MOSTOVSKIY, A.A.; VOROB'YEVA, O.B.; MAYSKAYA, K.A.

Bismuth-silver-cesium photocathodes. Fiz. tver. tela 1 no.4:643-647 '59. (MIRA 12:6)
Fiz. tver. tela 1 no.4:643-647 '59.
(Photoelectric cells)

9,4160
26-24-21

29692
S/181/61/003/010/017/036
B111/B138

AUTHORS: Golovanova, O. V., Klimin, A. I., and Mostovskiy, A. A.

TITLE: Photosensitive lead oxide layers

PERIODICAL: Fizika tverdogo tela, v. 3, no. 10, 1961, 3070-3075

TEXT: Electrical, photoelectrical, and optical properties of PbO films 0.5 - 10 μ thick were examined. It was M. S. Kosman and O. O. Kolesova (Ref. 5: Uch. zap. Len. gos. ped. inst. im. Gertsena, 140, 1955; Ref. 6: Primeneniye poluprovodnikov v priborostroyenii, 114, 1959) who found that only the red tetragonal PbO modification is photosensitive. The yellow PbO modification was used as starting material, and specimens were produced by two methods: (1) PbO powder was evaporated in vacuum, and (2) pure Pb was evaporated in oxygen, and subsequently oxidized in air or oxygen. A tantalum vessel or quartz crucible (900-1,000°C) were used for the vacuum condensation onto a glass plate coated with a transparent layer of SnO_2 (20 - 385°C). The resulting films had to be heated

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Photosensitive lead oxide layers

up to 320 - 400°C in air for several minutes to preserve photosensitivity. The films had volume resistivity of $5 \cdot 10^{12}$ - $5 \cdot 10^{13}$ ohm.cm, high photosensitivity, and relatively low inertia. The photolayers were illuminated through the backing with intensities between 0.04 and 400 lux using an HC-14 (NS- 14) light filter. Characteristically, resistivity was dependent on the polarity of the voltage applied. This dependence was less marked in evaporated PbO than in oxidized Pb film. This may be explained by the fact that the film surfaces were on a positive potential. The resulting rectifying action was appreciable. The photosensitivity concerned is to be explained by the chemically inhomogeneous distribution of oxygen in the film. At 400 lux, resistivity in the most sensitive specimens was several hundred times smaller than the value measured without illumination. Films evaporated and oxidized in oxygen atmosphere displayed the highest sensitivity. At 100 lux, their photo-emf was <5 mv. The photoelectric current is described by $I = kL^{\gamma}$, where k, γ are constants, and L = illumination. Where there was polarity reversal of the voltage, γ changed in the oxidized Pb films. It was found that $\gamma = 1$ when using a negative backing, and $\gamma = 0.5 - 0.7$ with a positive one. The maximum

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Photosensitive lead oxide layers

S/181/61/003/010/017/036
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spectral photosensitivity was between 480 and 520 mμ, and shifted to longer waves with increasing film thickness. The absorption coefficient is plotted as a function of wavelength in Fig. 4. Finally, a possible explanation of the photoelectric and the conductivity mechanism is discussed. It is confirmed that these films are suitable for use as targets in vidicon TV camera tubes. K. A. Zabaluyev and T. D. Putuzova are thanked for the cooperation, and O. I. Kolesova for her advice. There are 4 figures and 13 references: 7 Soviet-bloc and 6 non-Soviet-bloc. The two references to English-language publications read as follows: J. J. Brady, M. H. Moore, Phys. Rev., 55, 4, 424, 1939. - J. J. Brady, M. H. Moore, Bull. Amer. Phys. Soc., 13, 12, 6, 1938.

SUBMITTED: March 9, 1960 (initially),
May 16, 1961 (after revision)

Fig. 4. Absorption coefficient for differently thick films.
Legend: (1) mμ; (2) 1.6μ; (3) 0.26μ.

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MOSTOVSKIY, A.A.; VOROB'YEVA, O.B.; PRIVALOVA, V.Ye.

Effective photocathode sensitivity in the near ultraviolet region. Radiotekh. i elektron. 7 no.9:1632-1636 S '62. (MIRA 15:9)
(Cathodes)

L 14979-63 EWT(1)/EWP(q)/EWT(m)/BDS AFFTC/ASD/SSD JD

ACCESSION NR: AP3005330 S/0181/63/005/008/2228/2229

AUTHOR: Blank, Yu. S.; Vodakov, Yu. A.; Mostovskiy, A. A. 59 58

TITLE: Some results of investigations of electroluminescence in silicon carbide p-n junctions 27 27

SOURCE: Fizika tverdogo tela, v. 5, no. 8, 1963, 2228-2229

TOPIC TAGS: silicon carbide electroluminescence, carrier-injection electroluminescence, injection luminescence, silicon carbide diode, light-generating diode

ABSTRACT: The production of light emission in silicon carbide p-n junctions by the application of continuous and pulsed electric fields has been investigated with the aim of appraising the practical potentialities of the phenomenon. The measurements showed that the intensity of luminescence at continuous excitation, varies linearly with the current density and that only a few volts produce a luminescence on the order of 100 nit. At an excitation with pulses of 5—20 μsec at 200 cps the afterglow inertia is about 10 μsec, and the intensity decreases 5%; pulses of about 1.2 μsec were required for saturation intensities,

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ACCESSION NR: AP3005330

and a brightness of 1 stilb was momentarily achieved with 100-μsec pulses. Depending on the quality of the samples, the light emitted was green, yellow, or red. Orig. art. has: 3 figures.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors, AN SSSR)

SUBMITTED: 20Mar63 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: PH NO REF SOV: 000 OTHER: 007

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L 11091-63

ACCESSION NR: AP3000569 S/0109/63/008/005/0861/0867 44

AUTHOR: Mostovskiy, A. A.; Vorob'yeva, O. B.; Frivalova, V. Ye.; Mayskaya, K. A.

TITLE: Some causes of complex photocathode fatigue [Report presented to the Tenth Conference on Cathode Electronics, Tashkent, November 1961]

SOURCE: Radiotekhnika i elektronika, v. 8, no. 5, 1963, 861-867

TOPIC TAGS: complex photocathode fatigue, cathode layer, light absorption, photocell, photoemission, electron bombardment, illumination effect

ABSTRACT: Antimony-cesium, bismuth-silver-cesium, silver-oxygen-cesium, and multialkali photocathodes have been investigated in order to determine those processes occurring in the cathode layer as a result of light absorption and those external to the photocathode taking place in the photocell, which are the main causes of fatigue in a complex photocathode. Studies have been made of 1) the effect of illumination (without photocurrent pickup) on the cathode photoelectric and semiconductor properties, 2) the effect on photoemission of a variation in the composition of residual gases as a result of electron bombardment of the internal surfaces of the photocell, and 3) the redistribution

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ACCESSION NR: AP3000569

of alkali metals during photocell operation. The main cause of photocathode fatigue was found to be in the variation of the gaseous medium due to gas evolvement from surfaces subjected to electron bombardment and by the simultaneous redistribution of alkali metals between the photolayer and its adjacent environment rather than to a change in the state of photocathode surface due to field and illumination effects. Orig. art. has: 7 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 19Mar62 DATE ACQ: 30May63 ENCL: 00

SUB CODE: SD NO REF SOV: 009 OTHER: 004

cs/bm
Card 2/2

ACCESSION NR: AP4013511 S/0181/64/006/002/0493/0498

AUTHORS: Kostovskiy, A. A.; Timofeyeva, L. G.; Timofeyev, O. A.

TITLE: Effect of deviation from stoichiometric proportions in compounds of antimony and arsenic with members of the sulfur group (sulfide type) on the photoelectric properties of sputtered films of these compounds

SOURCE: Fizika tverdogo tela, v. 6, no. 2, 1964, 493-498

TOPIC TAGS: stoichiometry, sulfur group, sulfide, selenide, arsenic sulfide, arsenic selenide, antimony sulfide, photoelectric effect, sputter, sputtered film, amorphous layer, photoconductivity, time constant, current carrier, carrier concentration

ABSTRACT: The authors have studied amorphous layers of Sb_2S_3, As_2S_3, and As_2Se_3. They have discovered that, along with the known effect in amorphous semiconductors (change in conductivity and activation energy of current carriers), deviation from stoichiometry in any of these compounds causes a well-defined change in the kinetics of photoconductivity. Decrease in S or Se content affects the conductivity and sensitivity differently. In Sb_2S_3 the values increase, in As_2S_3 the change is

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ACCESSION NR: AP4013511

slight, and in As_2Se_3 they decrease. The activation of current carriers in layers of Sb_2S_3 and As_2Se_3, in the same range of stoichiometric deviation in which the conductivity was measured, was found to change approximately by 0.2 and 0.25 ev. With constant concentration of current carriers, the conductivity should increase approximately 60 and 120 times, respectively. Actually the increase was greater (270 and 320 times), but the change in mobility of current carriers with change in composition did not appear large. All the investigated samples showed a monotonous decrease in time constant of photoconductivity with decrease in S or Se content. These results lead the authors to conclude that changes in kinetics of photoconductivity are connected with effects of deviations from stoichiometric proportions on the concentration of trapping levels in amorphous semiconductors. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 27Apr63 DATE ACQ: 03Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER: 000

Card 2/2

MOSTOVKSIY, A.A.; SAKSEYEV, D.A.

Possibility of using a pulse transit-time mass spectroscope in studying the vaporization of compound substances. Zhur. tekh. fiz. 34 no.7:1321-1323 Jl '64 (MIRA 17:8)

L 36213-65 EWT(1)/T/EWA(l) Pab IJP(c) AT
ACCESSION NR: AP5007094 S/0109/65/010/003/0484/0490

AUTHOR: Vorob'yeva, O. B.; Mostovskiy, A. A.; Stuchinskiy, G. B. 17 B

TITLE: Secondary electron emission of multi-alkali photocathodes

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 484-490 21

TOPIC TAGS: photocathode, secondary emission

ABSTRACT: The results are reported of an experimental investigation of the secondary emission from [Cs] Na_2 KSb cathodes having an integral photosensitivity of 100—200 μa/lum; the pressure during the measurements was about 10^{-8} torr. High values (20 to 36) of the secondary-emission ratio (SER) were observed at room temperature and at a primary-electron maximum energy of 1.5—2 kev. Plots of SER vs. primary-electron energy (for thin and thick active layers) and vs. ambient temperature (-190 +360K) are presented. It is found that the multi-alkali cathodes have a great depth of emergence of secondary electrons;

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L 36213-65
ACCESSION NR: AP5007094

0

they behave like efficient dielectrics. Optimally designed, semiconductor secondary-electron cathodes may prove more efficient than known dielectric emitters. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 03Feb64 ENCL: 00 SUB CODE: EC

NO REF SOV: 015 OTHER: 013

Card 2/2 JO

ACC NR: AR7000871 SOURCE CODE: UR/0058/66/000/009/E072/E073

AUTHOR: Kolomiyets, B. T.; Lyubin, V. M.; Mostovskiy, A. A.; Fedorova, Ye. I.

TITLE: Electric and photoelectric properties of some high-impedance semiconductor layers

SOURCE: Ref. zh. Fizika, Abs. 9E596

REF SOURCE: Sb. Elektrofotogr. i magnitografiya, Vil'nyus, 1965, 36-47

TOPIC TAGS: semiconducting material, photoelectric effect, photoconductivity vaporization, high impedance semiconductor layer, semiconductor, amorphous semiconductor

ABSTRACT: The results are presented of investigations of conductivity and photoconductivity of a large group of high-impedance photoconductors obtained in the form of thin layers by vaporization in vacuum. Layers of As_2S_3, As_2Se_3, GeS, As_2Se_3 and Sb_2Se_3, and an amorphous layer of Se, and Se with S and As additions, PbO, phtalocyanine without metal, and a number of ternary semiconductor materials ($AsSbS_3$, $AsSbSe_3$, $mAs_2S_3 \cdot nAs_2Se_3$, $Sb_2S_3 \cdot Sb_2Se_3$,

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ACC NR: AR7000871

$mSb_2S_3 \cdot nBi_2S_3$, GeS · Sb_2S_3, and GeSe · As_2Se_3) were investigated. Most of the layers have an amorphous structure. The sign of current carriers, the volt-ampere, lux-ampere, and spectral characteristics, photoelectric effect kinetics, dependence of dark current and photocurrent on temperature, the spectral dependence of the light-absorption coefficient, and the characteristics of discharge processes in layers charged by an electron beam or ions from a corona discharge, were investigated. Also, the main characteristics of the "porous" layers of numerous materials prepared by vaporization in an N_2 atmosphere were studied. The discussion of the experimental results is based on the concept of strengthening the phenomenon of trapping of current carriers in amorphous semiconductors. V. Lyubin. [Translation of abstract]

[DW]

SUB CODE: 20/

Card 2/2

MOSTOVSKY, O.

"In Memory of Professor Ladislav Miskovsky." p. 848. "A Pneumatic Regulator With a Zero Measuring Method." p. 849 (STROJIRENSTVI, Vol. 3, No. 11, Nov. 1953) Prana, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. , No. 4, April 1954. Unclassified.

KHARSHAK, Ye.M. [Kharshak, IE.M.], kand.med.nauk, dotsent; MOSTOVYY, S.I. [Mostovyi, S.I.], kand.med.nauk, dotsent.

Inhalation of medicines. Nauka i zhyttia 10 no.3:43-45 Mr '60. (MIRA 14:8)

(INHALATION THERAPY)

MOSTOVYY, S.I. [Mostovyi, S.I.], dotsent

Laryngitis. Nauka i zhittia 11 no.10:51 O '61. (MIRA 15:1)
(LARYNX--DISEASES)

MOSTOVYY, V., inzh.

Scientific and technical seminar on problems in using reinforced concrete. Bud.mat.i konstr. 2 no.1:64 F '60.
(MIRA 13:6)

1. Ural'skiy Dom Tekhniki.
(Reinforced concrete)

MORTKOWICZ, Stanislaw

Congenital hypogammaglobulinemia in two children of the same family. Pediat. polska 34 no.7:955-962 July 59.

1. Z I Kliniki Chorob Dzieci A. M. w Gdansku Kierownik: prof. dr med. K. Erecinski.
(AGAMMAGLOBULINEMIA, in inf. & child)

MOSTOWIEC, Stanislaw; WALCZYNSKI, Zbigniew

Certain clinical observations on thrombophlebitis of the cranial sinuses in children. Polski tygod.lek. 15 no.50:1922-1925 12 D '60.

1. Z I Kliniki Chorob Dzieciecych AMG; kierownik: prof.dr med. K.Erecinski.
(SINUS THROMBOSIS in inf & child)

ERECINSKI, Kazimierz; BITTEL-DOBRZYNSKA, Nadzieja; MOSTOWIEC, Stanislaw

Progeria syndrome in 2 brothers. Polski tygod. lek. 16 no.21: 806-809 22 My '61.

1. Z Przychodni Endokrynologii Dziecięcej i z I Kliniki Chorob Dziecięcych A.M. w Gdansku; kierownik: prof. dr K. Erecinski.

(PROGERIA genetics)

[illegible]KA, [illegible], [illegible], and MOS[illegible]
[illegible] First Clinic of Pediatrics [illegible] Cho-
[illegible] (Director: Prof. [illegible]) and Depart-
[illegible]diology (Zaklad [illegible]) (Director: Prof. W.
[illegible]), both of the AM (Akademia Medyczna, Medical Acad-
[illegible] in Gdansk

"[illegible] Resistant to Vitamin D Treatment. Report of Three
[illegible]."

[illegible] Tygodnik Lekarski, Vol 18, No 37, 9 Sep 63,
[illegible]

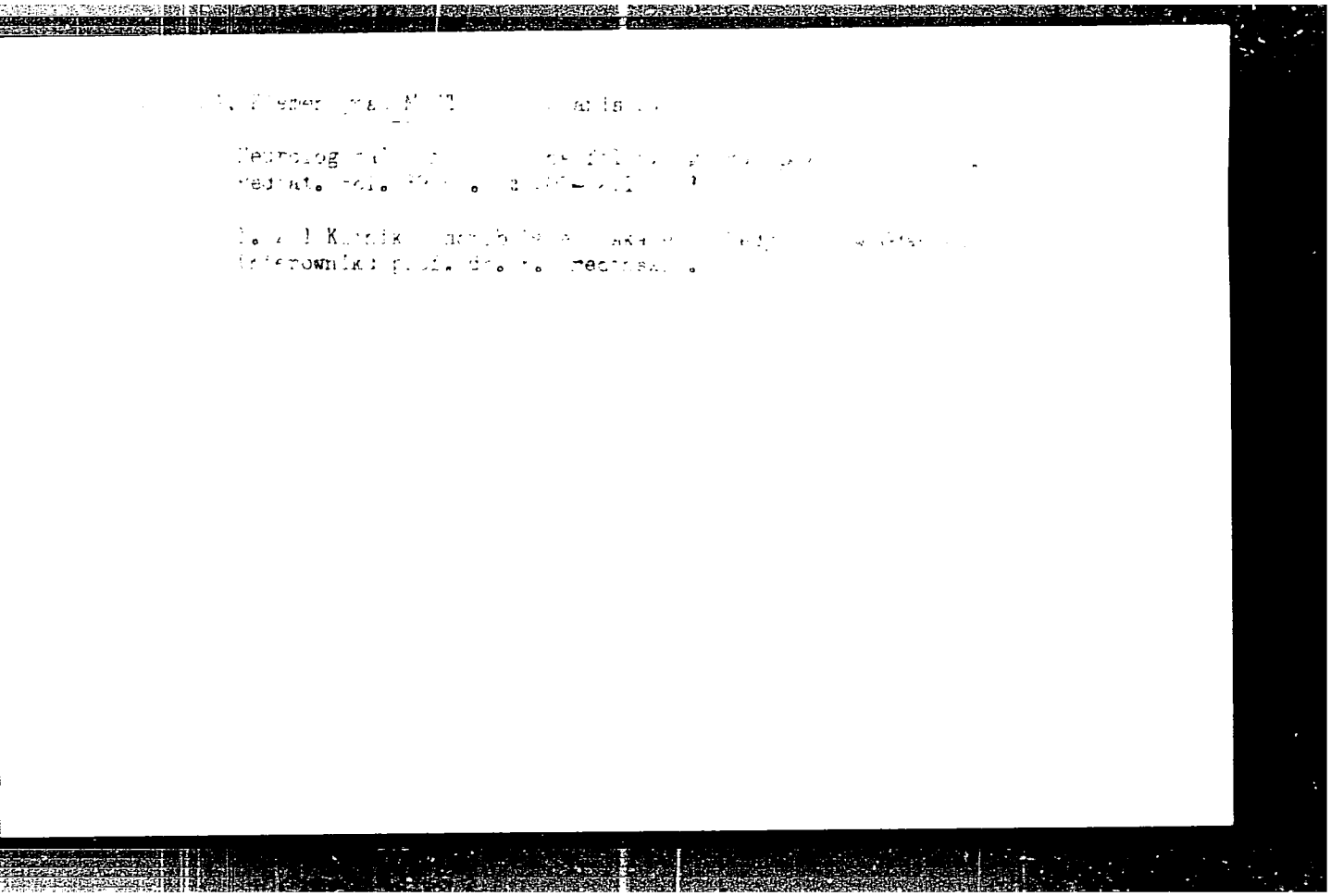
[illegible] [Authors' English summary modified] Authors dis-
[illegible] literature regarding rachitis resistant to treat-
[illegible] with vitamin D and describe three, all different, such
[illegible] in boys aged 5, 8, and 10. Cure was finally achieved
with anabolic hormones added to the vitamin D. Authors
distinguish two forms of this disease, the one, more dif-
ficult to treat, with some symptoms characteristic of achon-
droplasia, and the other one, more easily treated, with
[illegible] X-legs, and osteoporotic changes.
[illegible] 11 refs: 2 German, 9 Western.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135410014-1"

BITTEL-DOBRZYNSKA, Nadzieja; BORDZILOWSKA, Irena; MOSTOWIEC, Stanislaw

3 cases of rickets resistant to vitamin D therapy. Pol. tyg. lek. 18 no.37:1398-1402 9 S '63.

1. Z I Kliniki Chorob Dzieciecych AM w Gdansku; kierownik: prof. K. Erecinski i z Zakladu Radiologii AM w Gdansku; kierownik: prof. W. Grabowski.
(VITAMIN D) (RICKETS)



MOSTOWSKI, ANDRZEJ

*Sierpiński, Wacław. Zasady Algebry Wyższej. [Principles of Higher Algebra.] With an appendix by Andrzej Mostowski: Outline of Galois Theory. Monografie Matematyczne, vol. 11. Warszawa-Wrocław, 1946. xii+437 pp. (Polish)

This textbook covers in a very thorough but elementary way the basic facts of classical algebra, leading up and into modern algebra. It stops short of ideal theory. The list of chapter headings with brief comments in parentheses should give an idea of the scope of the book. (I) Permutations, (II) Determinants, (III) Solution of linear equations, (IV) Linear transformations, (V) Matrices, (VI) Complex numbers, (VII) Proof of the fundamental theorem of algebra, (VIII) Polynomials (arithmetic of polynomials in the complex domain, interpolation formulae, decomposition of rational functions into simple fractions), (IX) Symmetric polynomials, (X) Equations of the 2d, 3d, and 4th degree, (XI) Equations of the division of the circle (roots of unity), (XII) Algebraic numbers (in the field of complex numbers), (XIII) Number fields (in the complex domain), (XIV) Impossibility proofs (trisection and similar topics), (XV) Systems of two algebraic equations, (XVI) Calculation of roots of algebraic equations (Sturm's and Newton's methods), (XVII) General theory of operations (abstract theory of binary operations), (XVIII) Substitutions, (XIX) Groups, (XX) Generalization of number fields (abstract fields).

The appendix by Mostowski gives a lucid and elementary account of Galois theory. The definition of the Galois group (separable case) is by means of substitutions on the roots of a polynomial. The fundamental theorem of Galois theory and its application to the solution of equations [illegible]

S. Eilenberg (New York, N. Y.)

Source: Mathematical Reviews, Vol No.

MOSTOWSKI, ANDRZEJ

[Mostowski, Andrzej.] On undecidable propositions in formalized systems of mathematics. Kwartalnik Filozoficzny 16, 223–277 (1946). (Polish)

The aim of the article is to give "a popular, and at the same time completely rigorous, presentation of Gödel's ideas; his theory reaching the conclusion that in every formal system of mathematics, satisfying certain very general conditions, there exist statements such that neither their truth nor falsity can be established within the system." This aim is achieved most successfully. The author presents the proof for a part of Gödel's original system only: this allows him to simplify and mathematicize, in a more classical sense, the logical formalism without impairing the exhibition of the essential ideas.

The paper can serve as an excellent introduction to modern theories of formal systems in general. The simplicity of presentation is such as to suggest implicitly, in the reviewer's opinion, the possibility of algebraization of logical systems including a treatment of quantifiers as mathematical operators. The paper ends with indications of how to extend the results on existence of undecidable propositions from the primary system considered to more general ones dealing also with variables of higher type. *S. M. Ulam.*

Source: Mathematical Reviews, 1948, Vol 9, No. 3

MOSTOWSKI, ANDRZEJ

Mostowski, Andrzej. On definable sets of positive integers. Fund. Math. 34, 81–112 (1947).

The paper is concerned with generalisations of the Gödel-Church-Kleene-Turing general recursive functions and sets, modelled on the construction of projective sets from Borel sets. As the author points out in an added note, some of his results are anticipated by S. C. Kleene in a paper [Trans. Amer. Math. Soc. 53, 41–73 (1943); these Rev. 4, 126] which was not available to him when writing.

If S is a logical system containing elementary number theory, ϕ is decidable in S if for each n_k either $\phi(n_k)$ or $\phi'(n_k)$ ("not $\phi(n_k)$") is provable in S, where n_k is any element of R_k, the set of all k-tuples of natural numbers. The classes $P_n^{(k)}$ and $Q_n^{(k)}$ are defined inductively on n: $A \epsilon P_0^{(k)} (= Q_0^{(k)})$ if a decidable ϕ exists, such that $n_k \epsilon A$ if and only if $\phi(n_k)$ is provable in S; $A \epsilon P_{n+1}^{(k)}$ if B of $Q_n^{(k+1)}$ exists, such that $n_k \epsilon A$ if and only if $(n_k, p) \epsilon B$ for some p of R_1; $A \epsilon Q_{n+1}^{(k)}$ if $R_k - A \epsilon P_{n+1}^{(k)}$. Next, a class C_s of logics S is defined for each $s = 0, 1, 2, \cdots$, by four conditions, of which one requires that $\Delta \epsilon P_s^{(2)}$, where Δ is the sets of pairs (q, n), such that n and q are the Gödel-numbers respectively of a formula and its proof in $S \epsilon C_s$; and the other three conditions are similar. Principia Mathematica and all "ordinary" logics are in C_0. It is stated that the "infinite logics" of Rosser [J. Symbolic Logic 2, 129–137 (1937)] are not in C_0, but each is in C_s for some s.

Some theorems: If $k \geqq 1$ and $S \epsilon C_s$ for some s, then $P_n^{(k)} \neq P_{n+1}^{(k)}$, $Q_n^{(k)} \neq Q_{n+1}^{(k)}$, $P_n^{(k)} \neq Q_n^{(k)}$, for all $n \geqq 0$. Gödel-theorem: If $S \epsilon C_s$ for some s and is ω-consistent it is incompleté. The Rosser improvement on this result ("consistent" for "ω-consistent" [J. Symbolic Logic 1, 87–91 (1936)] does not hold for $s > 0$: a counter-example is given. Post's analogue [Bull. Amer. Math. Soc. 50, 284–316 (1944); these Rev. 6, 29] of Suslin's theorem, $P_1^{(k)} \cap Q_1^{(k)} = P_0^{(k)}$, is obtained. Classes $P_n^{k,l}$, $Q_n^{k,l}$ of functions $f: R_k \to R_l$ are defined by the rule that f is in $P_n^{k,l}$ (or $Q_n^{k,l}$) if $m_l = f(n_k)$ implies $(n_k, m_l) \epsilon P_n^{(k+l)}$ (or $Q_n^{(k+l)}$); and $P_0^{k,l}$ is proved to be the set of general recursive functions if S satisfies suitable conditions. [On p. 101, paragraph 1, read ϕ' for ϕ, twice.]

M. H. A. Newman (Manchester).

Source: Mathematical Reviews, 1948, Vol 9, No. 3

MOSTOWSKI, ANDRZEJ.

Mostowski, Andrzej. Logika Matematyczna. [Mathematical Logic.] Monografie Matematyczne, vol. 18. Warszawa-Wrocław, 1948. viii+388 pp.

This is an exceptionally good handbook of mathematical logic. It covers a great deal of material and shows many applications of mathematical logic to mathematical problems, and will generally be useful to students of mathematics rather than of philosophy. The book is written in the tradition of the Polish school, but presents a well-rounded view of the field. The exposition is easy at first and becomes progressively more difficult and more exact. After presenting sentential calculus and quantification the author explains the theory of classes and relations and follows Frege's deduction of arithmetic from class theory. Then several known resolutions of the class antinomies are discussed (e.g., types, Quine's method). Almost half the book deals with methodological problems: characteristics of formal systems, definitions, models, problems of consistency, independence, completeness, decision procedure, Gödel's method of arithmetisation, semantical antinomies, Gödel's proof of the completeness of functional calculus, and Gödel's incompleteness theorem discussed together with Tarski's theorem of the indefinability of the notion of satisfaction and with Richard's antinomy. The author is eager to persuade a mathematician that logic can be useful in his work.

H. Hiż (Cambridge, Mass.)

Source: Mathematical Reviews, Vol. 10, No. 4

Mostowski, Andrzej

3000

Mostowski, Andrzej. On the principle of dependent choices. Fund. Math. 35, 127–130 (1948).

The paper is concerned with systems of set-theory that are consistent, and remain so after the adjunction of the axiom (*N*): there is a noncountable set of elements that are not sets. The system $\mathfrak{S}$ described in the author's paper (1) [Fund. Math. 32, 201–252 (1939)] is such a system, provided that $\mathfrak{S}$ itself is consistent. The main result is that in such a system the general axiom of choice is independent of the following "weak axiom of choice" (*T*): if *R* is a binary relation and *B* a set $\neq 0$ and if for every $x \in B$ there is a $y \in B$ such that xRy, then there is a sequence $x_1, x_2, \ldots, x_n, \ldots$ of elements of *B* such that $x_n R x_{n+1}$ for $n = 1, 2, \ldots$ [cf. the preceding review]. A model is made in $\mathfrak{S}_1 = \mathfrak{S} + (N)$ resembling one used in the paper (1), in which all the axioms of $\mathfrak{S}$, and (*T*), correspond to provable propositions in $\mathfrak{S}_1$; but the axiom of choice corresponds to a false proposition.

If $\mathfrak{m}$ is a cardinal number definable in Bernays' set-theory [J. Symbolic Logic 2, 65–77 (1937); 6, 1–17 (1941); these Rev. 2, 210]; if $Z^*(\mathfrak{m})$ is the axiom: "if *A* is a set with cardinal number less than $\mathfrak{m}$ and if every element of *A* is a nonvoid set, then there is a function *f* such that $f(X) \in X$ for $X \in A$"; and if $Z(\mathfrak{m}, 2)$ is obtained from $Z^*(\mathfrak{m})$ by replacing "nonvoid set" by "nonvoid set with cardinal not exceeding 2"; then it can be shewn by similar methods [the author says] that $Z^*(\mathfrak{m}) \to Z(\mathfrak{m}, 2)$ is not provable in $\mathfrak{S}$ (supposed consistent).

M. H. A. Newman (Manchester).

Source: Mathematical Reviews, Vol 10, No. 10

MOSTOWSKI, A.

Mostowski, A. La vie et l'oeuvre de Samuel Dickstein. Prace Mat.-Fiz. 47, VII–XII (1 plate) (1949).

MOSTOWSKI, A.: The Life and Work of Samuel Dickstein

Source: Mathematical Reviews, 1950 Vol 11 No. 8

Mostowski, Andrzej

Mostowski, Andrzej. Some impredicative definitions in the axiomatic set-theory. Fund. Math. 37, 111–124 (1950).

If (S) is the Zermelo-Fraenkel set theory and (S') the Bernays-Gödel set theory, then, according to results of Hao Wang and of Novak [see the preceding review and reference cited there], if (S) is consistent, then (S') is consistent. Since Novak's proof is formalizable in (S'), the consistency of (S) cannot be proved in (S'). On the other hand, as is shown here, the definition of truth for (S) is formalizable in (S') and an expression $V(x_1)$ of (S') can be found such that $\ulcorner V(n) \urcorner$ is provable in (S') if n is the Gödel number of a theorem of (S). However, the theorem $\ulcorner (x_1)[x_1$ is the Gödel number of a theorem of $(S) \supset V(x_1)] \urcorner$, though expressible in (S'), is not provable in (S') provided (S') is consistent. If "$\theta(x_1)$" denotes the formula corresponding to $\ulcorner x_1$ is an integer and every theorem of the x_1th order is true$\urcorner$, then $\ulcorner \theta(1) \urcorner$ and $\ulcorner (n)[\theta(n) \supset \theta(n+1)] \urcorner$ are provable, but not $\ulcorner (n)\theta(n) \urcorner$. Finally, if $\phi(x)$ corresponds to $\ulcorner x$ is an integer and $\sim\theta(x) \urcorner$, then $\ulcorner (\exists X)(x)[x \varepsilon X \equiv \phi(x)] \urcorner$ is not provable in (S').

A. Heyting (Amsterdam).

Source: Mathematical Reviews, Vol. 12 No. 10

MOSTOWSKI, ANDRZEJ

Mostowski, Andrzej. Correction to the paper "Some impredicative definitions in the axiomatic set-theory". Fund. Math. 38, 238 (1951).
See Fund. Math. 37, 111–124 (1950); these Rev. 12, 791.

Source: Mathematical Reviews, Vol 13 No. 8

MOSTOWSKI, ANDRZEJ

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

*Kuratowski, Kazimierz, i Mostowski, Andrzej. Teoria mnogości. (Theory of sets.) Monografie Matematyczne, Tom XXVII. Polskie Towarzystwo Matematyczne, Warszawa-Wrocław, 1952. ix+311 pp.

This excellent monograph presents a modern course on general set-theory. The presentation follows a mimeographed course of lectures by Kuratowski on set-theory, issued in 1924, but is considerably enlarged and completed. Thus the systematic use of logical operators in set-theory, the study of the operation of the direct product of sets, and the theory of partial order form new features of this volume. Chapter VI, dealing with the study of independence and non-contradiction of the axioms of set-theory, is new and contains a survey of Gödel's work and recent results connected with it.

The book is extremely readable, due to a system of development of set-theory which combines the two approaches: the "naive" method followed by Cantor himself, and the formalistic treatment developed on the axiomatic method. The symbolism of mathematical logic is used throughout, but with moderation, and ample motivation is given in the text appealing to the intuition on the infinite sets. This intuition will continue to be necessary as no one

etc., in such systems as CaO-Fe_2O_3-SiO_2, and Dalch and von Haasy have demonstrated the possibilities of relatively stable sulfosilicates. The modern methods of desulfurization of pig iron by soda melts have made another important contribution to the study of the sulfide-silicate melt equilibria. The mineralogical study of sulfides in slags by chalcographic methods has also shown the importance of primary alabandite(MnS) in many slags. The parallels to the constitution of meteoric irons are equally suggestive for a future development of basic sulfide-slag investigations. The present book is introduced by an extensive discussion of the theories and experimental determinations of the general characteristics of blast-furnace and related slags. The most representative literature data are compiled in tables. Theories of the nature of chemically bound sulfur in silicate slags are discussed in relation to the results of detailed studies on the sulfide crystal phases observed in slags under polarized transmitted and reflected light. From this empirical data, the specific problem of the use of sulfide-containing slags in chemical technology and building construction is discussed with special reference to the decomposition of sulfides by atmospheric factors, moisture, and circulating solutions, which results in corrosive products of sulfide oxidation. The results of theoretical metallurgy are related to the chemistry and mineralogy of silicate systems on a modern physicochemical basis. Investigations in the fields of phase equilibria in fused systems and the elements of modern crystallochemistry are correlated with thermochemical methods whose importance in the calculation of affinities and stability conditions in sulfide-silicate slags is emphasized. A bibliography of 162 well-selected papers is given, besides hundreds of valuable footnote references.

W.E.

MOSTOWSKI, ANDRZEJ

*Mostowski, Andrzej, and Stark, Marceli. Algebra wyższa. Część pierwsza. [Higher algebra. First part.] Biblioteka Matematyczna, Tom I. Polskie Towarzystwo Matematyczne, Warszawa, 1953. vii+308 pp.

This is primarily a university textbook beginning with the material for first year students. The style is clear, proofs given in great detail and the didactic aspect of the presentation receives considerable attention. In line with this the presentation in the first half of the book follows the classical pattern and the more abstract methods are postponed to the second half. Content: Chapter I, Introduction (sets, functions, natural numbers, the principle of induction); II, Combinatorics; III, Complex numbers; IV, Determinants; V, Vector spaces and linear equations; VI, Linear transformations; VII, Linear and quadratic forms; VIII, Geometric theory of linear transformations and Hermitian forms. The book contains many examples and problems. The second volume is to treat more advanced and abstract parts of theory. *A. Zygmund.*

MOSTOWSKI, A.

Mostowski, A. A lemma concerning recursive functions and its applications. Bull. Acad. Polon. Sci. Cl. III. 1, 277–280 (1953).

Lemma: Zu jeder rekursiven Funktion $F(n)$ gibt es eine primitiv-rekursive Funktion $H(n)$, die monoton gegen ∞ wächst, so dass $F(H(n))$ primitiv-rekursiv ist. Als Anwendung ergibt sich, dass es zu jeder reellen Zahl $\alpha = \sum_{n=1}^{\infty} W(n)/2^n$ mit $W(n) = 0$ oder $W(n) = 1$ und rekursivem $W(n)$ primitiv-rekursive Funktionen $M(n)$, $N(n) \neq 0$, $P(n) \neq 0$ mit $\lim P(n) = \infty$ und $|\alpha - M(n)/N(n)| < 1/P(n)$ gibt. Es wird auch noch eine elementare $\forall\exists$-Menge definiert, die keine elementare $\exists$-Menge ist. *P. Lorenzen.*

Mostowski, Andrzej, i Stark, Marceli. Algebra wyższa. Część druga. [Higher algebra. Second part.] Państwowe Wydawnictwo Naukowe, Warszawa, 1954. 173 pp. zł. 19.00.

[For the review of the first part see these Rev. 15, 594.] The present volume contains the theory of polynomials with numerical coefficients, and together with the first volume contains all the material to be covered during the first year of the university. Abstract methods are avoided; elements of abstract algebra are to be given in volume three. Table of contents: Chapter IX, Polynomials in one variable; Ch. X, The rings of real and complex numbers (the fundamental theorem of algebra, various theorems on the estimates of the number of real roots); Chapter XI, Quadratic equations, equations of degree 3 and 4; Chapter XII, Polynomials in several variables, symmetric functions; Chapter XIII, The ring of rationals, algebraic and transcendental numbers; Chapter XIV, The theory of elimination. The volume is written with care and attention to didactic details, and contains a large number of problems, both computational and theoretical. *A. Zygmund* (Chicago, Ill.).

MOSTOWSKI, Andrzej.

Algebra wyzsza. (Wyd. 1.) Warszawa, Panstwowe Wydawn. Naukowe. (Biblioteka matematyczna, t. 3) (Higher algebra 1st ed. index) Vol. 2, 1954, 173 p.

SO: Monthly list of East European Accessions List, (EEAL), LC, Vol. 4, No. 11 Nov. 1955, Uncl.

USSR/Mathematics - Mathematical logic

Card 1/1 Pub. 118-1/30 FD-1160

Author : Mostovskiy, A.

Title : Present state of investigations into the foundations of mathematics

Periodical : Usp. mat. nauk, 9, No 3(61), 3-38, Jul-Sep 1954

Abstract : In participation with A. Gzhegorchik, Yu. Los', S. Mazur, G. Raseva, R. Sikorskiy, and S. Yas'kovskiy the author expands his report read at the eighth session of Polish mathematicians, which was held in Warsaw from 6 to 12 November 1953. He discusses the axiomatic method and its limits of applicability in mathematics (e.g. elementary and nonelementary systems of axioms, general theory of elementary systems, concept of category and theory of nonelementary systems, axiomatic method applied to concrete mathematical theories, arithmetic of natural numbers, axiomatic theory of sets, axiomatic theory of real numbers); constructive trends in mathematics (e.g. axiom of constructivity, branch theory of types, computable analysis, intuitive logic); axiomatic logic; problems of resolvability; theory of recursive functions and algebraic direction. One hundred references, mainly in Journal of Symbolic Logic and other English-language journals.

Institution :

Submitted :

M[illegible]T[illegible], Andrzej

M[illegible]TO[illegible], Andrze[illegible]: The present [illegible]tate of [illegible] of [illegible]ematics, with [illegible] [illegible], [illegible], [illegible], [illegible], [illegible] [illegible]. [illegible]: [illegible], [illegible] [illegible] fro[illegible] P[illegible] [illegible] [illegible]tics.

PRACE MATEMATYCZNE, I

PHASE I BOOK EXPLOITATION POL/4231

Polskie towarzystwo matematyczne

Prace Matematyczne, I, 2 (Mathematical Transactions, Vol. 1, pt. 2). Warszawa, Panstwowe wyd-wo naukowe, 1955. 441 p. 1463 copies printed. Errata slip inserted.

Editorial Committee: Władysław Orlicz (Chief Ed.), Stefan Drobot (Deputy Chief Ed.), Adam Bielecki, Stanisław Hartman, Jan Mikusiński, Roman Sikorski, Marceli Stark, Hanna Szmuszkowicz, Krzysztof Tatarkiewicz, and Włodzimierz Wrona.

PURPOSE: This book is intended for mathematicians.

COVERAGE: The book consists of a collection of articles on analysis, series, and function theory. Among the topics discussed are: the solution of Diophantine equations, set translation, power series, measure by a function, operational calculus, approximation of a function, and functional spaces. References and summaries in English and Russian are found at the end of most of the articles. No personalities are mentioned.

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Mathematical Transactions, Vol. 1, pt. 2 POL/4231

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Mathematical Transactions, Vol. 1, pt. 2

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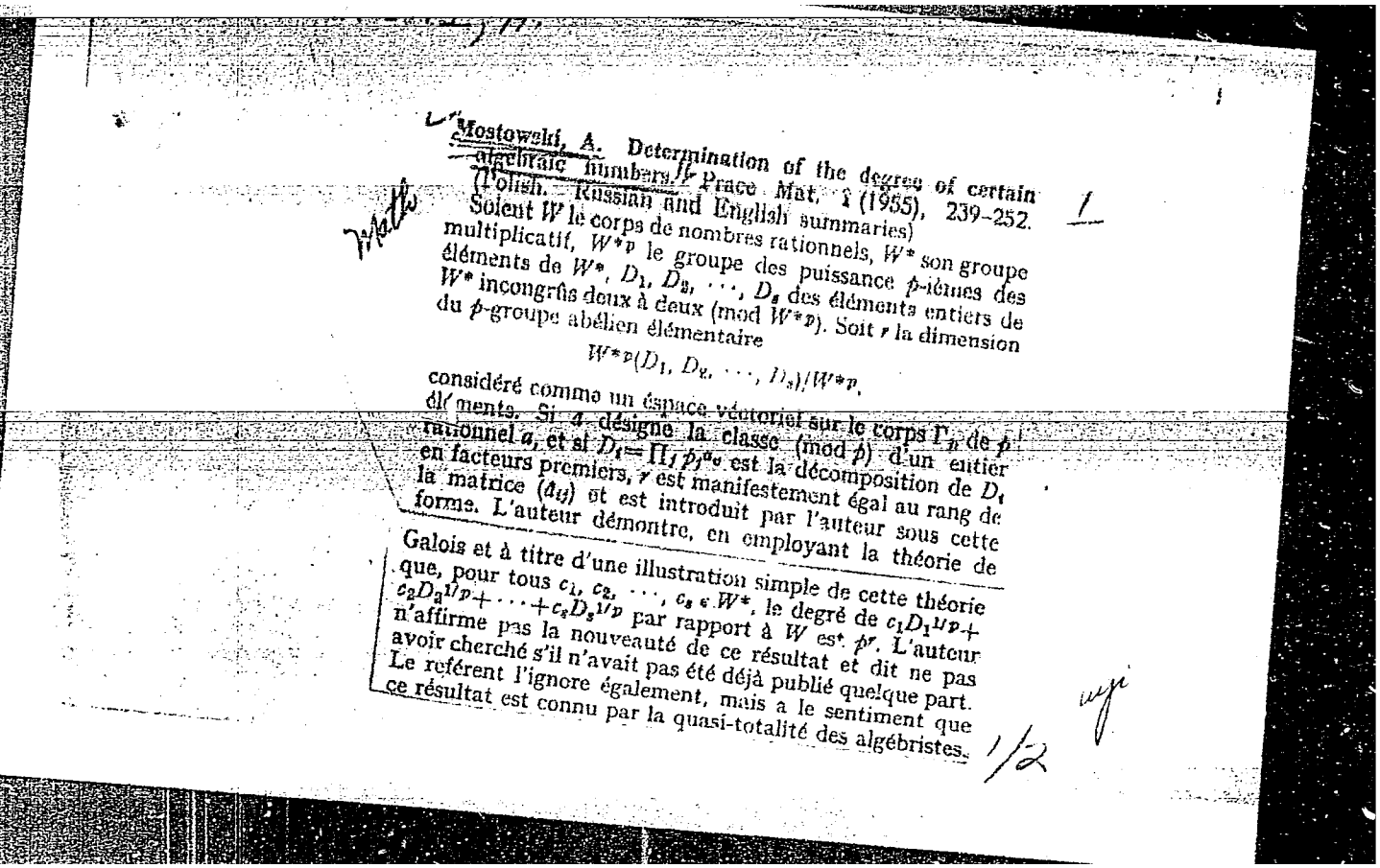
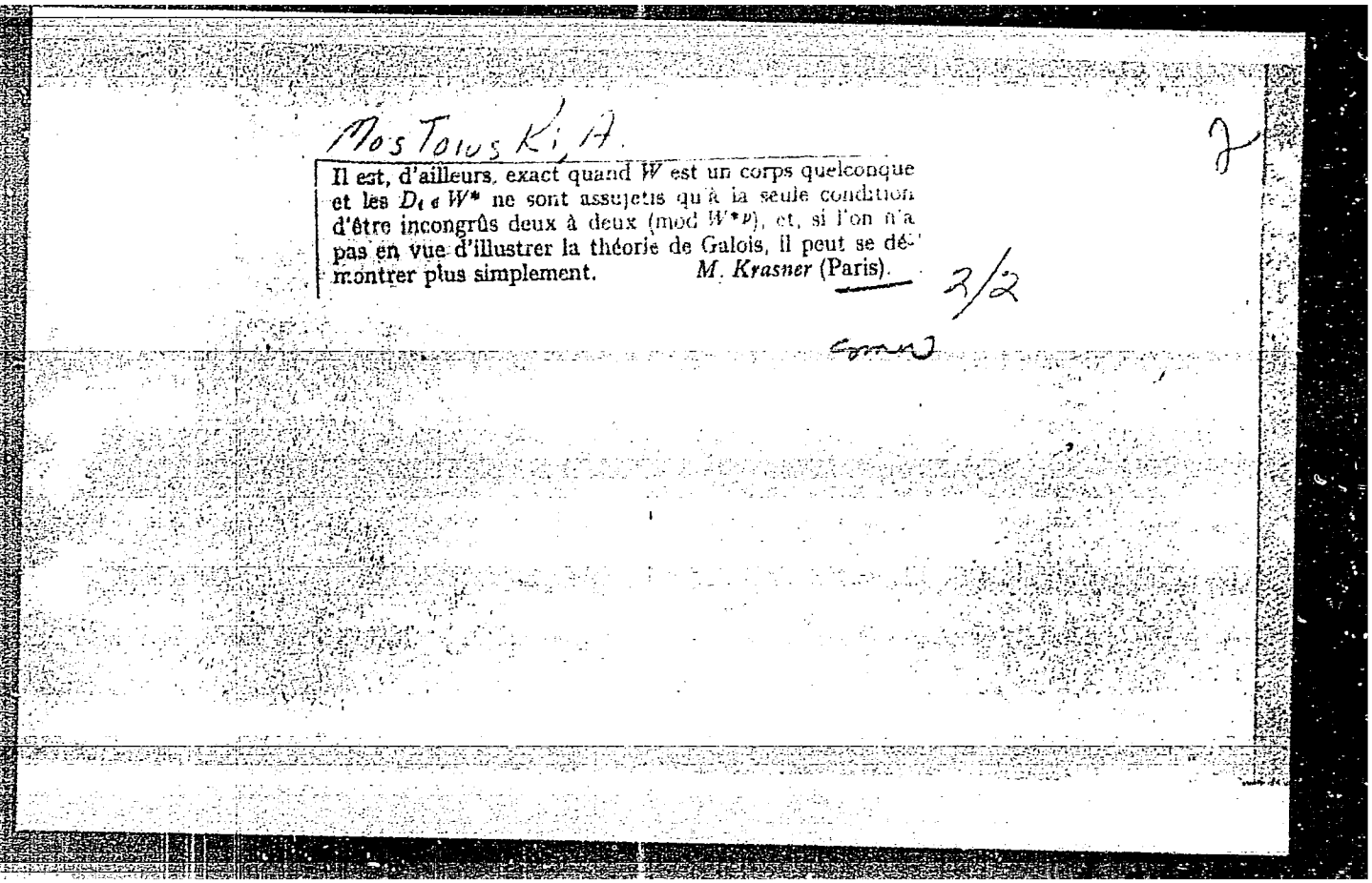


Mostowski, A. Determination of the degree of certain algebraic numbers. Prace Mat. 1 (1955), 239–252. (Polish. Russian and English summaries)

Soient W le corps de nombres rationnels, W^* son groupe multiplicatif, W^{*p} le groupe des puissance p-ièmes des éléments de W^*, $D_1, D_2, \cdots, D_s$ des éléments entiers de W^* incongrûs deux à deux (mod W^{*p}). Soit r la dimension du p-groupe abélien élémentaire

$$W^{*p}(D_1, D_2, \cdots, D_s)/W^{*p},$$

considéré comme un espace vectoriel sur le corps Γ_p de p éléments. Si a désigne la classe (mod p) d'un entier rationnel a, et si $D_i = \prod_j p_j^{a_{ij}}$ est la décomposition de D_i en facteurs premiers, r est manifestement égal au rang de la matrice (a_{ij}) et est introduit par l'auteur sous cette forme. L'auteur démontre, en employant la théorie de Galois et à titre d'une illustration simple de cette théorie que, pour tous $c_1, c_2, \cdots, c_s \in W^*$, le degré de $c_1 D_1^{1/p} + c_2 D_2^{1/p} + \cdots + c_s D_s^{1/p}$ par rapport à W est p^r. L'auteur n'affirme pas la nouveauté de ce résultat et dit ne pas avoir cherché s'il n'avait pas été déjà publié quelque part. Le referent l'ignore également, mais a le sentiment que ce résultat est connu par la quasi-totalité des algébristes.



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Il est, d'ailleurs, exact quand W est un corps quelconque et les $D_i \in W^*$ ne sont assujettis qu'à la seule condition d'être incongrûs deux à deux (mod W^{*p}), et, si l'on n'a pas en vue d'illustrer la théorie de Galois, il peut se démontrer plus simplement. *M. Krasner* (Paris).

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Comm

MOSTOWSKI, A.W.

Mostowski, A. W.; and Sąsiada, E. On the bases of modules over a principal ideal ring. Bull. Acad. Polon. Sci. Cl. III. 3 (1955), 477–478.

Let R be a principal-ideal ring and G an R-module. If the submodule αG, for some $\alpha \in R$, has a basis, then G has a basis. Corollaries: Since every finitely generated torsion-free R-module has a basis, the same statement holds without the word "torsion-free". If there is an $\alpha \in R$, for which $\alpha G=[0]$, then G has a basis. This is, of course, Prüfer's well-known theorem that an abelian group whose elements have bounded orders is a direct sum of cyclic groups. [See also L. Fuchs, Acta Math. Acad. Sci. Hungar. 3 (1952), 177–195; MR 14, 945.]

K. A. Hirsch (London).

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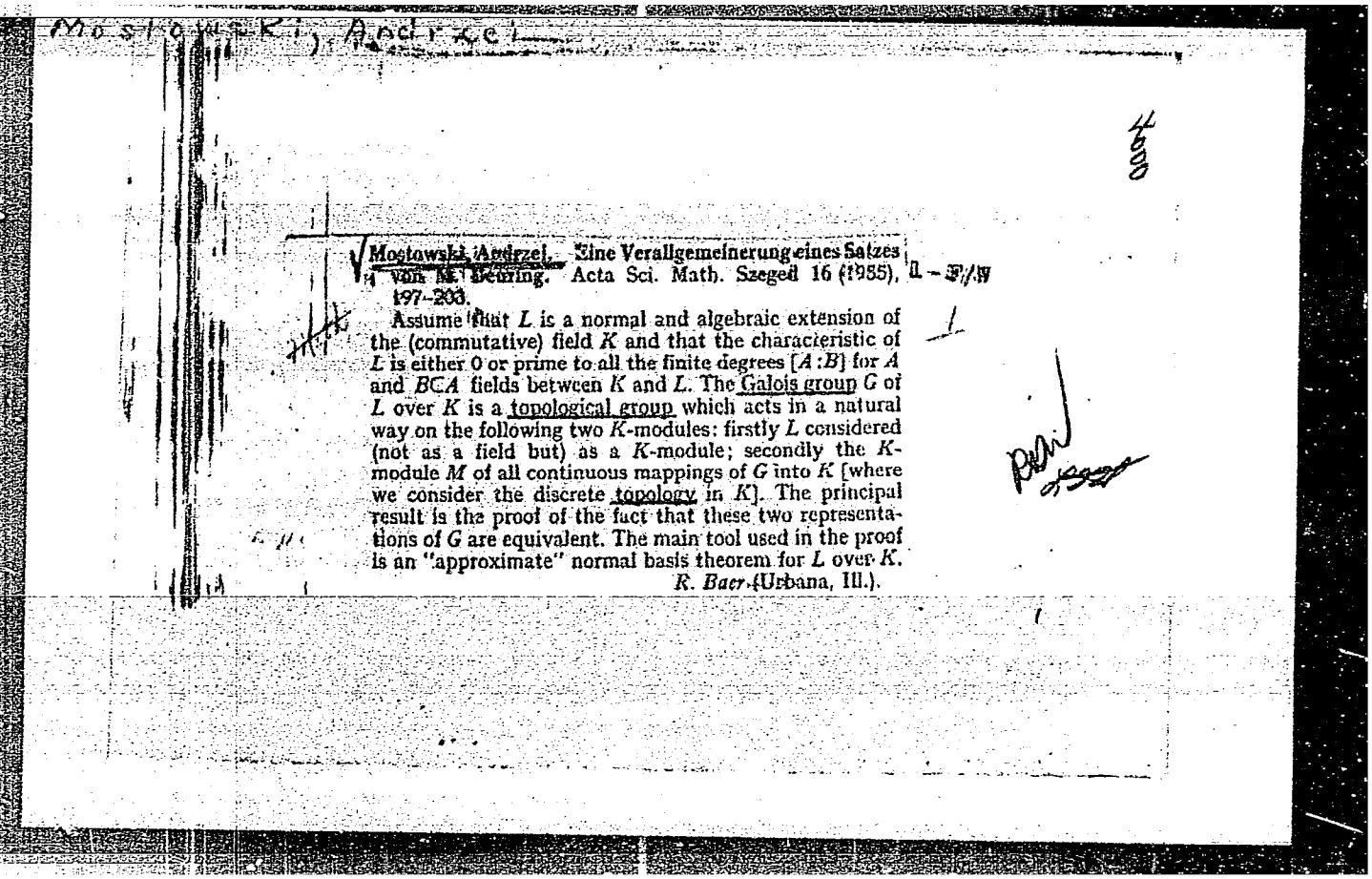
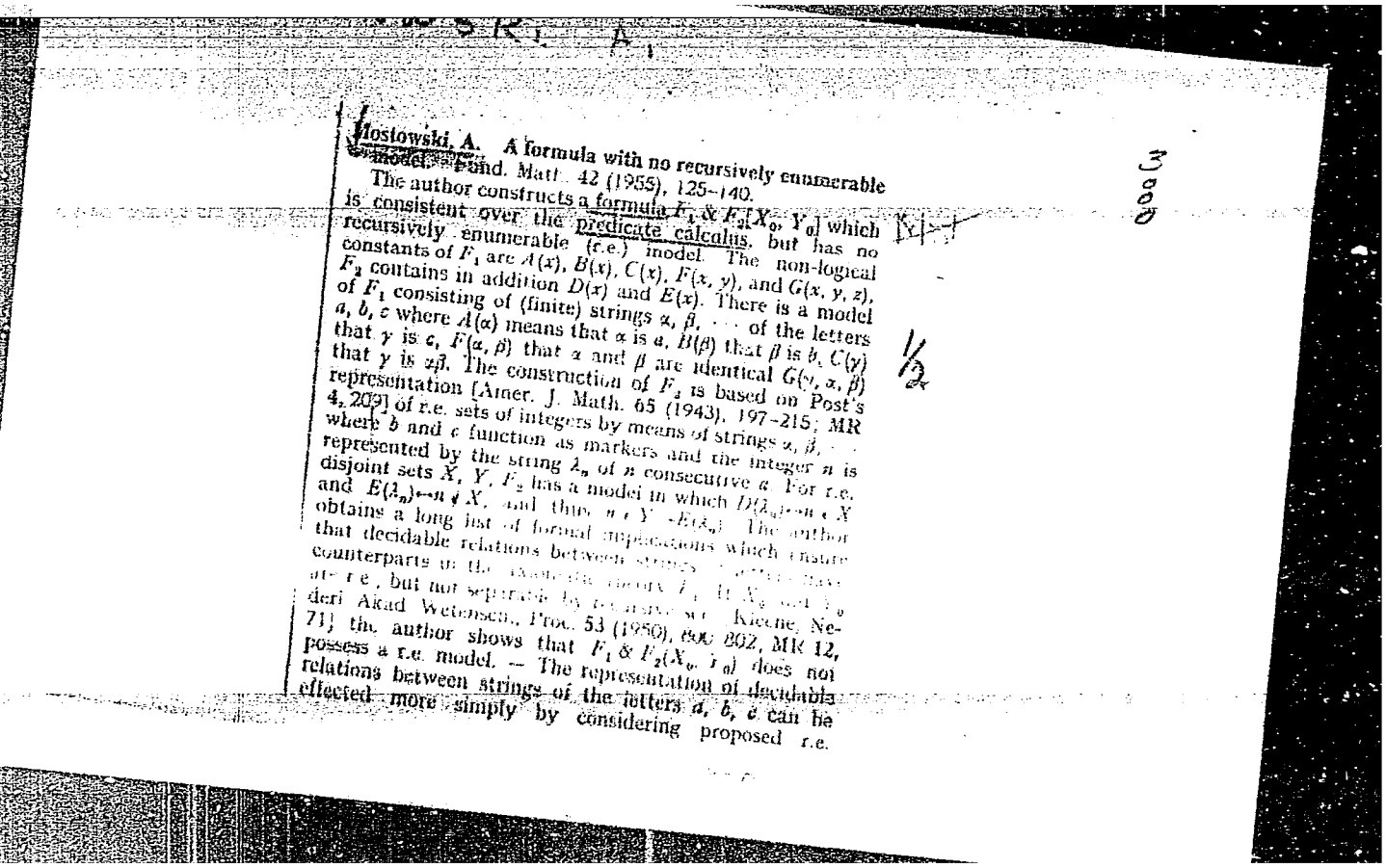


Mostowski, Andrzej. Eine Verallgemeinerung eines Satzes von H. Hering. Acta Sci. Math. Szeged 16 (1955), 197–203.

Assume that L is a normal and algebraic extension of the (commutative) field K and that the characteristic of L is either 0 or prime to all the finite degrees $[A:B]$ for A and B CA fields between K and L. The Galois group G of L over K is a topological group which acts in a natural way on the following two K-modules: firstly L considered (not as a field but) as a K-module; secondly the K-module M of all continuous mappings of G into K [where we consider the discrete topology in K]. The principal result is the proof of the fact that these two representations of G are equivalent. The main tool used in the proof is an "approximate" normal basis theorem for L over K.

R. Baer (Urbana, Ill.).



Mostowski, A. A formula with no recursively enumerable model. Fund. Matt. 42 (1955), 125–140.

The author constructs a formula $F_1 \& F_2[X_0, Y_0]$ which is consistent over the predicate calculus, but has no recursively enumerable (r.e.) model. The non-logical constants of F_1 are $A(x)$, $B(x)$, $C(x)$, $F(x, y)$, and $G(x, y, z)$, F_2 contains in addition $D(x)$ and $E(x)$. There is a model of F_1 consisting of (finite) strings $\alpha, \beta, \cdots$ of the letters a, b, c where $A(\alpha)$ means that α is a, $B(\beta)$ that β is b, $C(\gamma)$ that γ is c, $F(\alpha, \beta)$ that α and β are identical $G(\gamma, \alpha, \beta)$ that γ is $\alpha\beta$. The construction of F_2 is based on Post's representation [Amer. J. Math. 65 (1943), 197–215; MR 4, 209] of r.e. sets of integers by means of strings $\alpha, \beta, \cdots$ where b and c function as markers and the integer n is represented by the string λ_n of n consecutive a. For r.e. disjoint sets X, Y, F_2 has a model in which $D(\lambda_n) \leftrightarrow n \in X$ and $E(\lambda_n) \leftrightarrow n \notin X$, and thus $n \in Y \leftrightarrow \neg E(\lambda_n)$. The author obtains a long list of formal implications which ensure that decidable relations between strings [illegible] counterparts in the [illegible] theory F_1 [illegible] are r.e., but not separable by recursive sets. Kleene, Nederl. Akad. Wetensch., Proc. 53 (1950), 800–802, MR 12, 71], the author shows that $F_1 \& F_2(X_0, Y_0)$ does not possess a r.e. model. — The representation of decidable relations between strings of the letters a, b, c can be effected more simply by considering proposed r.e.

Mastowski, A.

arithmetic models of [illegible] system F_1. let [illegible] in the model, and let $(Eu)G_m(u; x, y, z)$ be the [illegible] model of $G(x, y, z)$; since $(x)(y)(Ez)G(z, x, y)$ is in F_1, we have in the model $(x)(y)(Ez)(Eu)G_m(u; z, x, y)$ and therefore recursive functions ϕ and ψ satisfying $G_m[\psi(x, y); \phi(x, y), x, y]$. Thus, if the integers n and m represent the strings α and β, $\phi(n, m)$ represents $\alpha\beta$; in particular, there is a recursive λ such that the string λ_n is represented by $\lambda(n)$: $\lambda(1)=n_a$, $\lambda(n+1)=\phi[n_a, \lambda(n)]$. Decidable relations between particular strings have numerical formulae as their counterparts in a r.e. model of F_1. Now, the axioms of $F_a[X_0, Y_0]$ ensure that, if $D_m^* = \hat{n}[\lambda(n) \in D_m]$ and $E_m^* = \hat{n}[\lambda(n) \in E_m]$, then $D_m^* \supset X_0$ and $E_m^* \supset Y_0$, and D_m^*, E_m^* are mutually exclusive and exhaustive. If D_m and E_m are r.e., so are D_m^*, E_m^* and so they are recursive. This is excluded by the choice of X_0 and Y_0.

Examples of other consistent formulae which do not possess r.e. models, were given previously by the author [Fund. Math. 40 (1953), 56–61; MR 15, 667] and in a slightly stronger version by the reviewer [Actes XIème Congrès Internat. Philos., 1953 v. XIV, North-Holland Publ. Co., Amsterdam, 1953, pp. 39–49; MR 15, 668], the former in September 1953, the latter in August. The author attributes priority to the reviewer: this seems unfounded since the time-lag is quite insignificant. *G. Kreisel.*

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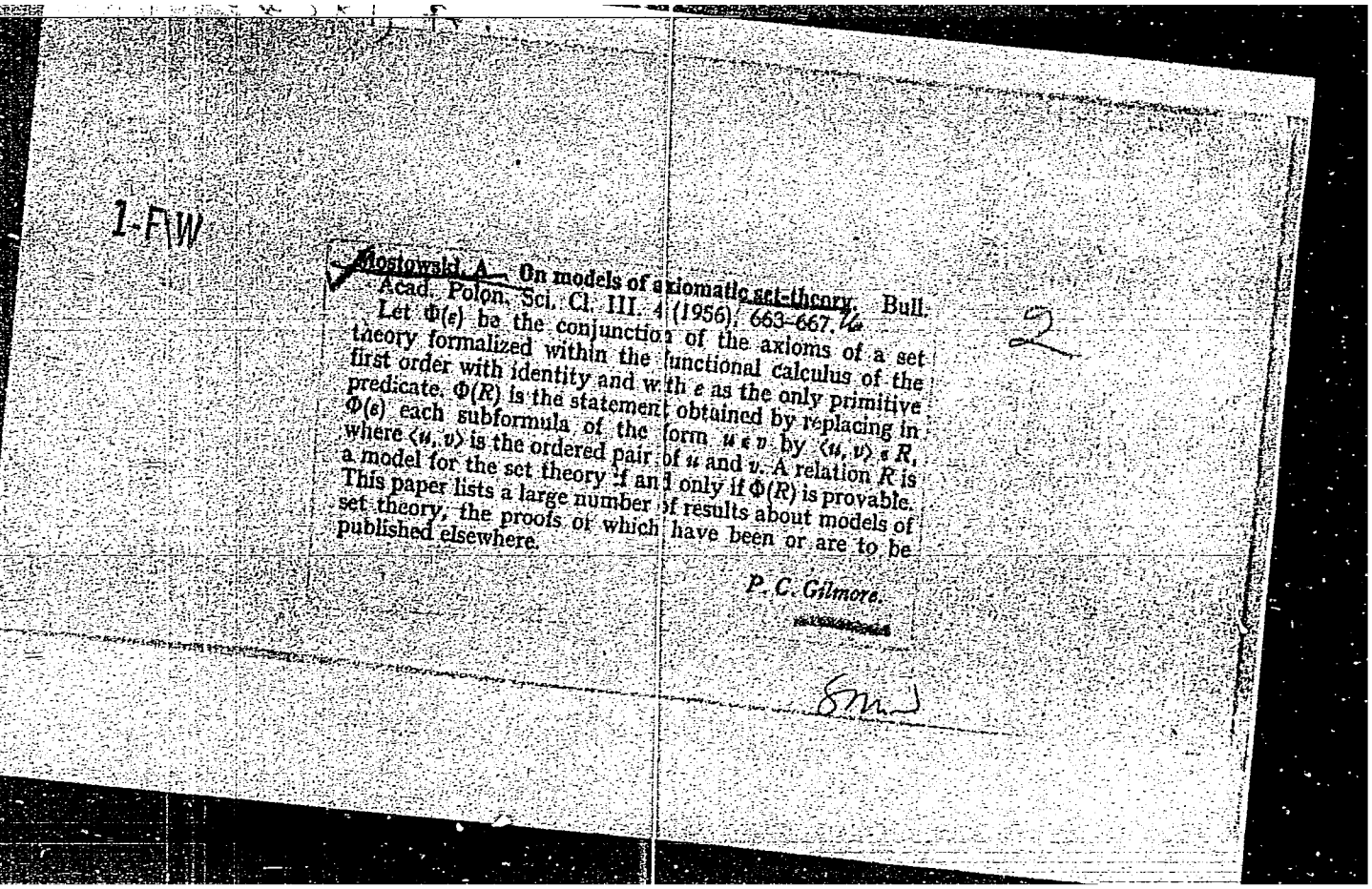

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Mostowski, A. On models of axiomatic set-theory. Bull. Acad. Polon. Sci. Cl. III. 4 (1956), 663–667.

Let $\Phi(\epsilon)$ be the conjunction of the axioms of a set theory formalized within the functional calculus of the first order with identity and with ϵ as the only primitive predicate. $\Phi(R)$ is the statement obtained by replacing in $\Phi(\epsilon)$ each subformula of the form $u \epsilon v$ by $\langle u, v \rangle \epsilon R$, where $\langle u, v \rangle$ is the ordered pair of u and v. A relation R is a model for the set theory if and only if $\Phi(R)$ is provable. This paper lists a large number of results about models of set theory, the proofs of which have been or are to be published elsewhere.

P. C. Gilmore.

Mostowski, A. On recursive models of formalised arithmetic. Bull. Acad. Polon. Sci. Cl. III. 5 (1957), 705–710, LXII. (Russian summary)

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The author considers models of first-order systems of arithmetic, the individuals of the model being the natural numbers or, equivalently, any recursive set of objects. His main result (*) is this: suppose the system contains a sufficient number of primitive symbols so that (i) two disjoint, recursively enumerable, but not recursively separable sets can be defined in the form $(Ex)A(x, n)$, $(Ex)B(x, n)$ with A and B quantifier-free, and (ii) the relevant properties of these sets (disjointness, calculability of $A(n, m)$, $B(n, m)$ for numerals n and m) can be formally proved in the system. Then every recursive model, i.e., one in which the non-logical constants are replaced by recursive functions and predicates, is isomorphic to the standard model. An analogous result is established for recursively enumerable models, and, by a remark of Putnam [J. Symb. Logic 22 (1957), 110–111] also for one number quantifier models with recursive scope. Essentially the same results are contained in the reviewer's abstract [ibid. 22 (1957), 109]. From (*) follows neatly a negative solution of a problem by Vaught:

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MOSTOWSKI, A.

let T_V be the class of first order formulae which are satisfiable (over the natural numbers) by predicates from a class V of 'constructive' predicates, i.e., all predicates of V are recursively enumerable and every primitive recursive predicate is in V; is T_V arithmetically definable for some such V?

The proof of (*) shows that there is no recursive non-standard model in which all theorems of (quantifier-free) primitive recursive arithmetic are valid. In other words, recursive models are useless for independence problems in full primitive recursive arithmetic. This answers a question raised by Skolem at Amsterdam in 1954 [cf. also 'Mathematical interpretation of formal systems', North-Holland Publ. Co., Amsterdam, 1955, pp. 1–14; MR 17, 699]. It is not known if elementary arithmetic with addition and multiplication as the sole non-logical constants has a recursive non-standard model.

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G. Kreisel (Reading)

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MOSTOWSKI, ANDRZEJ

Algebra liniowa.

Warszawa, Poland, Panstowowe Wydawn. Naukowe, 1958. 188p.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 8, August 1959.
Uncla.

MOSTOWSKI, ANDRZEJ

"Elements of higher algebra"

p. 367 (Panstwowe Wydawn. Naukowe, 1958, Warsaw, Poland)

Monthly Index of East European Accessions (EEAI) LC, Vol. 8, No. 1, Jan. 59.

Mostowski, A. Włodzimierz. On direct sums of cyclic groups. Prace Mat. 2 (1958), 319–328. (Polish; Russian and English summaries)

J. Szele [Publ. Math. Debrecen 2 (1951), 76–78; MR 13, 104] has given a condition of extremality of a set Z of generators of an abelian group G that is sufficient in order that the set Z be a basis in the group. The condition is not necessary. In the direct sum $C_{p_1}\times C_{p_2}\times C_{p_3}\times\cdots$, where C_{p_i} are cyclic groups of prime orders, $p_1<p_2<\cdots$, no set of generators is extremal.

The modified condition of Szele gives the following: Theorem: The set Z of generators, different from zero, of an abelian group G is a basis of G if and only if for arbitrary finite sets X and Y, generating the same subgroup of the group G, we have the implications $X\subset N\cap Z$ and $Y\subset G$ imply the power of $X\leq$the power of $N\cap Y$, $X\subset S\cap Z$ and $Y\subset S\cap G$ imply $\prod_{x\in X} r(x)\leq\prod_{y\in Y} r(y)$. N and S denote sets of elements of infinite and of finite orders of the group G. The number $r(x)$ $(1\leq r(x)\leq\infty)$ denotes the order of the element x.

This theorem implies in a simple way the theorem for finitely generated abelian groups. *Author's summary*

MOSTOWSKI, A.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy, t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow, vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959.
247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.M. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P.L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

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AUTHORS: Grzegorczyk, A; Mostowski, A; Ryll-Nardzewski, C

TITLE: Definability of sets in models of axiomatic theories

PERIODICAL: Referativnyy zhurnal, Matematika no 1, 1962, 13, 14
Abstract 1A89 (Bull. Acad. polon. sci. Ser. sci. math., astron. et phys., 1961, 9, no 3, 165-167)

Let correspond to every formula φ of the elementary theory T a predicate, depending on the same number of variables (which run through the domain of the natural numbers) as the formula φ. The set $\mathfrak{M}$ of the predicates thus obtained is called a model of the theory T, if all theorems of this theory are true in $\mathfrak{M}$. The sign $\mathfrak{M} \models \varphi$ means that the formula φ is satisfied in $\mathfrak{M}$ in case one gives the free variable x_j of the formula φ the value j. With each formula φ of T one can connect the set $|\varphi|$ of those models $\mathfrak{M}$ for which holds $\mathfrak{M} \models \varphi$. The set M of all models $\mathfrak{M}$ is a topological space, if for a base of open sets the set system $|\varphi|$ is taken. It is proved that the space M is an absolute G[illegible]. Let T [illegible] be

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Definability of sets

a sequence of formulas of the theory T with the only free variable x_1, and let $\vdash_T \neg\varphi_n \rightarrow \varphi_0$ for $n = 1, 2, \ldots$, $\vdash_T$ being the sign of deduction in T. The theory T is called ω-closed (with respect to the sequence φ_n), if for every formula φ it follows $\vdash_T \varphi_0$ from $\vdash_T \neg\varphi \rightarrow \varphi_n$ $(n = 1, 2, \ldots)$. The model $\mathfrak{M}$ is called a standard model (with respect to the sequence φ_n), if to every $i \geq 1$ there exists an $n \geq 1$ such that $\mathfrak{M} \models \varphi_0(x_i) \rightarrow \varphi_n(x_i)$, where $\varphi_0(x_i)$, $\varphi_n(x_i)$ are obtained by substituting in φ_0, φ_n the variable x_1 by x_i. It is proved that in case of the theory T being ω-closed, the set of all its standard-models is a set of complete category of the type $\mathfrak{G}_\delta$ in $\mathfrak{M}$. The set of natural numbers Z is called representable in T (with respect to the sequence φ_n) if there exists a formula φ with the only free variable x_1 such that from $n \in Z$ it follows $\vdash_T \varphi_n x_1$ $(\varphi_n \neq \varphi)$ and from $n \notin Z$ it follows $\vdash_T \exists x_1(\varphi_n)$. The set Z is called definable in the model $\mathfrak{M}$ by aid of the formula φ, if $n \in Z$ is

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equivalent to $\models_{\mathfrak{M}} \exists x_1 (\pi_n \wedge \varphi)$. Obviously every set representable in T is definable in every model of T. The following basic lemma is less trivial: The set M_Z of those models in which a given set of natural numbers Z is definable, is a set of the type F_σ in M; if M_Z is not of the first category in M, then there exists a finite extension of the theory T in which Z is representable.

If $\mathfrak{M}$ is no element of M, then $\mathfrak{M}$ is called an ω-standard-model (with respect to the sequence π_n), if the formula π_o is interpreted in $\mathfrak{M}$ by the set-theoretical union of the interpretations of the formulas $\pi_1, \pi_2, \ldots$ The set Z is then called definable in $\mathfrak{M}$ (with respect to the sequence π_n), if there exists a formula φ of the theory T, and an estimation (in $\mathfrak{M}$) of the free variables of the formula φ such that the formula $\exists x_1 (\pi_n \wedge \varphi)$ is satisfied in $\mathfrak{M}$, if and only if $n \in Z$.

By aid of the basic lemma one proves:

1.) If T is axiomatizable, and if all recursive sets are representable

Definability of sets ... S/044/62/000/001/001/001
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in T, then the following set families are identical with the family of recursive sets,
a) the family of those sets, being representable in T;
b) the family of those sets, being definable in all models of T.

2.) If T is ω-closed, if all hyperarithmetical sets are representable in T, and if the set (of the Goedel numbers) of the theorems of T belongs to the class Π of the hierarchy of Crigy-Mostowski, then the following set families are identical with the family of hyperarithmetical sets:
a) the family of those sets, being definable in all ω-standard-models of T;
b) the family of those sets, being representable in T.

[Arstracter's note: Complete translation.]

Card 4/4

MOSTOWSKI, A. (Warszawa)

A generalization of the incompleteness theorem. Fund mat 49 no.2: 205-232 '61. (EEAI 10:9)

(Metamathematics) (Logic, Symbolic and mathematical)

MOSTOWSKI, A. Wlodzimierz (Warszawa)

Nilpotent free groups. Fund mat 49 no.3:259-269 '61.

MOSTOWSKI, A. (Warszawa)

Axiomatizability of some many valued predicate calculi. Fund mat 50 no.2:165-190 '61.

(Logic, Symbolic and mathematical)

(14) (243)

Warsaw, Bulletin de l'Academie Polonaise des Sciences; Serie des Sciences Mathematiques, Astronomiques, et Physiques, Vol X, No 3, 1962.

1. "A Problem in the Theory of Models," A. Mostowski, of the Institute of Mathematics, Polish Academy of Sciences (Instytut Matematyczny, PAN); English article, pp. 121-126.

2. "Note on a Theorem of Stasheff," P.J. Hilton, of the University of Birmingham, England; English article, pp. 127-130.

3. "On a Certain General Boundary Value Problem of Elliptic Systems of Linear Differential Equations of the Second Order," B. Lawruk, of the Department of Mathematical Analysis of the University of Warsaw (Katedra Analizy Matematyczne), Uniwersytet Warszawski); Russian article, English summary, pp. 131-138.

4. "Integral Properties of the Logarithmic Potential and its Applications," Z. Szmydt, of the Institute of Mathematics, Cracow Branch, Polish Academy of Sciences (Instytut Matematyczny, Oddzial Krakow, PAN); French article, pp. 139-144.

5. "Transformation of Parabolic Equations with Certain Applications to Markov Processes," I.V. Tcherkasov; Russian article, English summary, pp. 1[illegible]-152.

6. "A Note on Modular Spaces. III," J. Albrycht and W. Orlicz, of the Institute of Mathematics, A. Mickiewicz University, Poznan (Instytut Matematyczny, Uniwersytet im. A. Mickiewicza, Poznan); English article, pp. 153-157.

7. "Gravitational Instability of a Self-gravitating Gaseous Cylinder in the Presence of a Magnetic Field Parallel to the Axis of the Cylinder," J.S. Stodolkiewicz, of the Astronomical Observatory, Warsaw University (Obserwatorium Astronomiczne, Uniwersytet Warszawski) and the Institute of Astronomy, Polish Academy of Sciences (Zaklad Astronomii, PAN); English article, pp. 159-1[illegible].

8. "A Set of Integral Equations for the Photoproduction of Pions on Nucleon Amplitudes. II," G. Bialkowski and A. Jurewicz, of the Institute of Theoretical Physics, Warsaw →

- 1/2 -

MOSTOWSKI, A.

EHRENFEUCHT, A.; MOSTOWSKI, A.

A compact space of models of first order theories. Bul Ac Pol mat 9 no.5:369-373 '61.

1. Presented by A. Mostowski.

MOSTOWSKI, A.

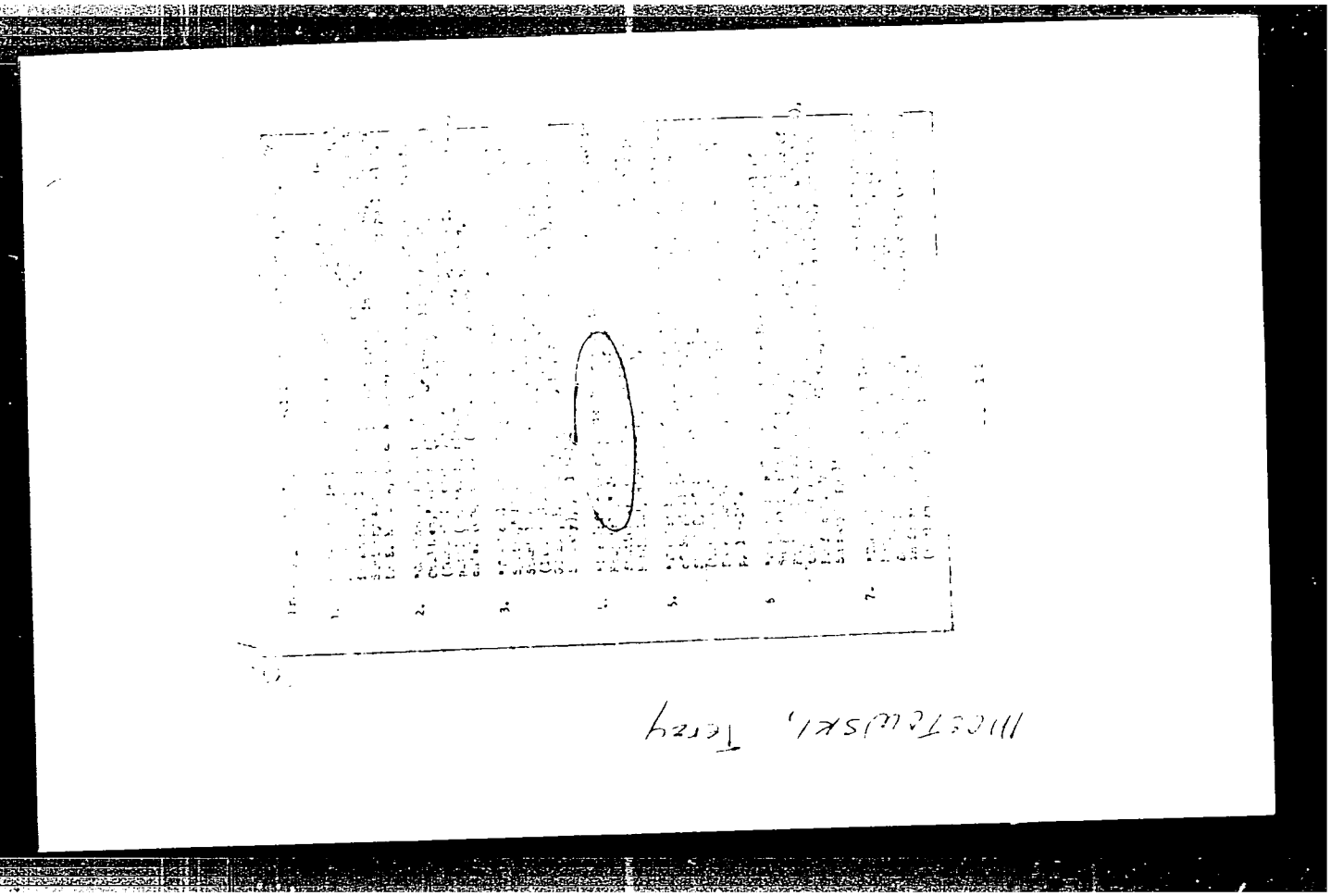
A problem in the theory of models. Bul Ac Pol mat 10 no.3:121-126 '62.

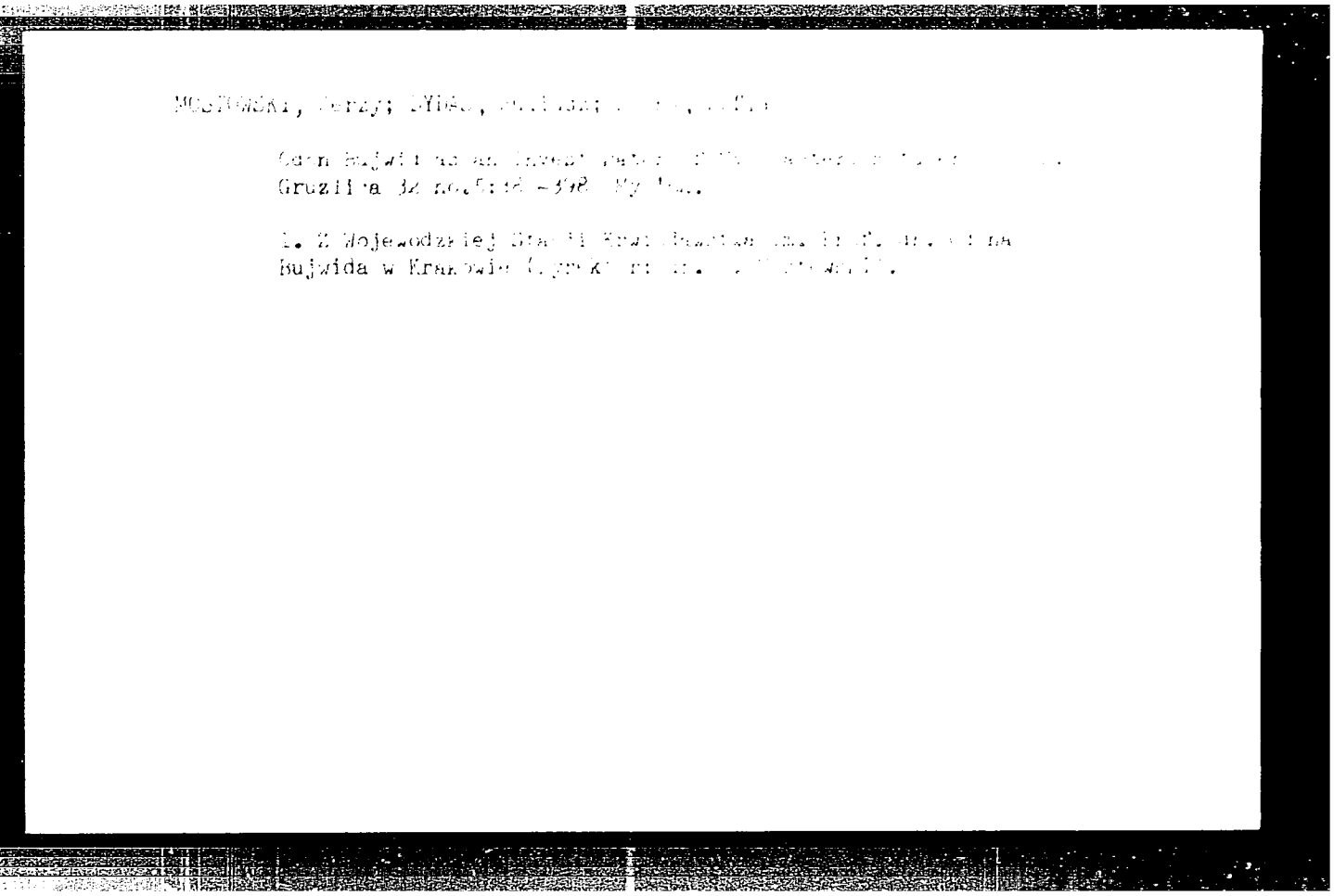
1. Institute of Mathematics, Polish Academy of Sciences, Warsaw.

MOSTOWSKI, J.;BIELAWKA, S.

Granulocytolysis in the serum of cancer patients. Przegl. lek., Krakow 8 no.7:209-210 1952. (CLML 23:4)

1. Of the Third Internal Clinic (Head--Prof. J. Aleksandrowicz, M.D.) of Krakow Medical Academy.





KIRCHMAYER, Stanislaw; KOJ, Aleksandor; MOSTOWSKI, Jerzy; SZCZEPKOWSKI, Tadeusz W.

Noctural paroxysmal hemoglobinuria. Studies on the mechanisms of hemolysis. Polskie arch.med. wewn. 32 no.3:343-352 '62.

1. Z II Kliniki Chorob Wewnetrznych AM w Krakowie Kierownik: prof. nauk med. T.Tempka Z Zakladu Chemii Fizjologicznej AM w Krakowie. Kierownik: prof. dr nauk med. B. Skarzynski Z Woj. Stacji Krwiodawstwa w Krakowie Kierownik: dr med. J. Mostowski.
(HEMOGLOBINURIA PAROXYSMAL blood) (HEMOLYSIS)

MOSTOWSKI, Jerzy; BLASZCZYNSKA, Maria; ZUREK, Halina

Serum proteins in blood donors. Pol. med. wewnet. 32 no.7:869-872 '62.

1. Z Pracowni Biochemicznej Wojewodzkiej Stacji Krwiodawstwa w Krakowie Kierownik: dr med. J. Mostowski.
(BLOOD PROTEINS) (BLOOD DONORS)

MOSTOWSKI, Jerzy; BIERNAT, Eugenia; DYDAS, Juliusz

Increase of potassium in the plasma of preserved blood. Pol. med. wewnet. 32 no.7:873-876 '62.

1. Z Wojewodzkiej Stacji Krwiodawstwa w Krakowie Kierownik: dr med. J. Moątowski.

(POTASSIUM) (BLOOD PRESERVATION)

KOBIELA, Jan; MOSTOWSKI, Jerzy

Studies on the Gm system among blood donors in Krakow. Pol. tyg. lek. 18 no.40:1478-1480 30 S '63.

1. Z Zakladu Medycyny Sadowej AM w Krakowie; kierownik: prof. dr nauk med. Jan Olbrycht z Wojewodzkiej Stacji Krwiodawstwa w Krakowie; dyrektor: dr Jerzy Mostowski.
(BLOOD GROUPS) (BLOOD DONORS)
(STATISTICS)

MOSTOWSKI, Zygmunt, inz.

Engineers and techniciana participated considerably in the creation and development of industry in Lublin Province. Przegl techn 85 no.28:5 12 Jl'64.

AKHVONEN, V.A.; GRENBERG, Ye.I.; GENIS, M.Ya.; FEYGINA, E.M. ZAKHAROVA, V.S.; KOVALEVA, R.A.; ZALEVSKAYA, T.N. SHASHKIN, M.A.; KOVALENKO, P.N.; ZAK, A.G.; AKHMETOVA, S.A.; MOSTRYUKOV, P.M.; VEYSEYSKAYA, N.D.

Brief reports. Zav.lab. 23 no.7:801-802 '57. (MLRA 10:8)

1.Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR (for Akhvonen) 2.Dnepropetrovskiy Truboprokatnyy zavod imeni V.I. Lenina (for Grenberg, Genis) 3. Angarskiy remontno-mekhanicheskiy zavod (for Shashkin) 4.Rostovskiy gosudarstvennyy universitet (for Kovalenko) 5. Karagandinskiy zavod sinteticheskogo kauchuka (for Zak, Akhmetova, Mostryukov, Veyseyskaya).
(Chemistry, Analytic)

MOSTSEYEV, Vladimir Mitrofanovich, kapitan 3 ranga; TONKOV, A.A., red.; ANIKINA, R.F., tekhn.red.

[Inside a submarine; comments of a political indoctrinator] Na podvodnoi lodke; zametki politrabotnika. Moskva, Voen.izd-vo M-va obor.SSSR, 1960. 156 p. (MIRA 13:6)
(Submarine boats)

BOKUN, N.; MOSTSITSKIY, V.

Output of semiprocessed food will double. Obshchestv. pit. no. 3:25-26 Mr '61. (MIRA 14:4)

1. Sekretar' kulinarnogo soveta dorursa L'vovskoy zheleznoy dorogi (for Bokun). 2. Predsedatel' kulinarnogo soveta dorursa L'vovskoy zheleznoy dorogi (for Mostsitskiy).
(Lvov—Restaurants, lunchrooms, etc.—Equipment and supplies)

BAGDAVADZE, N.V.; BARBAKADZE, L.V.; GIGTUR[illegible], E.N.; KUCHAVA, N.Ye.; MOSULISHVILI, L.M.; KHARABADZE, N.Ye.

Radioactivation method for determining gold in the blood. Soob. AN Gruz. SSR 39 no.2:287-294 Ag '65. (MIRA 18:9)

. Institut fiziki AN GruzSSR. Submitted January 15, 1965.

GAPRINDASHVILI, N.K.; ISARLISHVILI, S.Ya.; MOSULISHVILI, N.M.

Biological control of the citrus whitefly by means of the fungus Aschersonia aleurodis Webber. Agrobiologiia no.2:255-261 Mr-Ap '65. (MIRA 18:1)

1. Institut zashchity rasteniy, Tbilisi.

MOSTUN, V.F.

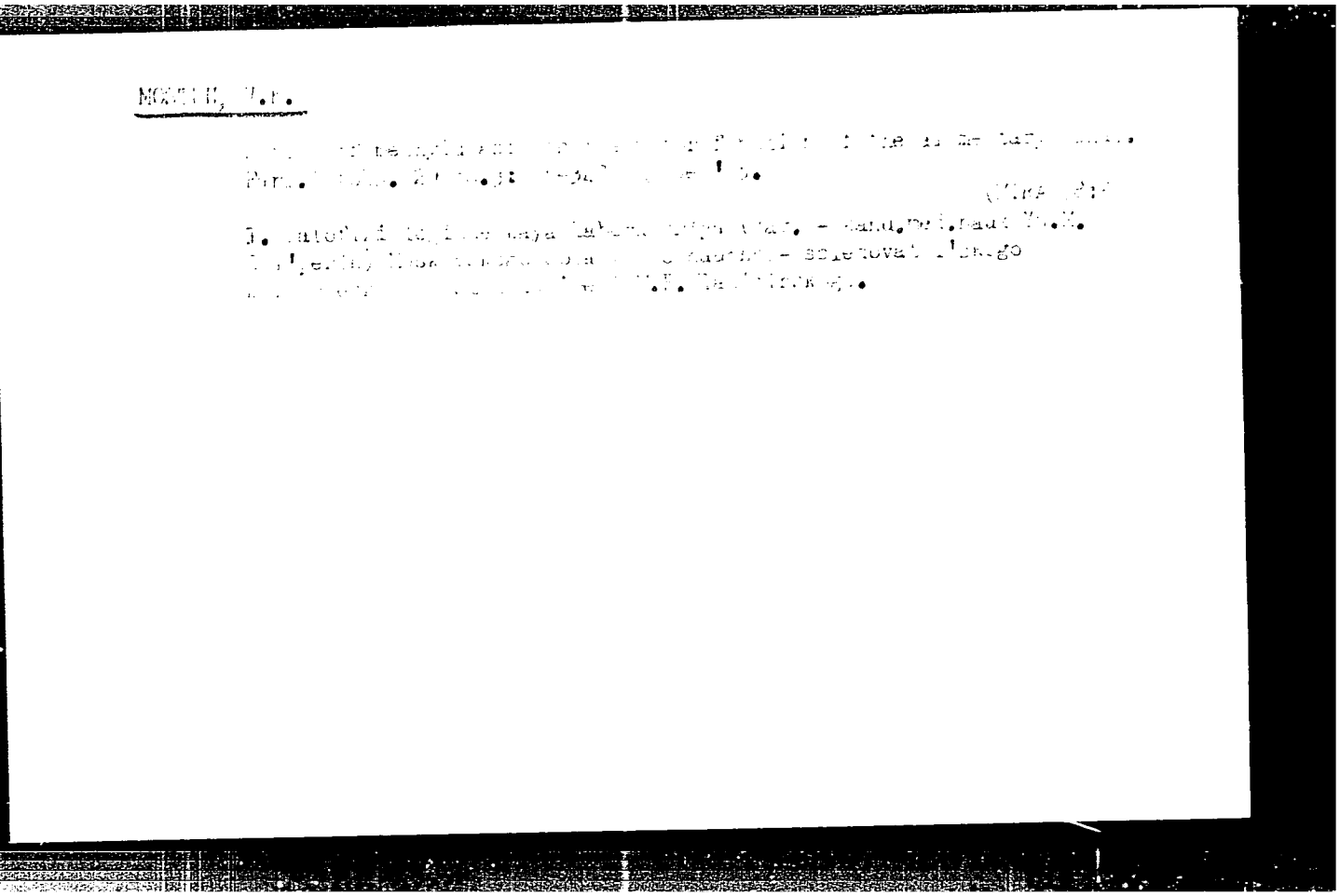
Motor activity of the digestive tract during sleep. Biul.eksp. biol.i med. 37 no.1:6-8 Ja '54. (MLRA 7:3)

1. Iz laboratorii fiziologii i patologii pishchevareniya (zaveduyushchiy - deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR I.P.Razenkov) Instituta fiziologii Akademii meditsinskikh nauk SSSR, Moscow. (Digestive organs) (Sleep)

MOSTUN, V. F.

MOSTUN, V. F. -- "Mutual Relations between Various Parts of the Alimentary Canal under Conditions of Hunger-activated Motor Activity." Acad Med Sci USSR, Institute of Normal and Pathological Physiology, Moscow, 1956. (Dissertation for the Degree of Candidate in Medical Sciences.)

KNIZHNAYA LETOPIS
Nos. 41, October 1956



MOSTVILISHKER, Ya. M.

2517. APPARATUS FOR DETERMINING FINENESS OF GRINDING OF PULVERIZED COAL. Mostvilishker, Ya. M. (Elekt. Sta. (Pwr Sta., Moscow), Apr. 1956, 55, 57). The rapid method described consists in pouring 20 g of the fuel into a burette [illegible] two funnels in a prescribed manner and using the volume of the sample [illegible] bulk density) as an index of fineness. Results are within 1% of [illegible] against 15-20. Moisture in [illegible] obtained by sieving and the [illegible] under test, anthracite dust, [illegible] affect results. Where a big change [illegible] recalibration is necessary. (L).

MOSTVILISHKER, Ya.M., inzh.

Expediency of introducing a turbopump in the automatic reserve cut in network of feed pumps. Elek.sta. 33 no.2:95 F '62. (MIRA 15:3)
(Pumping machinery)(Electric power plants--Equipment and supplies)

MOSTYKO, V. S. Lecturer, Vitebsk Vet. Inst.

"Blood Supply of the Extremities of a Horse," (thesis)

in Scientific Works of the Vitebsk Veterinary Institute, Vol. XI (handbook)

Veterinariya, Vol. 29, No. 9, Sept. 1952, pp 61-63
Trans. No. 125, by L. Lulich

BAZALOV, A.N., MOSTYKO, Ye.S.; POLI[illegible]A, Z.M.

Methods for de[illegible]sing acute [illegible]stinal diseases. Z[illegible]
no.6:66-68 Je [illegible].

1. Iz Mogilev[illegible] g[illegible] otd[illegible] zdravookhrane[illegible] M.V. Trusova) [illegible]miologicheskogo upr[illegible] zdravookhraneniya BSSR [illegible] - A.V. Khov[illegible].

SIMA, Petre, ing.; MOSU, Nicolae, ing.

Computing the resistance of the pieces submitted to torsion at high temperatures. Metalurgia constr mas 14 no. 2:164-170 F '62.

1. Institutul politehnic, Brasov.

MOSUNOV, B.N.

Mental disorders and their psychotherapy in patients undergoing an operation —commissurotomy for an acquired heart defect. Trudy 1-go MMI 21:218-226'63. (MIRA 16:9)

1. Kafedra psikhiatrii (zav. - prof. V.M.Banshchikov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova i Institut serdechno-sosudistoy khirurgii AMN SSSR (dir. - S.A.Kolesnikov).
(PSYCHOSES) (PSUCHOTHERAPY) (HEART--SURGERY)

KAZAKOVA, P.B., kand.med. nauk; MOSUNOV, B.N.

Pathogenesis of psychoses occuring after surgical treatment of rheumatic heart defects; clinical morphological investigation. Trudy 1-go MMI 21:407-429'63. (MIRA 16:9)

1. Kafedra psikhiatrii (zav. - prof. V.M. Banshchikov) 1-go Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova, Institut psikhiatrii Ministerstva zdravookhraneniya RSFSR (dir. - prof. D.D. Fedotov) i Institut serdechno-sosudistoy khirurgii AMN SSSR (dir. - prof. S.A.Kolesnikov)
(PSYCHOSES) (HEART—SURGERY)
(RHEYMATIC HEART DISEASE)

NAREZHNIY, S.; OGDANETS, N.; MOSUNOV, G.

Credit-payment service to collective and state farms. Den. i kred. 19 no.3:37-48 Mr '61. (MIRA 14:3)

1. Starshiy kreditnyy inspektor Stalingradskoy kontory Gosbanka (for Narezhniy). 2. Nachal'nik otdela kreditovaniya i finansirovaniya sel'skogo khozyaystva Stalinskoy kontory Gosbanka (for Ogdenets). 3. Upravlyayushchiy Novo-Tor'yal'skim otdeleniyem Gosbanka Mariyskoy ASSR (for Mosunov).
(Agricultural credit)
(Banks and banking)

MOSUNOV, V.A., gornyy inzh.

Using the TEO 6.1 hanging theodolite. Gor. zhur. no.5:56-57 My '65. (MIRA 18:5)

1. Kombinat Achpolimetall, g. Kentau.

SUKHOVA, M.N.; ZAIROV, K.S.; GVOZDEVA, I.V.; ANDREYEVA, A.I.; NURULLAYEV, D.Kh.; TALIPOV, M.Z.; MOSUNOV, V.B.; STOROZHEVA, Ye.M.; SAMSONOVA, A.M.; SHAMIRZAYEV, N.Yu.; AKMURZAYEV, T.A.

Fly control and its organization in Uzbekistan. Med.zhur.Uzb. no.3:3-14 Mr '62. (MIRA 15:12)

1. Iz TSentral'nogo nauchno-issledovatel'skogo dezinfektsionnogo instituta Ministerstva zdravookhraneniya SSSR (dir. - prof. V.I.Vashkov) i sanitarno-epidemiologicheskoy organizatsii Uzbekistana (glavnyy gosudarstvennyy sanitarnyy inspektor-kand.med.nauk K.S.Zairov).
(UZBEKISTAN--FLIES--EXTERMINATION)

SUKHOVA, M.N.; YEROFEYEVA, T.V.; GVOZDEVA, I.V.; NIKIFOROVA, N.F.; LOTSENKO, T.K.; DEM'YANCHENKO, R.P.; BIRALO, T.I.; SERAFIMOVA, A.M.; MOSUNOV, V.B.; SAMSONOVA, A.M.; STOROZHEVA, Ya.M.; SURCHAKOV, A.V.

Methods of applying insecticides to control synanthropic flies. Zhur.mikrobiol., epid.i immun. 33 no.8:15-19 Ag '62. (MIRA 15:10)

1. Iz TSentral'nogo nauchno-issledovatel'skogo dezinfektsionnogo instituta Ministerstva zdravookhraneniya SSSR, Mytishchinskoy gorodskoy sanitarno-epidemiologicheskoy stantsii, Kuybyshevskogo instituta epidemiologii i mikrobiologii, Minskoy gorodskoy dezinfektsionnoy stantsii, Brestskoy sanitarno-epidemiologicheskoy stantsii, Tashkentskoy gorodskoy dezinfektsionnoy stantsii i Tashkentskoy gorodskoy sanitarno-epidemiologicheskoy stantsii.
(INSECTICIDES) (FLIES--EXTERMINATION)

SUKHOVA, M.N.; GVOZDEVA, I.V.; MISHIK, Yu.N.; TETEROVSKAYA, T.O.; BOLOTOVA, T.A.; KHOLODOVA, G.K.; STOROZHEVA, Ye.M.; SAMSONOVA, A.M.; MOSUNOV, V.B.; NESELOVSKAYA, V.K.; GOL'DINA, G.S.; SERAFIMOVA, A.M.; BIRALO, T.I.; VASILENKO, L.N.

Sensitivity to chlorophos, trichlorometaphos, DDT, hexachlorocyclohexane and polychloropinene in housefly populations following the use of these insecticides for several years. Zhur. mikrobiol., epid. i immun. 42 no.8:7-14 Ag '65. (MIRA 18:9)

1. TSentral'nyy nauchno-issledovatel'skiy dezinfetsionnyy institut, Moskva, Mytishchinskaya i Tashkentskaya gorodskiy sanitarno-epidemiologicheskiye stantsii, Tashkentskaya i Minskaya gorodskiye dezinfektsionnyye stantsii i Brestskaya gorodskaya i Brestskaya oblastnaya sanitarno-epidemiologicheskiye stantsii.

L 23405-66 EWT(1)/T RO/JK
ACC NR: AP6014013 SOURCE CODE: UR/0016/65/000/008/0007/0014

AUTHOR: Sukhova, M. N.; Gvozdeva, I. V.; Misnik, Yu. N.; Teterovskaya, T. O.; Bolotova, T. A.; Kholodova, G. K.; Samsonova, A. M.; Gol'dina, G. S.--Goldina, G. S.; Storozhova, Ye. M.--Storozhova, E. M.; Nosunov, V. B.; Nosolovskaya, V. K.; Serafimova, A. M.; Biralo, T. I.; Vasilenko, L. M.

ORG: Central Scientific Research Disinfection Institute, Moscow (Tsentral'nyy nauchno-issledovatel'skiy dezinfektsionnyy institut); Mytishchi City Sanitary Epidemiological Station, Mytishchi (Mytishchitskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya); Tashkent City Sanitary Epidemiological Station, Tashkent (Tashkentskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya); Tashkent City Disinfection Station, Tashkent (Tashkentskaya gorodskaya dezinfektsionnaya stantsiya); Minsk City Disinfection Station, Minsk (Minskaya gorodskaya dezinfektsionnaya stantsiya); Brest City Sanitary Epidemiological Station, Brest (Brestskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya); Brest Oblast Sanitary Epidemiological Station (Brestskaya oblastnaya sanitarno-epidemiologicheskaya stantsiya)

TITLE: Sensitivity of the house fly population to chlorophos, trichlorometaphos-3, DDT, hexachlorocyclohexane, and polychloropinene after many years of application of these insecticides

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 8, 1965, 7-14

TOPIC TAGS: entomology, insecticide, organic phosphorus compound, chlorinated organic compound

UDC: 614.57:615.777/779]:[576.895.772.095.18

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ACC NR: AP6014013

ABSTRACT: The sensitivity of flies to insecticides was studied in a number of cities. Tests were carried out on female flies by applying an acetone solution of the insecticide to the back and determining the LD_{50}. At Minsk and Brest, where sprinkling of walls with a 2-3% aqueous solution of chlorophos was applied for 7 and 6 years, respectively, increased tolerance of flies to this insecticide was observed. At Mytishchi, where chlorophos baits were used, particularly in the form of mixtures containing ammonium carbonate, the sensitivity of flies to this insecticide remained undiminished. No increase in the tolerance of southern house flies (Musca domestica vicina Macg.) to chlorophos after application of this insecticide in Tashkent for 4-5 years was observed. Use of trichlorometaphos as a larvicide reduced the sensitivity of flies to this insecticide to a small extent in Mytishchi, Minsk, and Brest, but not to a degree which could be regarded as an increase in tolerance (defined as a decrease of sensitivity by a factor of 2-4). The sensitivity of flies to trichlorophos was unaffected after use of this insecticide in Tashkent. Flies at Minsk and Brest which had developed a tolerance to chlorophos also showed an increased resistance to DDT and hexachlorocyclohexane (this increase in resistance also developed to a minor extent at Mytishchi). However, the increase in the resistance to hexachlorocyclohexane was presumably not related to the use of organophosphorus compounds, but due to the application of polychloropinene in these localities. Existence of a relation between increased resistance to DDT and tolerance to chlorophos was more likely. Southern flies in Tashkent, which retained sensitivity to chlorophos to the full extent, did not exhibit an increase in the resistance to DDT. After a

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6 to 7 year discontinuance of the use of chlorinated hydrocarbons in Tashkent, a moderate tolerance to DDT that was on the initial level remained, while the resistance to hexachlorocychlohexane decreased by a factor of three. The most expedient methods for the extermination of flies are used of chlorophos - ammonium carbonate baits to exterminate imago and application of larvicides, specifically those containing trichlorometaphos - 3 in optimum doses, so that development of tolerance will be prevented. Orig. art. has: 4 figures and 2 tables. [JPRS]

SUB CODE: 06, 07 / SUBM DATE: 24Sep65 / ORIG REF: 004 / OTH REF: 004

Card 3/3

AUTHORS: Ivanov, A. P. and Mosunova, S. L. 31-4-4-17/22

TITLE: On a Relationship Between the Intrinsic and Technical Yields of Luminescence of Infinitely Thick Light-Scattering Layers. (O svyazi mezhdu istinnymi i tekhnicheskimi vykhodami lyuminestsentsii beskonechno tolstykh svetorasseivayushchikh sloyev.)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol.IV, Nr.2, pp.245-251 (USSR)

ABSTRACT: In scattering media where luminescence undergoes multiple reflections the final luminescent emission may be considerably increased and therefore the experimentally determined ratio of the luminescent energy to the absorbed energy gives, not the intrinsic luminescence yield η_i, but the technical luminescence yield η_t. The author derives a formula for η_t in terms of η_i and the optical constants of the luminescing layer. In a table on pp.247-8 numerical values are given for the ratio of the technical to the intrinsic yield for various values of the absorption and scattering coefficients of the layer. Figs.1-3 give the dependences of the

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