnoy svyaznosti (On Movements in Spaces of Affine Connections. Doktorsk. diss., Arkhiv MGU, 1955). Consequently V_4 with non-transitive G_4 acting on V_3 are included among V_4 admitting G_3 and it is possible to apply the following algorithm 1) Using the classification of non isomorphous structures G_4 as given in (Ref. 1: Op. cit.) and by means of the operators of the group G_3 as given in Ref. 2 (Op. cit.), the fourth operator X_4 is determined from the equations of the structure G_4; 2) Integrating the Killing's equations for X_4 and using the permissible transformations the canonical form of the metrics in question is found. Any subgroup G_3 included in G_4 can be taken. This G_3 can act in V_3, V_2 or V_1. It is assumed that G_4 acting on V_3 contains the subgroup G_3 acting transitively on this V_3 and all possible cases of

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S/140/60/000/004/019/023XX
D221/D306

Classification of the ...

the structure G_4, are examined. A semigeodesical system of coordinates is introduced into V_4 for which

and geodesical-parallel hypersurfaces of the transitivity have the equations x^4 = const. The types of group G_4 are as follows: G_4I, G_4II, G_4III, G_4IV, G_4V, G_4VI, G_4VI_2, G_4VI_4, G_4VII, G_4VIII. All these types are examined, and the expressions for their metrics ds^2 and operators X_1, X_2, X_3 and X_4 are given. G_4I, G_4II and G_4III contain a subgroup G_3II as given in Ref. 2 (Op.cit.) with the operators: $X_1 = p_2$, $X_2 = p_3$, $X_3 = - p_1 + x^3 p_2$. Further, a case is examined when the corresponding subgroup G_3 of the group G_4 acts not on V_3, but on V_2. In order to make the classification complete it is necessary to take the same subgroup G_3

Card 3/8

acting on V_2, as in the case of G_3 acting on V_3. Using the algorithm it is found that there is no G_4I, G_4II, G_4III (including G_3II acting on V_2) G_4IV (with G_3III on V_2), G_4V (with G_3V on V_2), G_4IV (with G_3I on V_2), and only two possibilities exist: G_4VII (with G_3VIII on V_2) and G_4VIII (with G_3IX on V_2). Expressions of the metrics and operators for these two types are given. The remaining case is G_4 on V_3 when the subgroup G_3 acts on an isotropic variety V_2^*. Now, the four-dimensional groups act on the non-isotropic V_3, and, therefore, the classification introduced earlier is fully applicable to them. Consequently the following spaces are obtained: G_4I, G_4II and G_4III, whose mathematical expressions and operators are also given. The authors next discuss the gravitational fields admitting the non-transitive group of

Card 4/8

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D221/D306

Classification of [illegible] ...

motions G_4 on V_3^*. In contrast to the previous cases, the classification of such G_4 requires a selection of an isotropic-semigeodesical system of coordinates in V_4. The classification of V_4 with the groups of motions G_4 on V_3^* and G_4 on V_2^* was described by G.I. Kruchkovich (Ref. 3: O dvizheniyakh v rimanovykh prostranstvakh (On Movements in Rieman Spaces) Matem. sb. t. 43, (85), [illegible], 1957): This is the same as in that described above, the only difference being that here spaces with three-dimensional groups of motions are used on isotropic V_3^* and $V_2^*(x^2, x^3)$. The spaces admitting G_3 on V_3^* do not admit non-transitive G_4. Again the mathematical expressions and operators are given for the spaces V_4 in the groups not including G_3 [Abstractor's note: Structures without corresponding gravitational fields are omitted]. Next G_4 including

Card 5/8

S/140/60/000/004/019/027
D221/D306

Classification of the ...

G_3 is examined. The mathematical expressions and operators for G_4VI_3 and G_4VI_2 are given. Finally, the authors describe the gravitational fields admitting simply transitive groups of motions as quoted by L.P. Eyzenkhart (Ref. 5: Nepreryvnyye gruppy preobrazovaniy (Continuous Groups of Transformations) M., 1957). If the space V_4 admits a simply transitive group G_4, then any four operators satisfying the equations of the structure can be taken. Therefore, it is immaterial whether the fourth operator is determined by going from G_3 onto V_3, or from G_3 onto V_3^*. The first method is used here. For the simply transitive groups $\xi_4^4 \neq 0$ and it follows from the Killing's equations that $\partial_4 \xi_4^4 = 0$. Using these conditions and operators G_3 on V_3 as cited in Ref. 2 (Op.cit.) which has a subgroup is included in G_4, from the equations of the struc-

Card 6/8

Classification of the ...

ture as given in Ref. 1 (Op. cit.), the fourth operator is found and certain constants of integration can be made equal to zero or 1 by means of permissible transformations. The group G_4I and G_4II and G_4III containing G_3II are examined and their mathematical expressions derived. Group G_4IV includes the subgroup G_3III. Their metrics and operators are also given. For the group G_4 ... ing from the subgroup G_3V, the metrics are obtained in the same way. In determining G_4 including G_3, the examination is simpler since the first three operators can be taken in all possible cases: $X_1 = p_2$, $X_2 = p_3$, $X_3 = -p_1$; for $X_4 = \xi_4^\alpha p_\alpha$, and therefore $\partial_\beta \xi^4 = 0$ ($\beta = 1, \ldots, 4$). The mathematical expressions and operators for the following spaces are given here: G_4VI_1, G_4VI_2, G_4VI_3, G_4VI_4. Finally the examination of the unsolvable G_4VII, VIII which contain un

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S/[illegible]40/60/000/004/01[illegible]/[illegible]
D[illegible]/D306

Classification of the [illegible]

solvable G_4VIII, IX respectively produces two possible spaces G_4VII and G_4VIII. Their expressions are given. Thus the classification of the gravitational fields of the general form is established. The following paper will investigate the gravitational fields admitting the groups of motions G_r with $r > 4$. There are 5 Soviet-bloc references.

ASSOCIATION: Kazanskiy gosudarstvenny universitet im. V.I. Ul'yanova-Lenina (Kazan State University im. V.I. Ul'yanov-Lenin)

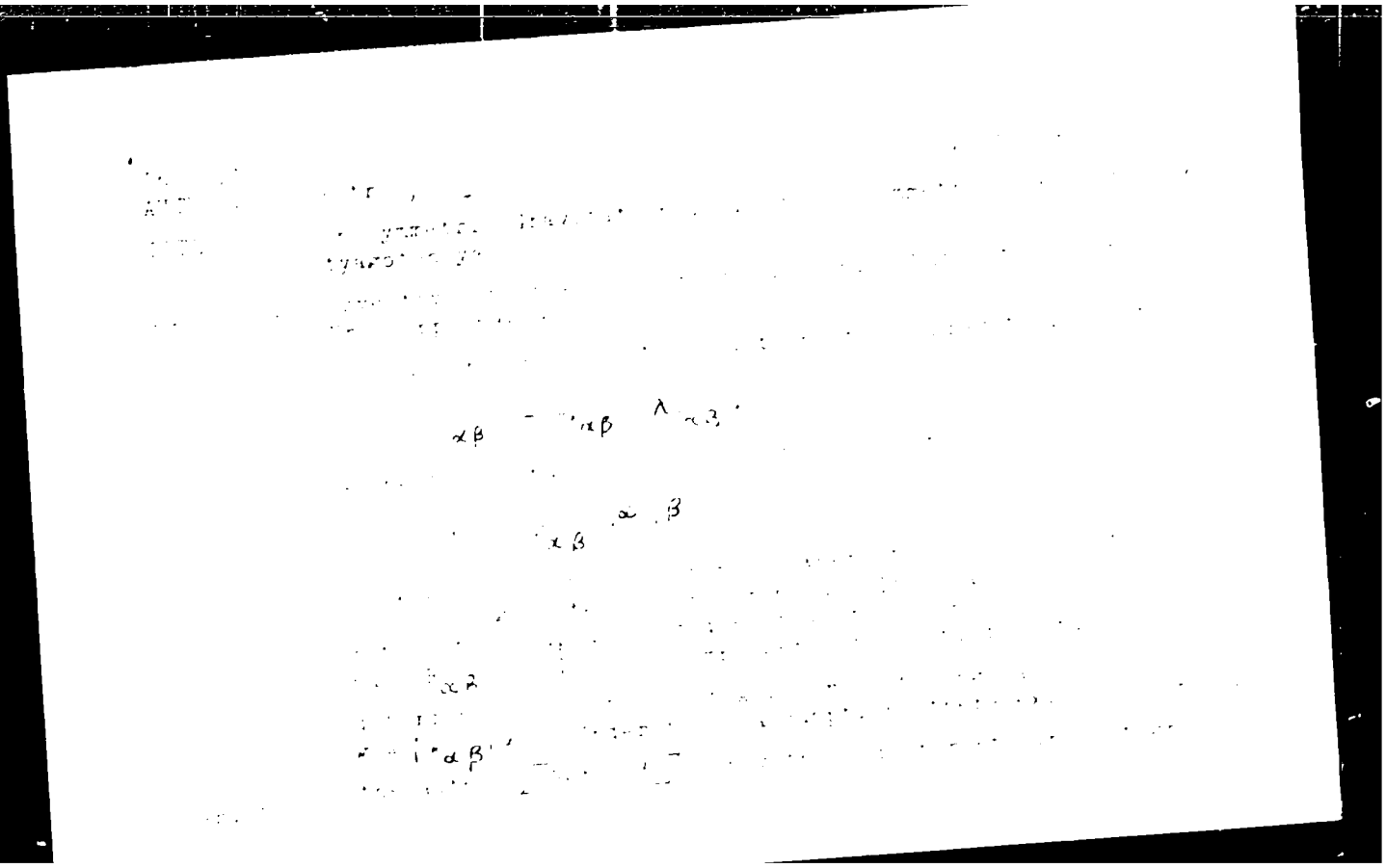
SUBMITTED: December 30 [illegible]

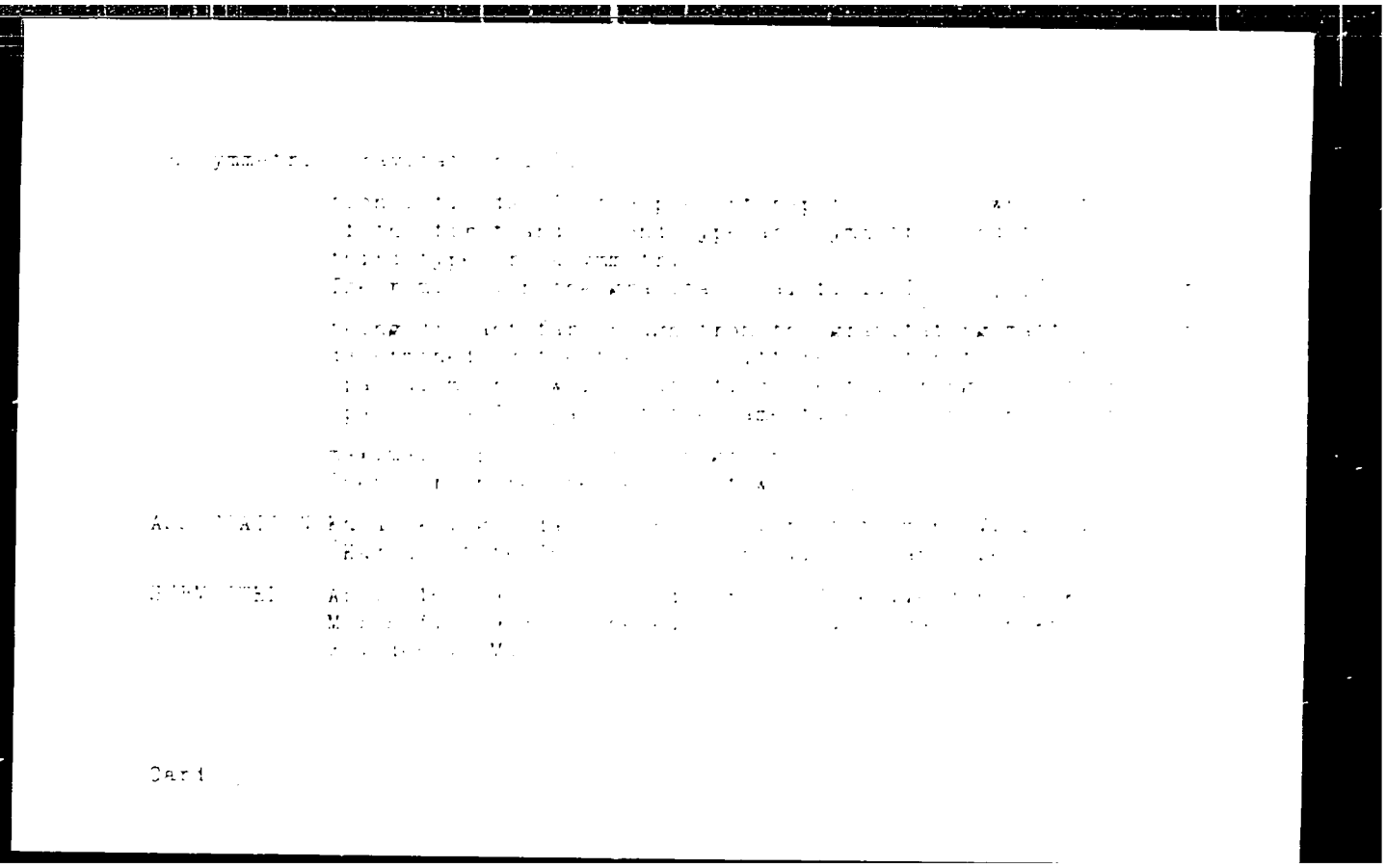
Card [illegible]

PETROV, A.Z.; KAYGORODOV, V.R.; ABDULLIN, V.N.

Classification of general-type gravitation fields with respect to motion groups. Part 3. Izv. vys. ucheb. zav.; mat. no.4:158-169 '60. (MIRA 13:10)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.
(Gravitation)





PETROV, A.Z.

Note on Birkhoff's theorem. Uc. zap. Kaz. un. [illegible]
[illegible]53. [illegible]

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001240420003-5"

PETROV, Aleksandr; KHRISTOV, EMIL'

Aroma of the valley of roses. Znan. sila 38 no.[illegible]:22-23 S '[illegible].
(MIRA 16:12)

PETROV, Boris

Improving the organization of the technical standardization of labor in the mining industries. Trud tseni 5 no.3:43-51 Mr.

PETROV, Boris

Main directives in bettering technical normalization in mining industries. Trud tseni 4 no.5:9-17 '62.

PETROV, Boris

Organization of the normative and research work in the industries of the U.S.S.R. Trud tseni 4 no.3:68-72 '62.

PETROV, B.

"How to obtain a strong and pure boiling acid," 1952.

PETROV, P.

"Valuable Rationalizations in Lithography", P. 11, (RATSIONALIZATSII, Vol. 3, No. 10/11, Oct /Nov. 1953, Sofiya, Bulgaria)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

TZON[illegible] MANEVA, M. [Tsoneva-Maneva, [illegible]]; [illegible], B.

[illegible]mparative cyt[illegible] studies [illegible] normal and [illegible] [illegible]tions in ma[illegible]. [illegible] med. (Plovdiv) [illegible]

1. Institut [illegible] Med[illegible] de Varna [illegible] Chaire de [illegible] M. Tzoneva- [illegible] Maneva] et B. Petrov].

PETROV, B.

On a high sport level. Kryl.rod.6 no.10:12-13 O'55. (MLRA 8:12)

1. Glavnyy sud'ya IV Moskovskikh gorodskikh sorevnovaniy po parashyutnomu sportu.
(Moscow--Parachutists--Competitions)

PETROV, B.

From institutes and laboratories into production. Sov.shakht. 12 no.12:15-16 D '63. (MIRA 17:3)

1. Nachal'nik otdela nauchno-tekhnicheskoy informatsii Shakhtinskogo nauchno-issledovatel'skogo i proyektno-konstruktorskogo ugol'nogo instituta.

Petrov, B.

B-Spectrograph with inhomogenous magnetic field M. KORSUNSKII, V. KEL'MAN, and B. PETROV. J. Exptl. Theoret. Phys. USSR 14, 394-401 1944 , No. 10-11.

The B-Spectrograph capable of exact focusing is discussed. With this B-Spectrograph a complete focusing of an Electron beam in the plane perpendicular to the magnetic field can be obtained within the limits of 40°. GALINA M. LEBEDOFF

PETROV, B.

"Beta-Spectrograph with an Inhomogeneous Magnetic Field"
Zhur. Fiz., 7, No 1, Vol 9, 1945
Phys. Tech. Inst., Acad. of Sciences of the Ukrainian SSR

PETROV, B.

PETROV, B.; LOBANOV, N.; BELOUSOV, A.; PYASETSKAYA, G., redaktor; ZHORNIK, D., redaktor; GRIGOR'YEVA, A., redaktor; LUSHNIKOV, K., redaktor; KARYAKINA, M., tekhnicheskiy redaktor.

[Parachutist's training] Podgotovka parashiutista. Moskva, Izd-vo DOSAAF, 1954. 279 p. (MLRA 8:1)
(Parachutists)

PETROV, V.

AID P - 3124

Subject : USSR/Aeronautics

Card 1/1 Pub. 58 - 10/24

Author : Petrov, B.

Title : On a high sport level

Periodical : Kryl. rod., 10, 12-13, 0 1955

Abstract : The author, umpire in chief of the IVth Moscow parachute individual and team competition, reports on the competition. Teams and individuals taking part were selected in various club competitions. The author gives results and mentions names.

Institution : Several DOSAAF aeroclubs

Submitted : No date

PETROV, B.

Great physician, phylosopher, and scientist. Cas.lek.cesk. 91
no.39: 1105-1109 26 Sept 52.
(BIOGRAPHIES,
Avicenna)

PETROV, B.

USSR/ Miscellaneous

Card 1/1 Pub. 89 - 14/40

Authors : Petrov, B.

Title : Greater attention should be paid to radio centers in State-farms

Periodical : Radio 10, page 19, Oct 1954

Abstract : In a letter to to the editor a radio technician of a local Sovkhov (State farm) points out the deficiencies of the four radio-relay stations operating in the region of this Sovkhoz.

Institution: .....

Submitted: .....

PETROV, B., tekhnik.

Stand for testing and regulating automobile control equipment.
Avt. transp. 34 no.8:26 Ag '56. (MLRA 9:10)

(Automobiles--Apparatus and supplies)

PETROV, B., inzh.; SHERESHEVSKIY, Ya., inzh.

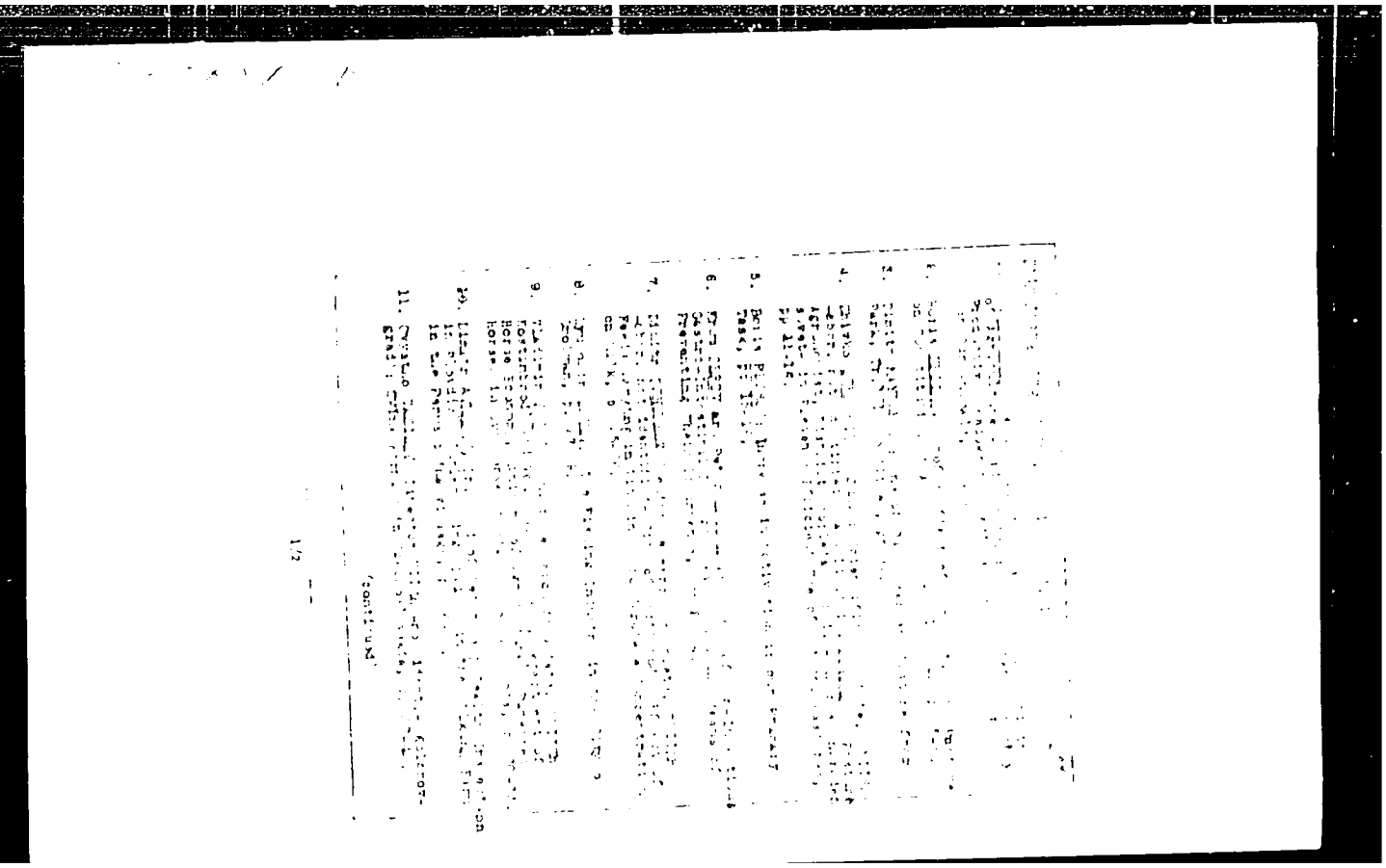
Quality control of bearing linings. Rech. transp. 20 no.11: 20-21 N '61. (MIRA 15:1)
(Ships--Maintenance and repair)
(Ultrasonic testing)

PETROV, B.

Automata and living organisms. Nauka i tekh mladezh 15 no.1:
35 Ja '64.

PETROV, B.

Interlocking gear in a bridge crane. Okhr.truda i sots.strakh. 4 no.12:25 D '61. (MIRA 14:11)
(Cranes, derricks, etc.)



PET.OV, B.D., prof. (Moskva)

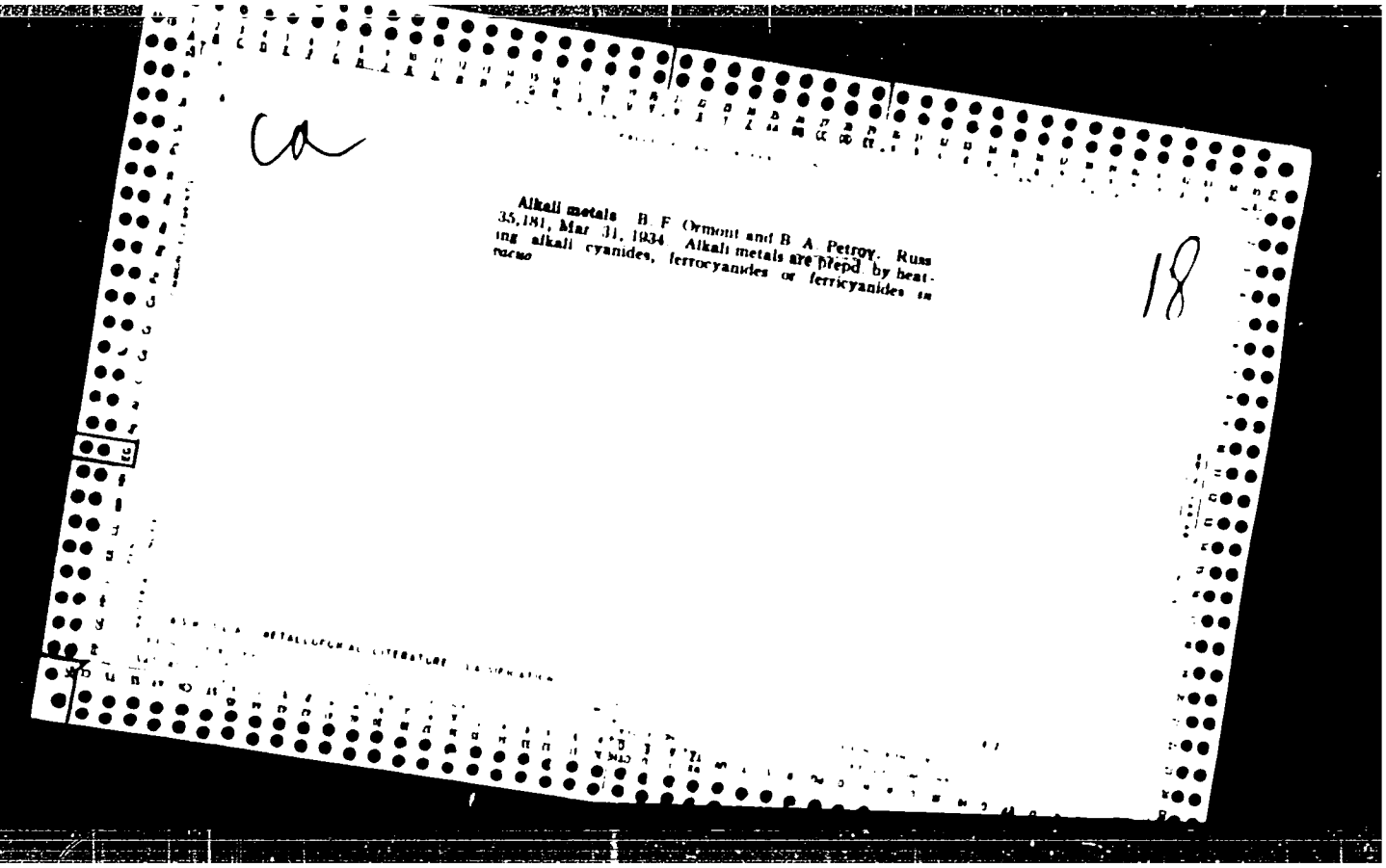
"Russia's first women medics" by A.A.Shibkov. Reviewed by B.D. Petorv. Fel'd. i akush. 26 no.8:63-64 Ag '61. (MIRA 14:10)
(WOMEN AS PHYSICIANS) (SHIBKOV, A.A.)

LEV, Ye.S., kandidat tekhnicheskikh nauk; PETROV, B.A.; BRUK, M.V.

Detection of defects in metals in ship repairing yards. Mech. transp. 14 no.7:27-29 Jl '55. (MLRA 8:10)
(Metals--Defects) (Magnetic testing)

PETROV, B.A.; BOLDYSHEVA, N.I.

Purification of rotary kiln gases by means of electric filters.
TSement 24 no.5:11-17 S-O '58. (MIRA 11:11)
(Kilns, Rotary) (Electric filters) (Gas purification)



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Alkali metals B F Ormont and B A Petrov. Russ 35,181, Mar 31, 1934. Alkali metals are prepd by heating alkali cyanides, ferrocyanides or ferricyanides in vacuo

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