VVEDENSKIY, B.A., akademik, redaktor; SHAMSHUR, V.I., redaktor; URAZOVA, A.N., tekhnicheskiy redaktor.

[Mikhail Vasil'evich Shuleikin; collection of articles] Mikhail Vasil'evich Shuleikin; sbornik statei. Pod red. B.A.Vvedenskogo. Moskva, Sovetskoe Radio, 1952. 132 p. [Microfilm] (MLRA 7:10)
(Shuleikin, Mikhail Vasil'evich, 1884-1939)

VVEDE'SKIY B.

USSR/Electronics - Personalities

Apr52

"In Memory of Petr Alekseyevich Ostryakov," N.Psurtsev, I. Peresypkin, A. Berg B. Vvedenskiy, et al.

"Radio" No 4, p 12

P. A. Ostryakov, one of the founders of Soviet electronics, died 25 Feb 52 at the age of 65. From 1923 to 1941, Ostryakov participated in the construction of powerful radio stations and later was in charge of powerful radio stations and later was in charge of work at the powerful radio station constructed during the war. He joined the Central Sci Res Inst of the Min of Commun in 1944 and became sci director in 1948. His defense of his thesis for a candidate's degree at the age of 60 was so brilliant that he was awarded the degree of Dr Tech Sci.

238T58

VVEDENSKIY, B.

"Preparations for Atomic Warfare -- the Greatest of Crimes," PRAVDA, 7 March 1955.

Yellow Daily Report,
[redacted], B3 9, 8 Mar 55

107-57-1-2/60

AUTHOR: Academician A.I. Berg, Academician B.A. Vvedenskiy, Academician S.A. Vekshinskiy, Academician V.A. Kotel'nikov, Corresponding Member AS USSR A.L. Mints, Corresponding Member AS USSR A.A. Pistol'kors, Corresponding Member AS USSR V.I. Siforov

TITLE: Search, Dare, Create (Ishchite, derzayte, tvorite)

PERIODICAL: Radio, 1957, Nr 1, p 1 (USSR)

ABSTRACT: This is an open letter, an appeal to radio amateurs to experiment boldly, to create new designs, to promote new ideas in application of radio and electronics in industry, farming, transportation, and communication. The role of radio amateurism as a preparatory school for radio specialists in industry is noted. Achievements of radio and electronics are considered as a basis of development of all sciences, production, and even planning. Radio amateurs are urged to search, to dare, and to create.

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VVEDENSKIY, B. A.

"Long Range Tropospheric Propagation of UCW," by B. A. Vvedenskiy and A. G. Arenberg, Radiotekhnika, No 1, Jan 57, pp 3-11

In the first part of this article, which was delivered as an address at the scientific session of the Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov 12 May 1956, the authors make following statement:

"However, not without some hesitation have we accepted the suggestion of making this report. Not only because we did not intend to report anything new to the experts, and, certainly, not because it is necessary to admit some lag in the development of this problem in our country, but because of the fact that in spite of the newness of this problem it has already an extensive literature, which is far from being in complete harmony, thus making the concise presentation of the subject rather difficult."

[Comment: The language used in this statement is somewhat of the nature of double talk. The intent appears to be that the authors are not embarressed to admit a lag in this area.]

SUM. 1305

VVDENSKIY, B. A.

"Long-Range Tropospheric Propagation of Ultrashort Waves," by B. A. Vvdenskiy and A. G. Arenberg, Radiotekhnika, No 2, Feb 57, pp 10-21

The first part of this article was published in the January 1957 issue of the periodical Radiotekhnika.

"In spite of incompleteness and lack of clarity in the theory of long-range tropospheric propagation of USW and the existence of disputable areas of experiment, we are certain of the practical expediency of considerably increasing the distance between points of communications, especially in those cases where the required increase in power input and the dimensions of the antennas economically justify such an increase. At present practicing engineers suggest such distances as, for example, 200-300 km; but no one should take for granted that these new possibilities might in any decisive manner unfavorably influence our interests in the construction of conventional radio-relay lines.

Sum.1391

VVDENSKIY, B. A.

"Both of these systems are meant to supplement each other. This is especially true, since the original apprehensions, luckily, did not materialize with respect to limitations caused by, for example, the possible distortion of signal form during long-range tropospheric propagation, lowering of antenna gain, and other factors.

"It is a well-established fact that climatic conditions are able to introduce considerable changes in USW propagation, and that theoretical calculations so far have not been able to forecast such changes. In this particular field, further intensified cooperative work between our theoretical scientists and experimental workers will be needed.

"We should keep in mind that the experience abroad, no matter how complete it might be, always carries the signs of economic competition, the aggressiveness of corporations, and so forth, which determine to a great degree the manner in which investigations are conducted. We should not merely duplicate these foreign experiences. The program of our research during the Sixth-Five Year Plan will be directed by the needs of our own development." (U)

SUM. 1391

VVEDENSKIY, B.A., glav. red.; VUL, B.M., glav. red.; SHTEYNMAN, R.Ya., zam. glav. red.; BALDIN, A.M., red.; VONSOVSKIY, S.V., red.; GALANIN, M.D., red.; ZERNOV, D.V., red.; ISHLINSKIY, A.Yu., red.; KAPITSA, P.L., red.; KAPTSOV, N.A., red.; KOZODAYEV, M.S., red.; LEVICH, V.G., red.; LOYTSYANSKIY, L.G., red.; LUK'YANOV, S.Yu., red.; MALYSHEV, V.I., red.; MIGULIN, V.V., red.; REBINDER, P.A., red.; SYRKIN, Ya.K., red.; TARG, S.M., red.; TYABLIKOV, S.V., red.; FEYNBERG, Ye.L., red.; KHAYKIN, S.E., red.; SHUBNIKOV, A.V., red.

[Encyclopedic physics dictionary] Fizicheskii entsiklopedicheskii slovar'. Moskva, Sovetskaia Entsiklopediia. Vol.4. 1965. 592 p. (MIRA 18:1)

VVEDENSKIY, B.A.

AUTHORS: Vvedenskiy, B.A. and Sokolov, A.V. 109-11-4/8

TITLE: Investigations of the Tropospheric Propagation of Metre, Decimetre and Centimetre Radio-waves in the USSR (Issledovaniya troposfernogo rasprostraneniya metrovykh detsimetrovykh i santimetrovykh radiovoln v SSSR)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.11, pp. 1375 - 1389 (USSR)

ABSTRACT: The first experiments on the propagation of modulated ultra-shortwaves (at a wavelength of 3.8 m) were first carried out in the USSR by M.V. Shuleykin in 1922. During 1926-27, Vvedenskiy and others investigated the possibility of practical application of the attenuation or gain effects produced at metric wavelengths by metallic and other objects. These investigations showed that the electric field is inversely proportional to the square of the distance from the transmitting antennae and directly proportional to the height of the transmitting and receiving antennae. In 1931, Shein and Kuzovkin designed transmitters and receivers capable of operating at distances up to 20 km, while, in 1932-33, a regular communication link at metre waves was established between Moscow and Noginsk (a distance of 45 km). The experiments carried out by means of that system showed that

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Investigations of the Tropospheric Propagation of Metre, Decimetre and Centimetre Radio-waves in the USSR:

short waves could be propagated beyond the standard radio horizon. The problem of the propagation beyond the line-of-sight was investigated in 1933 by a special expedition, which measured the fields over the Black Sea at a wavelength of 60 cm and at distances up to 100 km. During 1936-37, Vvedinskiy proposed a method for determining the effect of the height of the antennae and the electrical parameters of the soil on the diffraction of the shortwaves. The problem of the equivalent Earth's radius was dealt with by V.A. Fok who, in 1946, proposed an original and general treatment of the diffraction phenomena. During 1947-48, a number of experimental investigations of the radio-wave propagation on wavelengths ranging from 8 m to 3 cm were carried out over the Baltic, which showed that the Fok theory was in good agreement with the experimental results. During the 1940's, the propagation of ultra-shortwaves was studied over distances much longer than those which can be accounted for by the diffraction-refraction theories. These effects can be explained by the theory of the atmospheric ducts or waveguides. This was studied in the Soviet Union by Fok, Braude and others. In recent years, a considerable number

Investigations of the Tropospheric Propagation of Metre, Decimetre and Centimetre Radio-waves in the USSR.

works have been devoted to the tropospheric propagation of the whole ultra-shortwave band, the investigation of the troposphere, the stability of the field, relationship between the meteorological conditions and the electrical parameters, investigation of the irregularities in the troposphere, attenuation and scattering of the waves in clouds and the design of ultra-shortwave radio links. Thus, in 1946, Braude and Ostrovskiy evaluated the fields over the sea and dry land for wavelengths of 0.3 to 9 m, while A.N. Shchukin and others took into account the effect of the tropospheric irregularities. During 1952-55, A.I. Kalinin derived formulae for the calculation of the fields at short distances and at distances well beyond the line-of-sight; he also determined the limits of applicability of the optical diffraction theory. In 1952, M.A. Leontovich, G.A. Grinberg and others made a theoretical investigation of the influence of the Earth-surface irregularities on the wave propagation. The problem of the influence of the meteorological conditions on the wave propagation was studied by V.N. Troitskiy, who investigated the reflection coefficients of various types of tropospheric irregularities as a function

Investigations of the Tropospheric Propagation of Metre, Decimetre and Centimetre Radio-waves in the USSR.

of the glancing angles and the thickness of the irregularities. During the 1940s, L.I. Brudno and M.A. Kolosov measured the attenuation of the radio waves at wavelengths of 0.8 to 3.2 cm, while the theoretical bases for the explanation of the tropospheric propagation at these wavelengths were given by V.A. Krasil'nikov, Troitskiy and others. During the Sixth Five-year Plan period, it is proposed to carry out further investigations aiming at the elucidation of the general mechanism of the ultra-shortwave propagation over various distances and to find a satisfactory general theory which would be applicable to the design of long-distance ultra-shortwave radio links. There are 3 figures and 91 references, 72 of which are Slavic.

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VVEDENSKIY, B.A.

Heinrich Hertz. Vop.ist.est. i tekh. no.5:3-8 '57. (MIRA 11:2)
(Hertz, Heinrich Rudolph, 1857-1894)

VVEDENSKIY, B.A.

AUTHOR: VVEDENSKIJ,B.A., ARENBERG,A.G. PA - 2011
TITLE: The Tropospheric Long-Distance Propagation of Ultrashort Waves. (Daljnee troposfernoe rasprostraenie uljtrakorotkih voln,Russian).
PERIODICAL: Radiotekhnika, 1957, Vol 12, Nr 1, pp 3-11 (U.S.R.R.)
Received: 2 / 1957 Reviewed: 3 / 1957

ABSTRACT: In the introduction the possibility of radiotransmission within the range of ultrashort waves over distances hitherto considered to be impossible is pointed out. A short survey of the development of ultrashort wave technics from the twenties up to the present day is given. Only such phenomena are dealt with as are due to the troposphere and not to the ionosphere. The terminology is discussed, the various expressions used are mentioned, and it is said that the term "tropospheric long-distance propagation of ultrashort waves", which was used by the authors, is the nearest approach to reality. There follows a survey of systematic research work carried out in this field in the USA, after which some experimental data are dealt with. It was pointed out that it has become a tradition since 1950 to assume a dependence for the field in powers of distance, but that this has as yet by no means been proved to be true. The methods developed by NORTHON, REICE and VOGLER and their "prediction curve" are discussed in detail. The corresponding diagrams are shown and it is said that the authors of this method obtained their formulae by means of a method which, though very complicated, is by no means convincing. On the other hand it cannot be denied that this method offers the possibility of covering an abundance of experimental material by means of an acceptable empirical formula, and that this curve is
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The Tropospheric Long-Distance Propagation of Ultrashort Waves.

preferable to all other curves and nomograms hitherto published and suggested.

Next, transition of the diffraction zone into the troposphere and the experiments carried out in this connection by Trolèse are dealt with. It is found *that modern diffraction theories are rather clumsy in those cases in which the* influence exercised by the relief of the earth surface cannot be computed. It is also difficult to draw limits between zones according to the character of dying down. The curves recorded from an airplane by AMES, NEWMAN, and ROGERS are shown and the mathematical solutions found by NORTON, VOGLER, MANSFIELD and SHORT are mentioned. In conclusion the authors state that by means of experiments it is as yet not possible to supply a clear answer to the question as to whether a certain field is "totally scattered" or not.
(To be continued).

ASSOCIATION: Not given
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SUBMITTED:
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CARD 2 / 2

VVEDENSKIY, B.A.

AUTHOR: VVEDENSKIY, B.A., Honorary Member of the Society for Radiotechnology, ARENBERG, A.G., Regular Member of the Society for Radiotechnology PA - 2292

TITLE: The Remote Propagation of Ultrashort Waves in the Troposphere. (Dal'noye troposfernoye rasprostraneniye u'trakorotkikh voln.Russian)

PERIODICAL: *Radiotekhnika, 1957, Vol 12, Nr 2, pp 10-21 (U.S.S.R.)*

Received: 4 / 1957 Reviewed: 4 / 1957

ABSTRACT: First, incoherent dispersion is dealt with. A survey is given of the development of the theory according to which the dispersion by the inhomogeneous parts of the ionosphere is a possible factor for the propagation of radio waves. BOOKER and GORDON, VILLARS and WEISSKOPF, as well as NORTON, RICE and VOGLER are referred to. The latter three applied the theory developed by VILLARS and WEISSKOPF for the ionosphere in 1954 to the troposphere. Of the two processes suggested by them they give preference to the one in which the turbulent current vortex is considered as being in a field with the gradients of the dielectric transparency. Also this theory still needs further essential elaboration. Next, coherent dispersion, refraction, and diffraction are dealt with. The theories of BEAN and MEANY (1955), of J.FEINSTEIN, CARROLL and NORTHOVER are discussed. It is shown that the points of discussion are not yet settled, that the dispersion theories are due to the fading in the relays, and the factors connected herewith, that the theories of CARROLL and NORTHOVER can not explain these phenomena,

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The Remote Propagation of Ultrashort Waves in the Troposphere.

that also the opponents of these theories, who consider the theory of the incoherent dispersion as the only correct one, are wrong, since also these theories can not explain fading. The authors are of the opinion that a general theory must be developed which combines the two theories to one synthesis. Already now, however, it is possible to recognize the usefulness of an essential increase of the distance between the connection points if the increase of output and of the size of the antenna appears economically justified. (6 illustrations).

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 10.11.1956
AVAILABLE: Library of Congress

VVEDENSKIY, B.A.

NEMCHENKO, V.S.; BOCHAROV, M.D.; KRISTOSTUR'YAN, N.G.; CHERKASOV, V.I.; ANDREYANOV, V.V.; KAUFMAN, V.M.; PAKHMANOV, V.F.; ZVORYKIN, A.A., otv.red.; ANICHKOV, N.N., red.; BARDIN, I.P., red.; BLAGONRAVOV, A.A., red.; VVEDENSKIY, B.A., red.; GRIGOR'YEV, A.A., red.; KAPUSTINSKIY, A.F., red.; KOLMOGOROV, A.N., red.; MIKHAYLOV, A.A., red.; OPARIN, A.I., red.; PETROV, F.N., red.; STOLETOV, V.N., red.; STRAKHOV, N.M., red.; FIGUROVSKIY, N.A., red.; KOSTI, S.D., tekhn.red.

[Biographical dictionary of leaders in the natural sciences and technology] Biograficheskii slovar' deiatelei estestvoznaniia i tekhniki. Vol.1. A - L. Otvetstvennyi red. A.A.Zvorykin. Red. kollegiia: N.N.Anichkov i dr. Moskva, Gos.nauchn.izd-vo "Bol'shaia Sovetskaia Entsiklopediia." 1958. 548 p. (MIRA 12:4)

1. Redaktsiya istorii estestvoznaniya i tekhniki Bol'shoy Sovetskoy Entsiklopedii (for Nemchenko, Bocharov, Kristostur'yan, Cherkasov, Andreyanov, Kaufman, Pakhmanov).
(Scientists)

VVEDENSKIY, B. A. and ARMAND, N. A.

"The Diffraction of VHF Waves Around the Earth Including Reflection by Atmospheric Layers."

report presented at the Conference on VHF Propagation, Liblice, 10-12 Nov 1958.

Institute of Radio Engineering and Electronics, Academy of Sciences USSR.

VVEDENSKIY, B. A.

Ю. В. [illegible]

Анализ схем [illegible] преобразования частоты

II. СЕКЦИЯ РАСПРОСТРАНЕНИЯ РАДИОВОЛН

Руководитель [illegible]

9 июня

(с 10 до 12 часов)

Совместное заседание с секцией общей радиотехники

А. В. Просин,
В. Ф. [illegible]

Некоторые вопросы теории разнесенного приема при рассеянном распространении УКВ.

А. В. Просин,
Г. И. [illegible],
Н. Н. [illegible]

Экспериментальное исследование разнесенного приема при дальнем тропосферном распространении УКВ.

82

(с 12 до 16 часов)

Б. А. Введенский,
[illegible]

О механизме потерь усиления узконаправленных антенн при дальнем тропосферном распространении ультракоротких радиоволн.

А. В. Шабельников

К вопросу о применимости метода возмущений при вычислении [illegible] рассеяния и его связь со строгим дифракционным решением.

В. А. [illegible],
Ф. Г. Басс

К теории распространения радиоволн в среде со случайными неоднородностями над идеально проводящей плоскостью.

9 июня

(с 18 до 22 часов)

А. В. Мень,
С. Я. Брауде,
В. И. Горбач

Флюктуации фазового фронта при распространении [illegible] радиоволн над [illegible] поверхностью.

83

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

SOV/107-59-3-8/52

29 (2)

AUTHOR: Vvedenskiy, B.A., Academician, Laureate of the Gold Medal imeni A.S. Popov

TITLE: A Mass Experiment Is Necessary (Nuzhen massovyy eksperiment)

PERIODICAL: Radio, 1959, Nr 3, pp 10 - 11 (USSR)

ABSTRACT: The author states that scientists will need the help of Soviet radio amateurs for solving great scientific problems. He refers in this connection to the mass observations of the Russian earth satellite and space rocket movements by radio amateurs. Valuable data on short waves were already obtained in cooperation with radio amateurs. There is one photograph of B.A. Vvedenskiy.

Card 1/1

VVEDENSKIY, B.A., akademik

Jagadis Chandra Bose and his research in the field of physics. (MIRA 13:5)
Vop.ist.est.i tekh. no.8:6-17 '59.
(Physics--Research)
(Bose, Jagadis Chandra, 1858-1937)

VVEDENSKIY, B. A., ARMAND, N. A., KALININ, A. I., KOLOSOV, M. A., SHABELNIKOV, A. V., SHIRAY, R. A. and SOKOLOV, A. V.

"Long Range Tropospheric Propagation of Ultra Short Radio Waves."

report presented at Commission II, 13th General Assembly of the International Scientific Radio Union in London, 5-15 Sept 1960.

Report available, Encl. to B-3,176,875, 30 Jan 61

24460

S/109/61/006/006/001/016
D204/D303

9,9300 (1344)

AUTHORS: Armand, N.A., Vvedenskiy, B.A., Kalinin, A.I., Kolosov, M.A., Sokolov, A.V., Shabel'nikov, A.V., and Shirey, R.A.

TITLE: A survey of work on the tropospheric propagation of ultrashort radiowaves

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 6, 1961, 867 - 885

TEXT: The large body of experimental work done in this field has been aided by the perfecting of apparatus and auxiliary instruments and given impetus by the need for more knowledge to assist the development of telephony, television and radio communications. The authors examine the following: 1) Relations between field strength and distance; 2) Signal level and frequency: the theoretical work suggests that P_r/P_0 (P_r - received power, P_0 - value in

A survey of work on the ...

free space) declines as the frequency rises. No uniform value of $P_r(\lambda)$ has been found as yet, probably because of the changeability of the tropospheric structure and meteorological conditions; 3) Signal and time: Signal fading may be rapid or slow. Most information concerns 300 - 500 km traces. Slow fading is caused by the appearance or disappearance of inversion layers, large irregularities and changes in the value of $d\varepsilon/dh$. Usually the signal strength is greater in the evening and at night, clearer in summer than in winter and at shorter (100-150 km) rather than longer (400 - 500 km) distances. The amplitude is related to frequency; also, as it combines with slow fading, the average amount of fading increases reaching, according to some sources, a maximum at 100-130 km. Others maintain that it declines with increase in distance to an equal summer and winter value of 3 - 10 db at 900 km; 4) Loss of antennae amplification: The phenomenon occurs beyond the horizon and means that for an antenna with an amplification coefficient G, exceeding 35-40 db, amplification is less than in free space. To account for this there are two hypotheses: (1) Spreading of radio-

Card 2/8

A survey of work on the ...

waves in a statistically non-homogeneous medium leads to distortion of the wave front in the plane of the receiving antenna and thus the energy absorbed is less than in the absence of amplitude and phase fluctuation, (2) elementary waves with various random angles of approach may reach the receiving antenna. These hypotheses have been investigated but comparison of results is hampered by differences in experimental conditions. For a 300 km trace the amplification loss increases with increase in the average amplification of receiving and transmitting antennae and with an increase of D to 300 - 500 km and f = 2290 megacycles. At greater distances the loss falls; 5) Signal distortion: Work in this field either treats the troposphere as an ideal quadruple network or aims to determine the amplitude correlation of the signal components on different frequencies in the transmitted spectrum. If with antennae with low directivity the amplitude of delayed waves is diminished by diffraction weakening of the earth's surface and the "directivity" of the troposphere, then at antennae with narrow patterns the amplitude of these waves decreases because of the di-

A survey of work on the ...

rectivity of the antenna. The maximum transmitted frequency band depends on the width of the directivity pattern of the antenna. The random nature of the tropospheric radiation means that signal distortion has a random pattern as experiments in the USSR have confirmed. Two separated antennae in space diminish distortion and guarantee a large carrying capacity of tropospheric radio links; 6) Radio-meteorological research: Refractometric measurements have dealt with the structure of the troposphere and, in particular, the value of $\varepsilon(h)$, $(\Delta\varepsilon)^2$ and the area of turbulence

$$l\sqrt{(\Delta\varepsilon)^2}$$

usually varies within the range 0.3 - 3N units and irregular layers are usually 1 - 300 m thick. "Jump" intensity in these regions is usually 2 - 50 or 60 N units, large especially in the "invisible clouds". It was stated that at a height $h = 3000$ m and more $(\Delta\varepsilon)^2/l$ is too small to explain distant fields and its alteration with height does not give the necessary value of $P_r(D)$. The authors

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A survey of work on the ...

then deal with incoherent scatter and globular irregularities: In the last few years much attention has been devoted to the conception of incoherent scatter. Two chief theories have been established: One which gives for the frequency subordinate of P_r/P_o, a coefficient of $\lambda^{-4/3}$, and the theory of "disturbance of the gradient", which gives λ. The second approaches more closely to the experimental facts, and is generally preferred. Maxwell's equations for statistically non-homogeneous layers above a spherical earth have not yet been resolved and a solution must combine the theory of diffraction spread with pereoptical theory. All theories, in essence, approach those of a "radar form type"

$$\frac{P_r}{P_o} = QD^2 \int_V \frac{\sigma(\theta)}{R_1^2 R_2^2} dV, \qquad (1)$$

where Q is a constant factor; $\sigma(\theta)$ - "scatter area" - a junction for the influence of fluctuation ϵ and its relation to λ and the

Card 5/8

A survey of work on the ...

gradient $d\varepsilon/dh$; with this formula theory discrepancy concerns basically the value of σ. σ, moreover, can be expressed simply as

$$d(\theta) = \frac{b}{\sin^m\left(\frac{\theta}{2}\right)},$$

where θ - radiation angle, equal to the angular distance between transmitter and receiver; b - expression giving ratios of 1, $d\varepsilon/dh$ and others to $(\Delta\varepsilon)^2$. For whole even numbers $m > 2$ this accords well with a general formula and is integrated with formula 2 to give

$$\frac{P_r}{P_o} = Q\ b\ A_m\ D^{-m+3}, \qquad (2)$$

where A_m depends on m. If $b \simeq h^{-n}$, then $D^{-m+3-2n}$ replaces D^{-m+3}; m can be substituted by nearest even whole number, in cases of close approximation. Current theories give results approximate to

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A survey of work on the ...

Eq. 2. Finally mentioned are: a) incoherent scatter and turbulency layers, and b) coherent reflecting layers. On a) it is pointed out that the use of tropospheric layers for wave reflection has been extensively studied and that in 1955 V.N. Troitskiy (Ref. 107: Radiotekhnika, 1956, 11, 5, 3) obtained a calculated formula which accorded with experimental observations. On b) it is noted that stable layer reflection has met with two objections: The first concerns the incompatability of the existence of great changeability patterns over long distances with the idea of stable tropospheric layers; the second, is, however, theoretical and hardly affects the practical aspect of the problem; the existence of layers has been firmly established and it is positive that a diffraction approach to the problem of spread along the earth's curvature will be of value. A simplification of reported formulae was attempted and

$$\frac{P_r}{P_o} = \frac{1}{D}\,\Phi\left(\lambda,\ \left[\frac{d}{dh}\right]_o,\ h_1,\ h_2\right)\exp\left[-\alpha D\right],$$

Card 7/8

A survey of work on the ...

was obtained, where Φ is a complicated function, analogous to the high factors of classical diffraction theory, containing frequency responses and 'jump' ratios $[d\varepsilon/dh]_0$, α - another function of type $A - B \ln \lambda$ related to parameters, whose size A and B does not depend on λ. Though not strictly accurately descriptive of the fluctuation character of the field the equation gives the necessary experimental ratio $P_r(D)$. There are 9 figures and 119 references: 24 Soviet-bloc and 97 non-Soviet-bloc. The four most recent references to the English-language publications read as follows: Radio transmission by ionospheric and tropospheric scatter, Proc. I.R.E., 1960, 48, 1, 30; E.D. Denman, Proc. I.R.E., 1960, 48, 1, 112; I.H. Vogelman, I.L. Ryerson, M.H. Bickelhaupt, Proc. I.R.E., 1959, 47, 5, 688; L.A. Ames, E.T. Martin, E.J. Rogers, Proc. I.R.E., 1959, 47, 5, 769.

SUBMITTED: July 27, 1960

Card 8/8

24881

S/109/61/006/008/001/018
D207/D304

9.1200 (2603, 3501, 1331)

...mand, N.A., and Vvedenskiy, B.A.

TITLE: Calculating the directional diagrams of antennae in conditions of diffraction of radio waves round the earth

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 8, 1961, 1219 - 1227

TEXT: When applying results obtained by taking the origin of radiated waves as a dipole, it is usual to calculate the radiation diagram of the actual antennae simply by multiplying the formula for the radiation intensity of the dipole by the directivity coefficient (Russian abbreviation: KND) of the actual antenna. But the correctness of this procedure needs verifying, bearing in mind that the form of the earth's surface may introduce modifications, particularly in the shadow zone. Analysis is based on the elementary v.s.w. vertical magnetic dipole, for which case calculations can be

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greatly simplified if the earth's surface is taken as perfectly conducting. A simple method is developed for calculating the diffraction field which consists essentially in integrating or summing the diffraction formulae for the fields of the elementary dipoles whose combination is equivalent to the actual aerial. The properties of antennae in free space are discussed first, taking the case of a vertical rectangular antenna. The starting expression for E and H is quoted from L.A. Vaynshteyn (Ref. 1: Elektromagnitnyye volny (Electromagnetic Waves), Izd. Sovetskoye radio, 1957). An expression is derived giving the magnetic moment surface density in terms of the radiation intensity and the directivity coefficient (defined as ratio of radiation intensity in the principal direction to intensity for isotropic radiation). Analysis for the horizontal diagram in the presence of the curved earth starts with an expression for the dipole field quoted from V.A. Fok (Ref. 2: Izv. AN SSSR, Ser. fiz., 1950, 14, 1, 70) and then introduces Airy's function. It is concluded that the directional properties in the horizontal plane are not modified by diffraction round the earth. The height of the antenna above the earth's surface is assu-

med to be at least several wavelengths, which is justified for [illegible]s.w. The problem of the vertical diagram is more complex, and involves an attenuation function which cannot be integrated in its general form, though it can be dealt with numerically, using available tables (Ref. 4: P.A. Azrilyant, M.G. Belina, Chislennyye rezul'taty teorii difraktsii radiovoli vokrug zemnoy poverkhnosti (Numerical Results of Theory of Diffraction of Radio [illegible] Round the Earth's Surface) Izd. Sovetskoe radio, 1957). A correction factor is thus derived involving the height of the antenna and expressing the effect of the diffraction due to the form of the earth. It is pointed out that in the diffraction zone the ratio of the fields radiated by a dipole and an actual antenna is not, as in free space, determined by the height of the receiving antenna. The numerical results are set out in a table showing values of the (real and imaginary parts of the) integral. They have been confirmed by check calculations made by G.B. Linkovskiy [Abstractor's note: No reference given] using Simpson's formula [Abstractor's note: No reference given]. Calculations made using the tabulated values indicate that over the range of reduced antenna height from 0 to 4.5

Card 3/5

and over the range of reduced antenna vertical dimension 0 to 1, the correction factor is not very different from unity, and except in the case of large, high antennae the vertical diagram can be calculated with sufficient accuracy in practice by multiplying the diffraction formula of a dipole by the directivity coefficient of the antenna as has been done in the past. A method of integrating the height factor, in the case of comparatively low antennae, is indicated, but is more cumbersome than the direct numerical integration. In the case of very high antennae the correction factor can be derived by an asymptotic representation of the Airy function. The expression derived indicates that the intensity of the diffraction field is determined by the fraction of the field which is radiated in the direction of the horizon. From reciprocity considerations, the results obtained here for a transmitting antenna are equally applicable to receiving antennae. There are 1 table, and 13 references: 11 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: G. N. Watson, Proc. Roy. Soc. A, 1918; and B.H. Bremmer, Terrestrial

Calculating the directional ... 24881 S/109/61/006/008/001/018
D207/D304

radio waves, theory of propagation. Elsevier Publish. Company, N.Y. Amsterdam, London, Brussels. 1949.

SUBMITTED: August 23, 1960

Card 5/5

VVEDENSKIY, B.A., glav. red.; VUL, B.M., red. toma

[Encyclopedic physics dictionary] Fizicheskii entsiklopedicheskii slovar'. Glav. red. B.A.Vvedenskii i dr. Nauchn. sovet izd-va; A.P.Aleksandrov i dr. Moskva, Gos.nauchn.izd-vo "Sovetskaia entsiklopediia." Vol.2. E - Litii. 1962. 608 p. (MIRA 15:10)

(Physics--Dictionaries)

ACC NR: AM5027749 Monograph UR/

Armand, N. A.; Vvedenskiy, B. A.; Gusyatinskiy, I. A.; Igoshev, I.P.; Kazakov, L. YA.; Kalinin, A. I.; Nazarova, Ye. G.; Nemirovskiy, A. S.; Prosin, A.V.; Ryskin, E. YA.; Sokolov, A. V.; Tarasov, V.A.; Tashkov, P. S.; Tikhomirov, YU. A.; Troitskiy, V. N. Fedorova, L. V.; Chernyy, F. B.; Shabel'nikov, A. V.; Shirey, R. A.; Shiffrin, YA. S.; Shur, A. A.;;YAkovlev, O. I.; Kolosov, M. A.; Levshin, I. P.; Losakin, A. N.

Upper tropospheric propagation of ultrashort radio waves (Dal'neye troposfernoye rasprostraneniye ul'trakorotkikh radiovoln) Moscow, Izd-vo "Sovetskoye radio", 1965. 414 p. illus., biblio. 4000 copies printed.

TOPIC TAGS: radio wave propagation, tropospheric radio wave, radio communication, space communication, tropospheric scatter communication, signal processing, signal distortion, field theory

PURPOSE AND COVERAGE: This monograph is intended for specialists working in the field of radiowave propagation, designers of long-distance radio communication systems, and teachers and students of the advanced courses in schools of higher technical education. The monograph contains, for the most part, heretofore unpublished results of Soviet experimental and theoretical investigations in the field of long-distance tropospheric ultrashortwave propagation.

Card 1/10 UDC: 621.371.24

ACC NR: AM5027749

Problems of investigating the troposphere by means of refractometers, the mean level of signals, meteorological conditions and topography, fluctuation of arrival angles and distortions of antenna-directivity patterns, losses in antenna gain, and quick and slow fadings of signal levels are discussed. The statistical characteristics of the signals at diversity reception in time, space, frequency and angle as well as the distortion of signals in the communication systems are also investigated. The long-distance propagat- theory is analyzed, and the engineering method of calculating field intensity at long-distance tropospheric propagation is given. At present, there is no theory of Long-Distance Tropospheric Propagation which can be applied effectively enough in practice. Thus, in the investigation of that propagation, considerable attention has to be paid to experiments. The special characteristics of geographical conditions of the territory involved should be taken into consideration during the analysis of experimental data and in their practical application because the conditions of propagation in arctic and tropical climates differ from those existing over seas and continents. A considerable part of the monograph deals with the investigations of long-distance tropospheric propagation carried out over dry land routes, 800 km long, in the central part of the USSR under the general supervision of B. A. Vvedenskiy and A. G. Arenberg (up to 1957). V. I. Siforov investigated problems con-

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ACC NR: AM5027749

nected with distortions and fluctuations of signals. References follow each chapter.

TABLE OF CONTENTS:

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ACC NR: AM5027749

3. Specialized photoelectric input device -- 401
4. Schematics of generalized statistical processing of experimental data -- 404

Bibliography -- 410

SUB CODE: 17/ SUBM DATE: 24Jun65/ ORIG REF: 071/ OTH REF: 0103/

Card 10/10

L 44420-66 EWT(d)/EWT(l)/EEC(k)-2 GW/WS-2

ACC NR: AP6016331 (N) SOURCE CODE: UR/0026/65/000/012/0016/0024

AUTHOR: Vvedenskiy, B. A.; Kolosov, M. A. 72 B

ORG: Radiotechnology and Electronics Institute, AN SSSR, Moscow (Institut radiotekhniki i elektroniki AN SSSR)

TITLE: UHF wave propagation in the troposphere

SOURCE: Priroda, no. 12, 1965, 16-24

TOPIC TAGS: troposphere, UHF wave propagation, wave refraction, wave diffraction, waveguide, millimeter wave, submillimeter wave, tropospheric radio wave, laser, wave scattering

ABSTRACT: The authors review experimental and theoretical developments in the history of the study of UHF wave propagation in the troposphere, dividing the study into six periods. The first period covers the twenties and deals with primitive equipment and short-wave transmission, the second, extending through the thirties, with UHF waves, which were found to penetrate beyond the horizon line, leading to the development of the theories of refraction and diffraction. The

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L 44420-66

ACC NR: AP6016331

third period, covering the forties, is characterized by detailed elucidation of UHF wave propagation which eventually led to the discovery of tropospheric waveguides and long-range tropospheric propagation. This was the beginning of the fourth period in the study of UHF wave propagation. The authors examine two of the theories on UHF mechanisms proposed at that time: incoherent and coherent scattering. They consider that a combination of the two is needed. The fifth period overlaps the fourth, as it goes back to prewar years. It is the period of the discovery of short, centimeter, millimeter, and submillimeter waves for which the troposphere is not a "transparent" medium. The authors consider the current sixth period as that of the development of research on UHF waves in the troposphere; it is closely related to the rapid development of laser technology. Orig. art. has: 2 figures. [GC]

SUB CODE: 04, 20, 09/ SUBM DATE: none/

Card 2/2

RUDICH, K. N.; ANIKIN, I. N.; VVEDENSKIY, B. N.

Inclusions in artificial fluorophlogopite. Zap. Vses. min. ob-va 91 no.4:477-482 '62. (MIRA 15:10)

(Fluorophlogopite crystals)

VVEDENSKIY, Dmitriy Nikolayevich

Academic degree of Doctor of Philological Sciences, based on his defense, 30 June 1955, in the Council of Moscow State Pedagogical Inst imeni Lenin, of his dissertation entitled: "The languages and style of the scientific-historical prose of Pushkin."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 222, 12 Nov 55, Byulleten' MVO SSSR, No. 19, Oct 56, Moscow, pp. 13-24, Uncl. JPRS/NY-536

Vvedenskiy, F.V.

VVEDENSKIY, F.V.

Raising New Hampshire hens on the farmer's personal plot. Ptitsevodstvo 8 no.3:40-41 Mr '58. (MIRA 11:2)

1. Chlen Moskovskogo tovarishchestva "Krolikoptitsa."
(Poultry)

SOURCE: IVUZ. Matemat ka, no. 6, '64, 59-66

TOPIC TAGS: stress tensor, tensor analysis, elasticity theory, curvilinear

ABSTRACT: A generalized solution [illegible] in arbitrary curvilinear

$$\sigma^{ij} = 0 \qquad (1)$$

[illegible] of elasticity and plasticity [illegible] in arbitrary curvilinear

$$N_{xy} = \Gamma_{xx}[0]\Gamma_{xx} + \Gamma_{xx}[0]\Gamma_{xx} = \Gamma_{xx}\Gamma_{xx} - \Gamma_{xx}\Gamma_{xx}\Gamma_{xx}, \quad (3)$$

results show that, out of 19 possible forms, the solution containing stress functions [illegible] is physically meaningless. The same thing can be said

geometry, the stress functions are [illegible]

L 22581-65

ACCESSION NR: AP5002216

ASSOCIATION: none

SUBMITTED: 14Jun63 ENCL: 00 SUB CODE: MA, NS

NO REF SOV: 005 OTHER: 000

Card 3/3

BUTLER, S.A., inzh.; VVEDENSKIY, I.I., inzh.

Technical means and methods used in aerial surveys.
Transp. stroi. 13 no.2:40-43 F '63. (MIRA 16:3)
(Aerial photogrammetry)

1. VVEDENSKIY, I. N.

2. USSR 600

4. Psychiatrists

7. V. P. Serbskii and the role he played in psychiatry, Zhur. nevr. i psikh. 53, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

VVEDENSKIY, I.N., professor

Ivan Nikolaevich Vvedenskii; on his 80th birthday. Zhur.nevr.i psikh. 55 no.3:236-237 '55. (MLRA 8:7)
(VVEDENSKII, IVAN NIKOLAEVICH, 1875-1960)

SLUTSKIY, S.S., kand.ekonom.nauk; VVEDENSKIY, K.A., inzh.

Methods of distributing harbor-pier expenditures. Rech.transp. 18 no.11:5-7 N 59. (MIRA 13:4)
(Cargo handling--Costs)

VVEDENSKIY, K.K.

Acute appendicitis and pregnancy. Akush. gin. no. 1:68-71 Jan-Fel 1953. (CLML 24:2)

1. Professor. 2. Of the Institute of Obstetrics and Gynecology (Director -- Prof. A. P. Nikolayev), Academy of Medical Sciences USSR.

VVEDENSKIY, K. K., Prof.

Appendicitis

Acute appendicitis and pregnancy. Akush. i gin. No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

VVEDENSKIY, K. K., Prof.

Pregnancy, Complications of

Acute appendicitis and pregnancy. Akush. i gin. No. 1, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

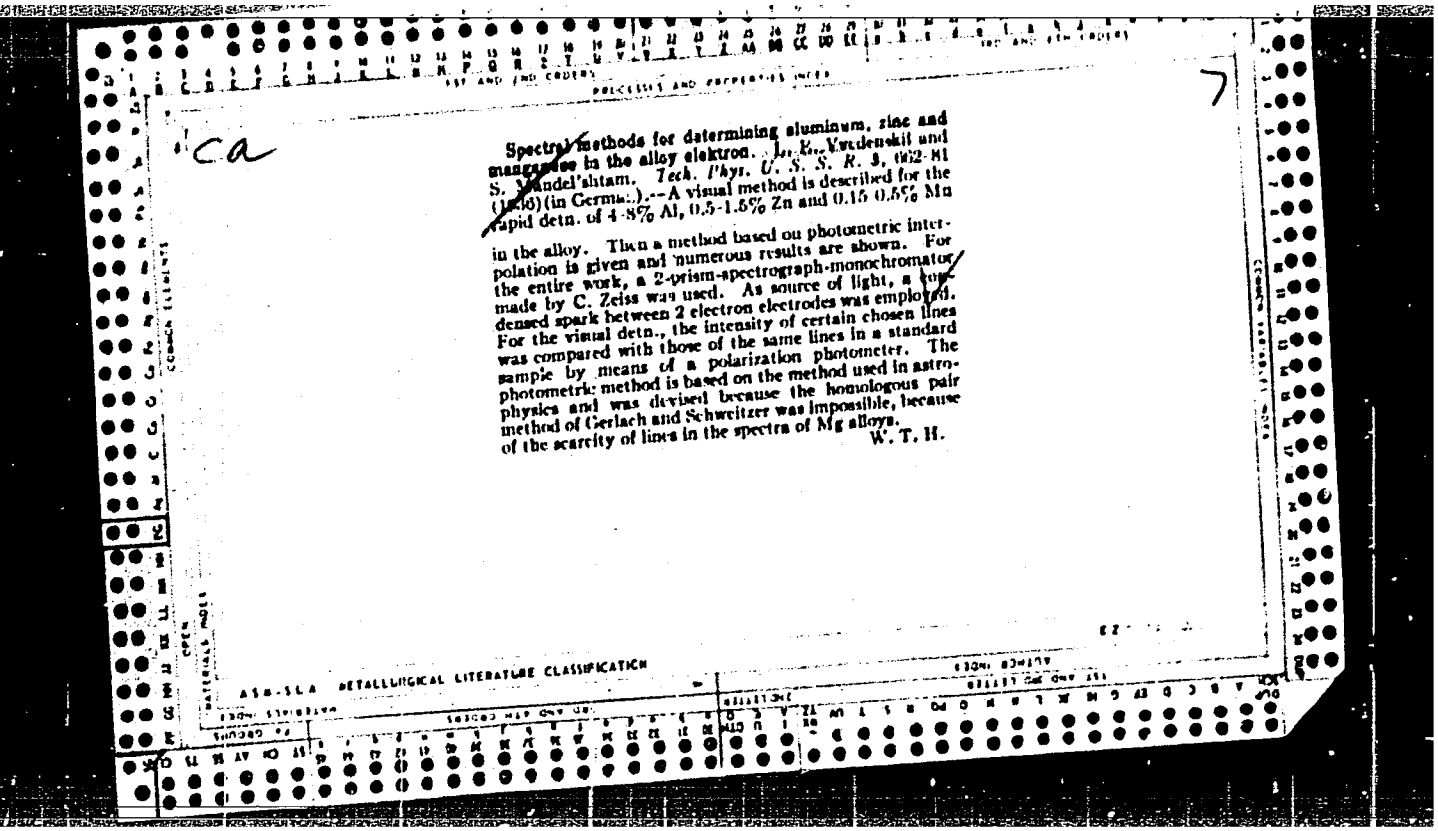
VOSKRESENSKIY, A.A., inzh.; VVEDENSKIY, K.S., inzh.

Testing differential protective gear having saturating transformers. Elek.sta. 29 no.3:76-78 Mr '58. (MIRA 11:5)
(Electric relays) (Electric transformers)

KSENDZOVSKIY, V.R.; VVEDENSKIY, L.G.

Stabilizing raw materials feed into rotary grog-burning kilns.
Ogneupory 27 no.5:212-218 '62. (MIRA 15:7)

1. TSentral'noye proyektno-konstruktorskoye byuro "Glavproyektmontazh-avtomatika" (for Ksendzovskiy). 2. Zaporozhskiy ogneupornyy zavod (for Vvedenskiy).
(Kilns, Rotary) (Feed mechanisms)



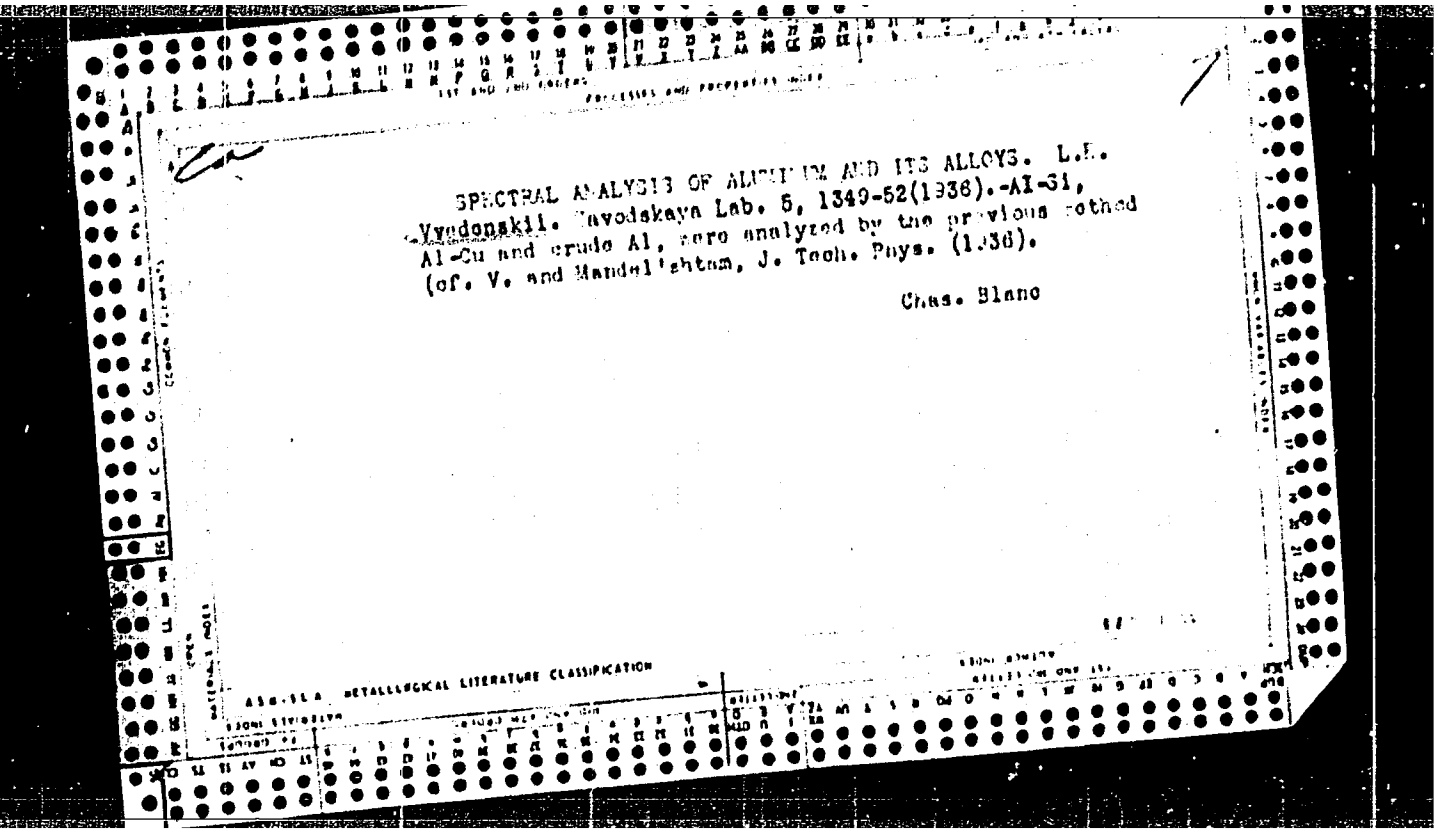
Ca

7

Spectral methods for determining aluminum, zinc and manganese in the alloy elektron. L. K. Vrzdenskii and S. Mandel'shtam. *Tech. Phys. U. S. S. R.* 3, 682-91 (1936) (in German).--A visual method is described for the rapid detn. of 4-8% Al, 0.5-1.5% Zn and 0.15-0.5% Mn in the alloy. Then a method based on photometric interpolation is given and numerous results are shown. For the entire work, a 2-prism-spectrograph-monochromator made by C. Zeiss was used. As source of light, a condensed spark between 2 electron electrodes was employed. For the visual detn., the intensity of certain chosen lines was compared with those of the same lines in a standard sample by means of a polarization photometer. The photometric method is based on the method used in astrophysics and was devised because the homologous pair method of Gerlach and Schweitzer was impossible, because of the scarcity of lines in the spectra of Mg alloys.

W. T. H.

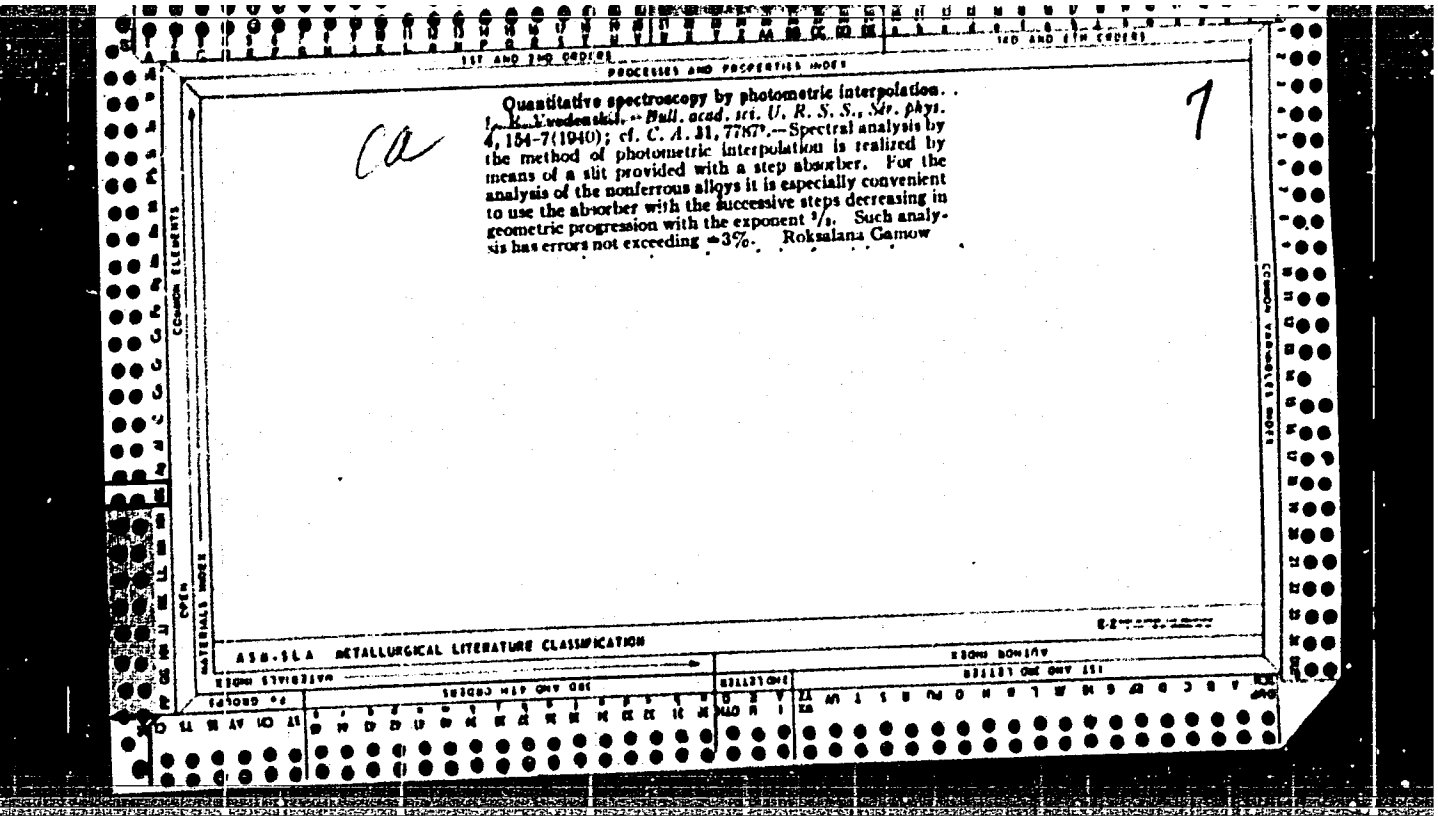
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



SPECTRAL ANALYSIS OF ALUMINUM AND ITS ALLOYS. L.E. Vvedenskii. Zavodskaya Lab. 5, 1349-52(1936).-Al-Si, Al-Cu and crude Al, were analyzed by the previous method (cf. V. and Mandel'shtam, J. Tech. Phys. (1936).

Chas. Blanc

A53-51A METALLURGICAL LITERATURE CLASSIFICATION



Quantitative spectroscopy by photometric interpolation. . . Vredenskii. -- *Bull. acad. sci. U. R. S. S., Sér. phys.* 4, 184-7(1940); cf. *C. A.* 31, 7787.—Spectral analysis by the method of photometric interpolation is realized by means of a slit provided with a step absorber. For the analysis of the nonferrous alloys it is especially convenient to use the absorber with the successive steps decreasing in geometric progression with the exponent $^2/_3$. Such analysis has errors not exceeding ±3%. Roksalana Gamow

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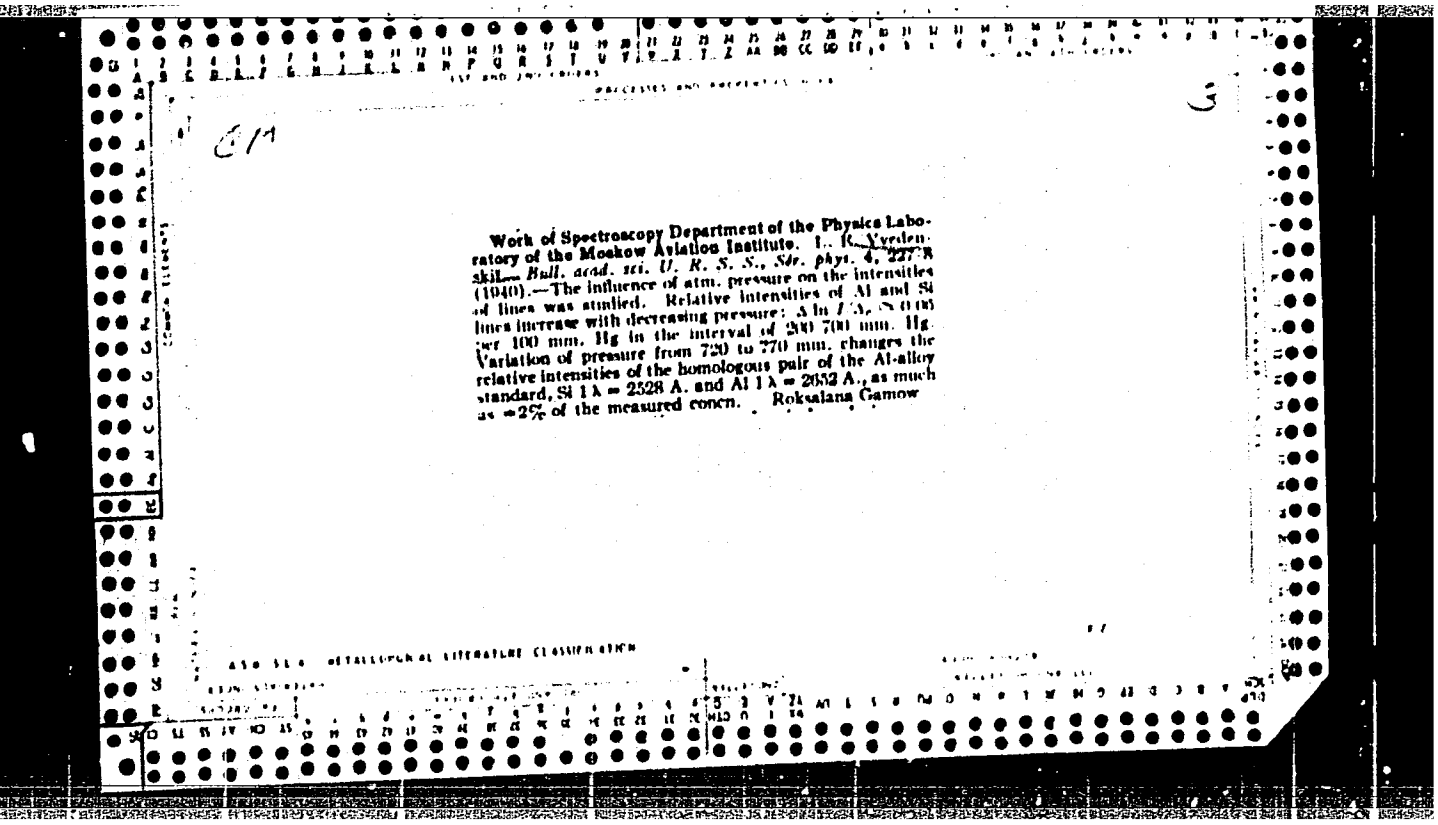
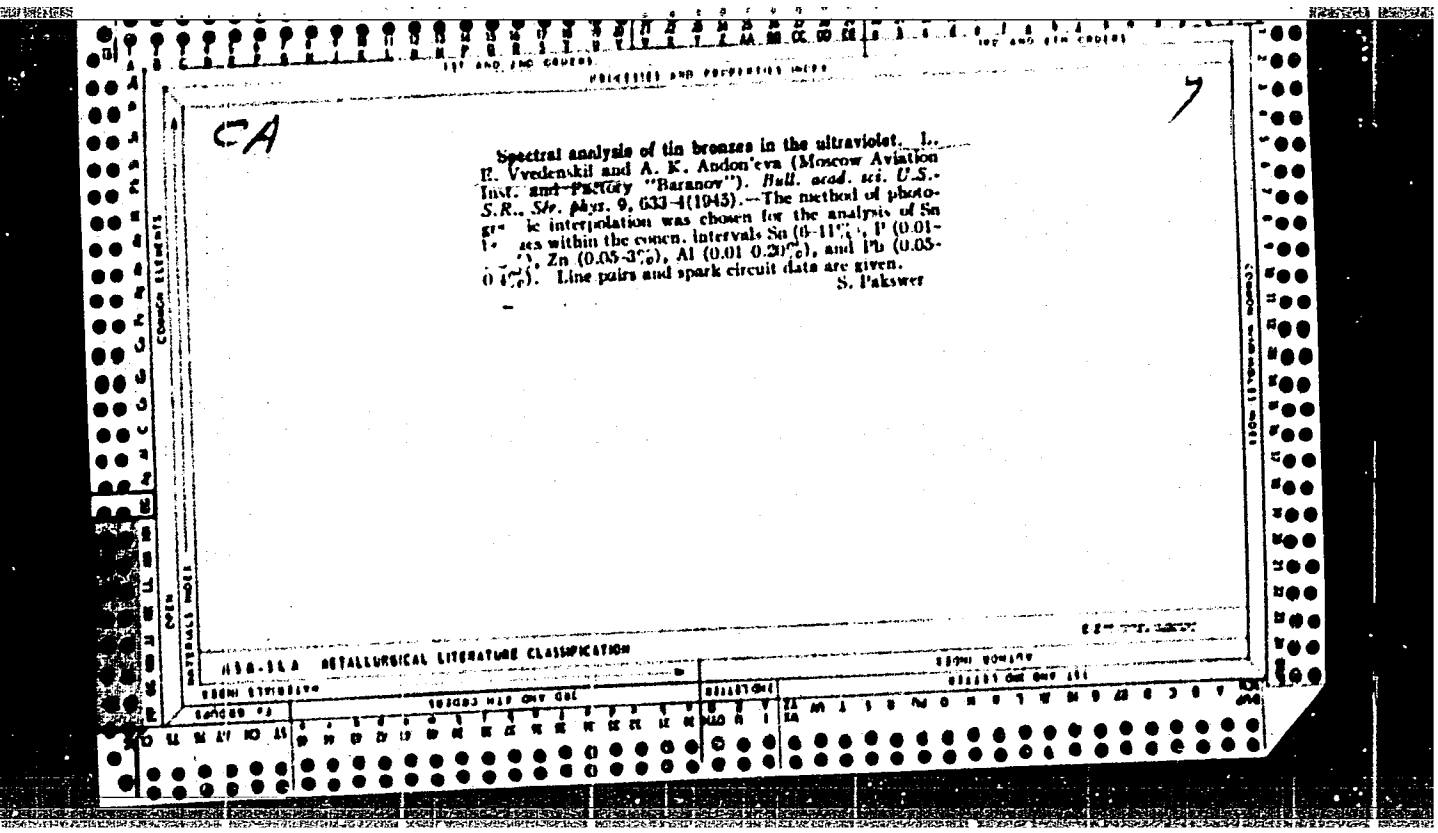
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



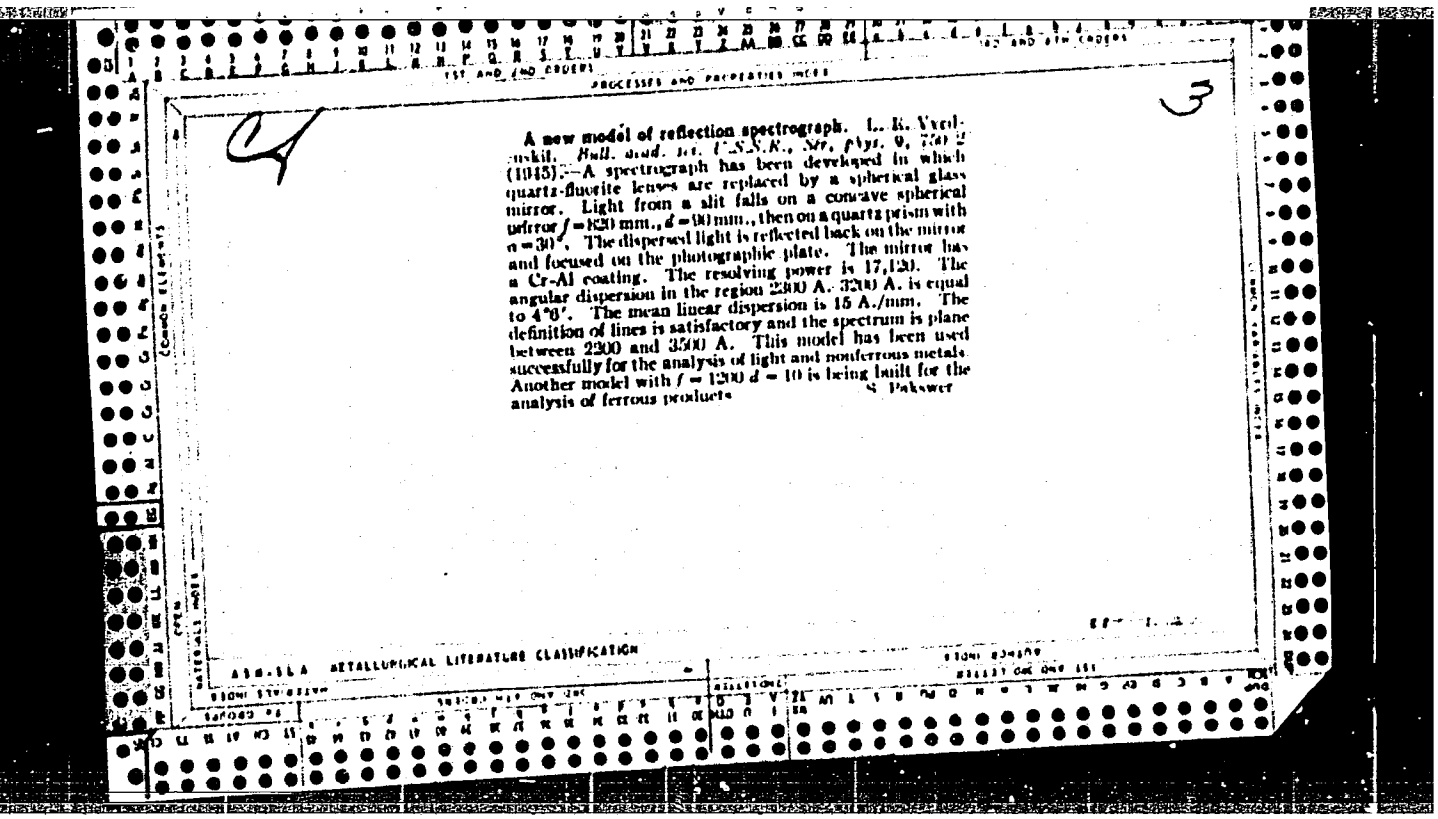
Work of Spectroscopy Department of the Physics Laboratory of the Moskow Aviation Institute. L. R. Yerdenskil. *Bull. acad. sci. U. R. S. S., Sér. phys.* 4, 227-8 (1940).—The influence of atm. pressure on the intensities of lines was studied. Relative intensities of Al and Si lines increase with decreasing pressure; Si in Al-Si (13% Si) over 100 mm. Hg in the interval of 380-700 mm. Hg. Variation of pressure from 720 to 770 mm. changes the relative intensities of the homologous pair of the Al-alloy standard, Si 1 λ = 2528 A. and Al 1 λ = 2652 A., as much as ±2% of the measured concn. Roksalana Gamow



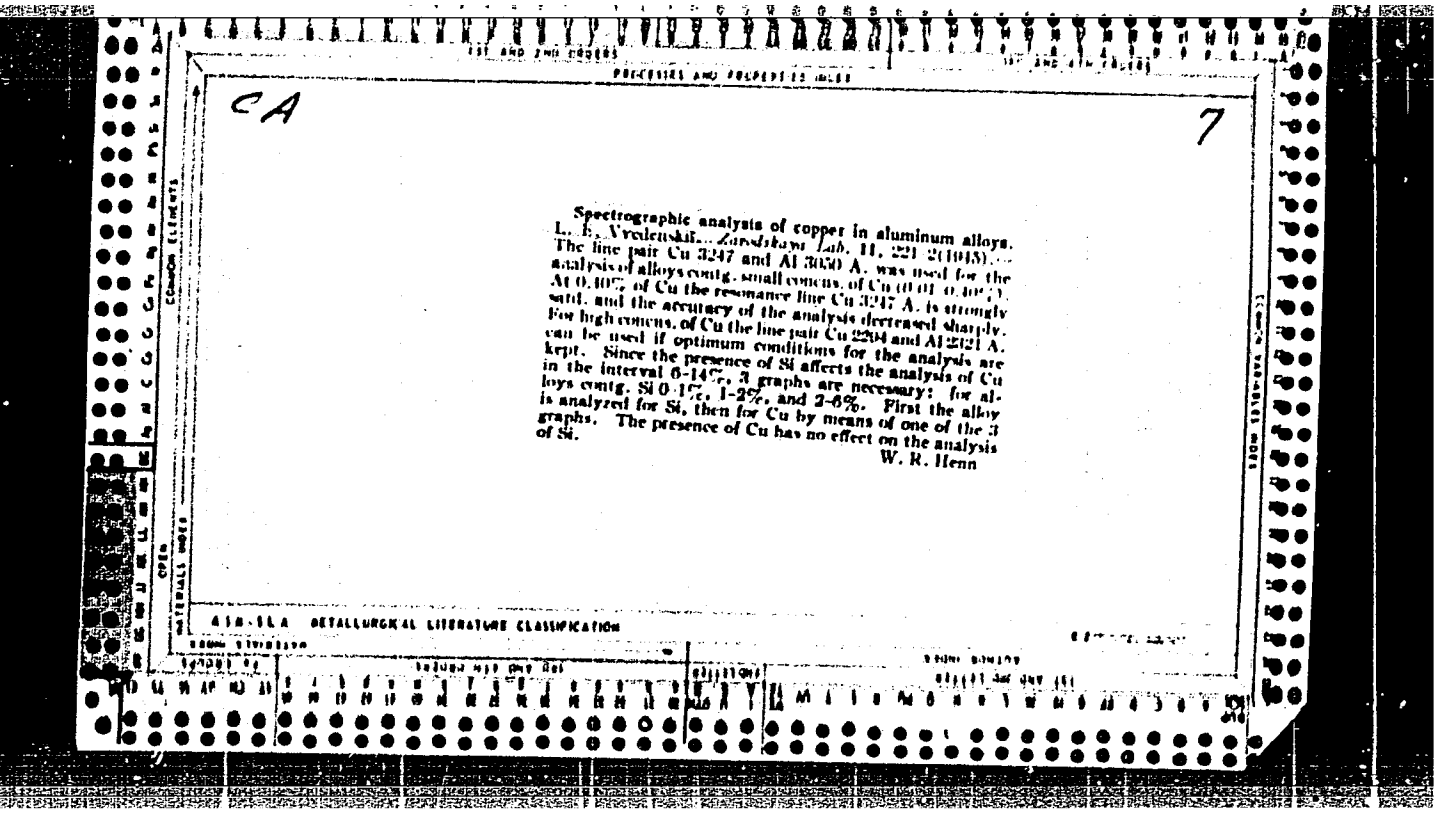
CA

7

Spectral analysis of tin bronzes in the ultraviolet. I.. P. Vvedenskii and A. K. Andon'eva (Moscow Aviation Inst. and Factory "Baranov"). *Bull. acad. sci. U.S.S.R., Sér. phys.* 9, 633–4(1945).—The method of photographic interpolation was chosen for the analysis of Sn bronzes within the concn. intervals Sn (0–11%), P (0.01–1%), Zn (0.05–3%), Al (0.01–0.20%), and Pb (0.05–0.4%). Line pairs and spark circuit data are given.
S. Pakswer



A new model of reflection spectrograph. L. R. Vyel-
:nskil. *Bull. acad. sci. U.S.S.R., Sér. phys.* 9, 770-2
(1945).—A spectrograph has been developed in which
quartz-fluorite lenses are replaced by a spherical glass
mirror. Light from a slit falls on a concave spherical
mirror $f = 820$ mm., $d = 80$ mm., then on a quartz prism with
$\alpha = 30°$. The dispersed light is reflected back on the mirror
and focused on the photographic plate. The mirror has
a Cr-Al coating. The resolving power is 17,120. The
angular dispersion in the region 2300 A.-3300 A. is equal
to 4°6'. The mean linear dispersion is 15 A./mm. The
definition of lines is satisfactory and the spectrum is plane
between 2300 and 3500 A. This model has been used
successfully for the analysis of light and nonferrous metals.
Another model with $f = 1200$ $d = 10$ is being built for the
analysis of ferrous products. S. Pakswer

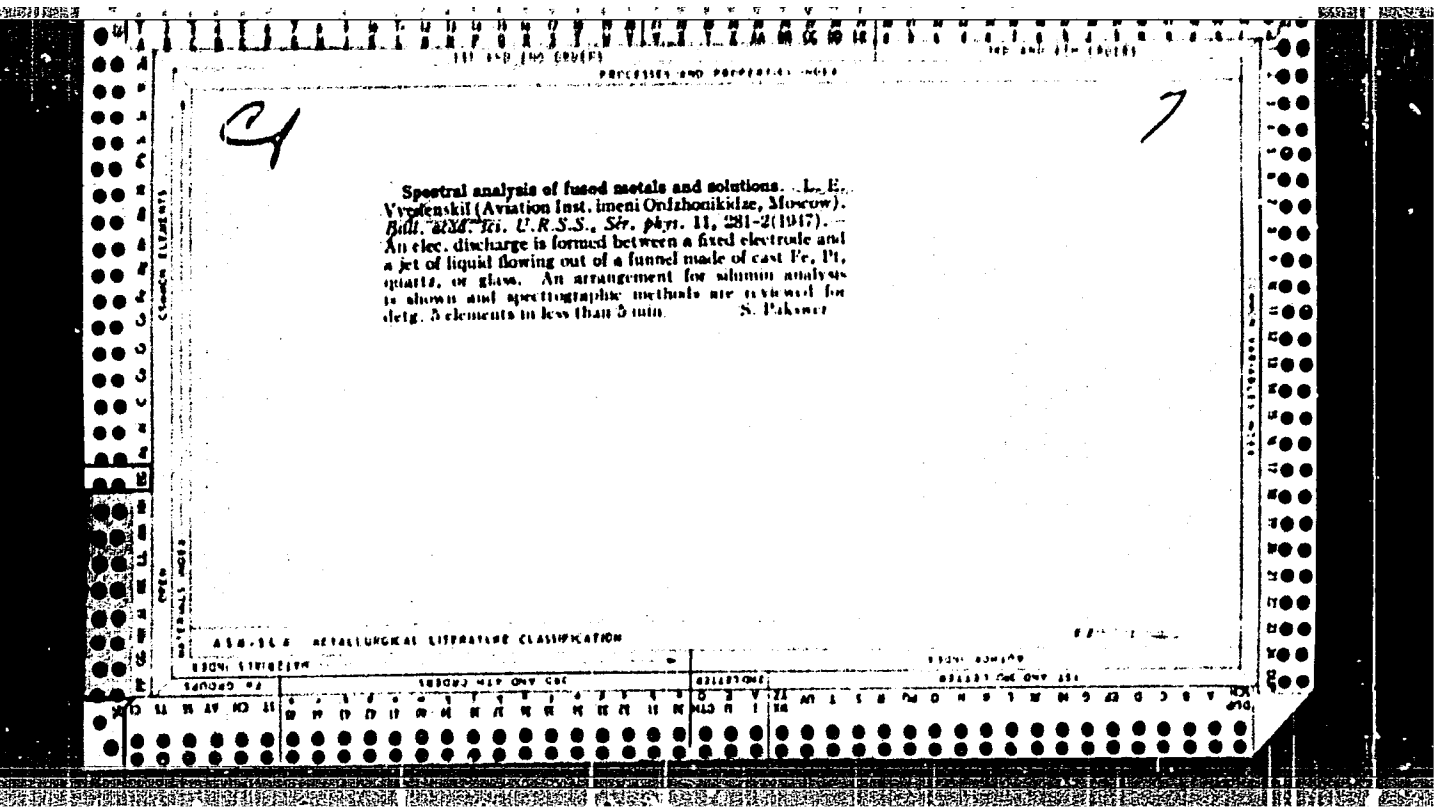


CA

7

Spectrographic analysis of copper in aluminum alloys. L. F. Vreleuskii. *Zavodskaya Lab.* 11, 221-2(1945).—The line pair Cu 3247 and Al 3050 A. was used for the analysis of alloys contg. small concns. of Cu (0.01-0.10%). At 0.10% of Cu the resonance line Cu 3247 A. is strongly satd. and the accuracy of the analysis decreased sharply. For high concns. of Cu the line pair Cu 2330 and Al 2321 A. can be used if optimum conditions for the analysis are kept. Since the presence of Si affects the analysis of Cu in the interval 6-14%, 3 graphs are necessary: for alloys contg. Si 0.1%, 1-2%, and 2-6%. First the alloy is analyzed for Si, then for Cu by means of one of the 3 graphs. The presence of Cu has no effect on the analysis of Si.

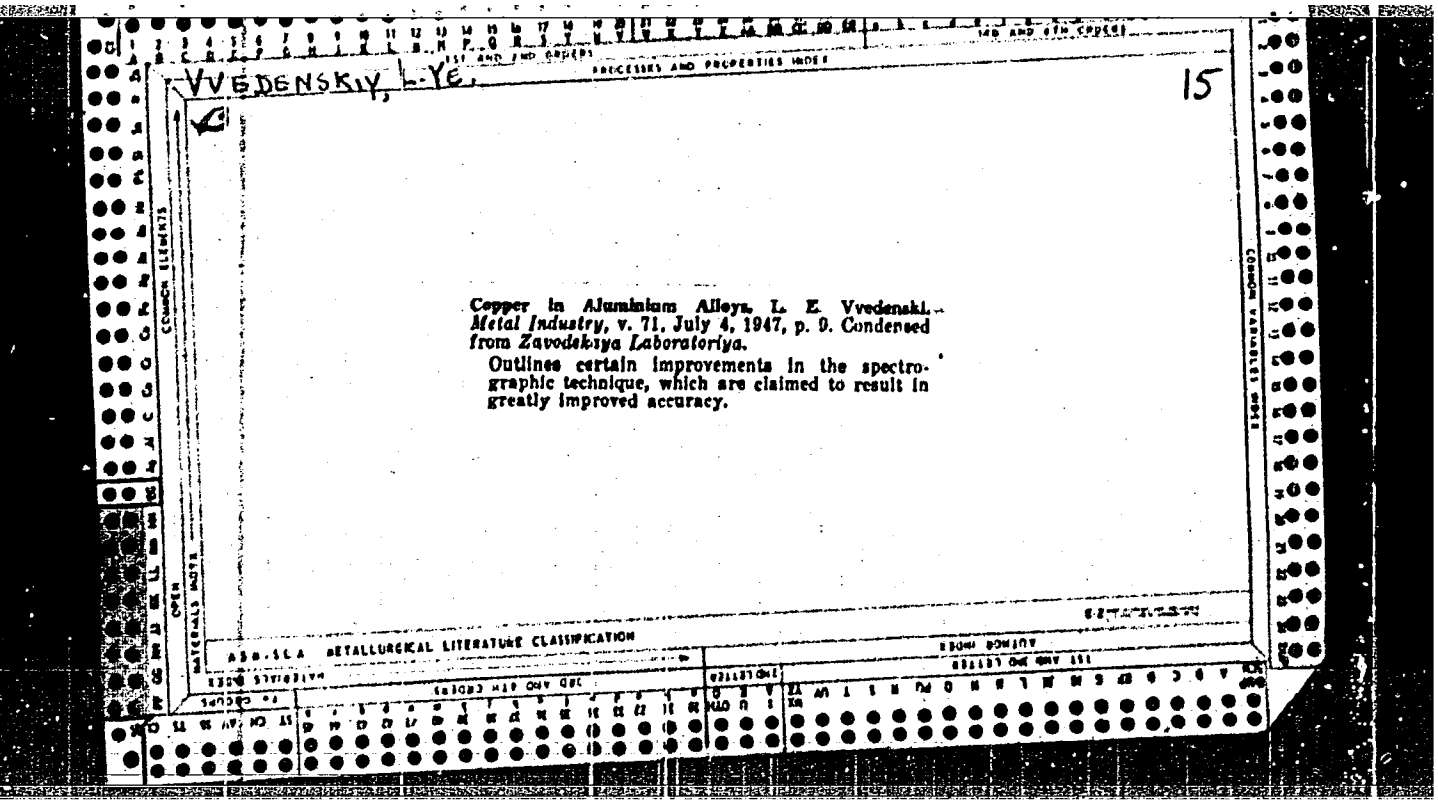
W. R. Henn



4 7

Spectral analysis of fused metals and solutions. L. E. Vvedenskii (Aviation Inst. imeni Ordzhonikidze, Moscow). *Bull. Acad. Sci. U.R.S.S., Sér. phys.* 11, 281-2(1947). — An elec. discharge is formed between a fixed electrode and a jet of liquid flowing out of a funnel made of cast Fe, Pt, quartz, or glass. An arrangement for alumin analysis is shown and spectrographic methods are reviewed for detg. 5 elements in less than 5 min. S. Pakswer

METALLURGICAL LITERATURE CLASSIFICATION



VVEDENSKIY, L-YE.

15

Copper in Aluminium Alloys, L. E. Vvedenskii. *Metal Industry*, v. 71, July 4, 1947, p. 9. Condensed from *Zavodskiya Laboratoriya*.

Outlines certain improvements in the spectrographic technique, which are claimed to result in greatly improved accuracy.

VVEDENSKIY, L. YE.

VVEDENSKIY, L. YE. -- "Method of Photometric Interpolation and Its Application for Spectrum Analysis of Aircraft Alloys," Sub 22 Dec 52, Moscow Order of Lenin Aviation Inst imeni Sergo Ordzhonikidze. (Dissertation for the Degree of Candidate in Technical Sciences.)

SO: VECHERNAYA MOSKVA, January-December 1952

VVEDENSKIY, L.Ye.

USSR/Physics - Spectral analysis

Card 1/1 Pub. 43 - 52/97

Authors : Vvedenskiy, L. E.

Title : Effect of atmospheric pressure on the spectral line intensity during spark discharge

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 275, Mar-Apr 1954

Abstract : An abridged report is presented on the study of the effect of atmospheric pressure on the intensity of spectral lines during spark discharge. In order to investigate the spark discharge at different atmospheric pressures the author constructed a special balloon with a quartz window. At pressures below 500 mm a sharp drop in relative spectral line intensity was observed which indicated a reduction in the spark temperature. A reduction in pressure was found to increase the determination sensitivity. A natural change in atmospheric pressure by ± 30 mm has shown a positive effect on the spectral analysis results.

Institution : The Sergo Ordzhonikidze Aviation Institute, Moscow

Submitted : .....

VVEDENSKIY, L.Ye.; SHEKHOBALOVA, V.I.; NOVIKOVA, A.S.

Mechanism of the effect of "third" elements on the results of analyses of aluminum alloys. Izv. AN SSSR. Ser. fiz. 26 no.7: 896-899 Jl '62. (MIRA 15:8)

(Aluminum alloys--Spectra)

S/048/62/026/007/014/030
B104/B138

AUTHORS: Vvedenskiy, L. Ye., Shekhobalova, V. I., and Novikova, A. S.

TITLE: The mechanism of the influence of "third" elements on the results of analysis of aluminum alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 7, 1962, 896-899

TEXT: As shown in an earlier paper (L. Ye. Vvedenskiy, Izv. AN SSSR, Ser. fiz., 4, 227 (1940)), the influence of Si on determination of Cu in Al-Cu alloys subjected to spark excitations is shown by a sudden change in intensity at ~2 weight %. It was then assumed that a structural change in the alloy altered the conditions of entry into the spark. To test this, the influence of a third element was studied in dependence on its concentration. The influence of the Si content on $\log(I_{Cu}/I_{Al})$ depends in a complex manner on the ratio between N_{Si}, the number of Si atoms, and N_{Cu}, the number of Cu atoms. I_{Cu} and I_{Al} are the line intensities. This function has very stable extremes. At $N_{Si}/N_{Cu} = 1/5$ the influence

Card 1/2

The mechanism of the influence of ...

of Si is shown by a sudden change, which produces a low on the curve $\delta\log(I_{Cu}/I_{Al})$. The compound Cu_5Si corresponds to this ratio. At $N_{Si}/N_{Cu} \approx 1/4$, to which the alloy $Cu_{31}Si_8$ corresponds, the curve $\delta\log(I_{Cu}/I_{Al})$ shows a peak. $\delta\log(I_{Mg}/I_{Al})$ as a function of N_{Zn}/N_{Mg} has a minimum at $N_{Zn}/N_{Mg} \approx 0.01$. As N_{Zn}/N_{Mg} approaches 1/2, the influence of Zn is vanishing. There are 3 figures.

Card 2/2

VVEDENSKIY, L.YE.

PHASE I BOOK EXPLOITATION SOV/4312
SOV/10-S-41

Moscow. Aviatsionnyy tekhnologicheskiy institut

Nekotoryye voprosy mekhaniki i fiziki (Problems in Mechanics and Physics) Moscow, Oborongiz, 1959. 84 p. (Series: Its: Trudy, vyp. 41) Errata slip inserted. 3,100 copies printed.

Sponsoring Agency: RSFSR. Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya.

Eds.: V.T. Dubasov and R.G. Gevorkyan; Ed. of Publishing House: V.M. Tokar'; Tech. Ed.: N.A. Pukhlikova.

PURPOSE: These studies are intended for teachers of higher educational institutions, for people working on applications of spectral analysis in industry, and for scientific workers who use voltage stabilizers.

COVERAGE: This book contains eight theoretical and experimental studies dealing with specific problems of physics and mechanics. The subjects considered in these studies are: principle of relativity, theory of physical measurements, integrability of equations of motion, accuracy of voltage stabilizers of alternating currents, roentgenoscopy and spectral analysis of metals and alloys.

Card 1/4

(1)

VVEDENSKIY, L. Ye.

Reflecting spectrograph-monochromator for visible and ultraviolet regions of the spectrum, constructed on a two-mirror system. Trudy MATI no.41:63-67 '59. (MIRA 13:6)
(Spectrograph) (Monochromators)

VVEDENSKIY, L.Ye.; SHEKHOBALOVA, V.I.

A.c. arc as a source of light for the spectrum analysis of smelted metals. Trudy MATI no.41:68-75 '59. (MIRA 13:6)
(Electric arc) (Metals--Spectra)

VVEDENSKIY, L. Ye.; SHEKHOBALOVA, V.I.

Condensed spark as a source of light for the spectum analysis of smelted metals.. Trudy MATI no.41:76-85 '59. (MIRA 13:6)
(Electric spark) (Metals--Spectra)

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TITLE: The Influence of "Third" Elements in the Spectral Analysis of Melted Metals With Condensed Spark

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ABSTRACT: In the introduction the disadvantages of a spectral analysis with solid test samples are first pointed out, and two ways are suggested for the purpose of avoiding these disadvantages. The first consists in using the sample in form of a solution, and the second in carrying out an analysis of the metal in melted state. The former method takes a long time. The latter was suggested by L. Ye. Vvedenskiy (Refs 1, 2); it was shown that, in the case of melted samples, the effect of spattering the spark (obyskrivaniye) and the influence of structure is avoided. The influence exercised by "third" elements is investigated in the present paper. In the measuring arrangement the ISP-22 spectrograph and the spark generator of the type IG-2 were used in the circuit according to Rayskiy, photometrization was carried out by the microphotometer of the type MF-2. The experiments were carried out on a number of standard alloys of duralumin, binary Al-Cu-alloys, and such additionally containing 6% Si, as well as on binary Al-Mg-alloys and

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such with an additional content of 5% Zn. The reproducibility in these experiments was found to be the same as in those carried out with solid test samples, and the effect of spark spattering (obyskrivaniye) was completely eliminated in Cu, Fe, and Si, and considerably reduced in Mg and Mn. At a temperature of 805°C the influence of silicon in the copper analysis in Al-Cu-alloys disappears. At a temperature of 770°C the influence of zinc vanishes in the analysis of magnesium in Al-Mg-alloys. Summarizingly it is said that the analysis of melted duralumin samples may be developed to a degree of exactitude which corresponds to that in the analyses of solid samples, that the influence of "third" elements may be avoided, and that the error caused by the liquid state of the test sample may be avoided by an improvement of photoelectric methods. There are 3 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy aviatsionnyy tekhnologicheskiy institut (Moscow Aviation-Technological Institute)

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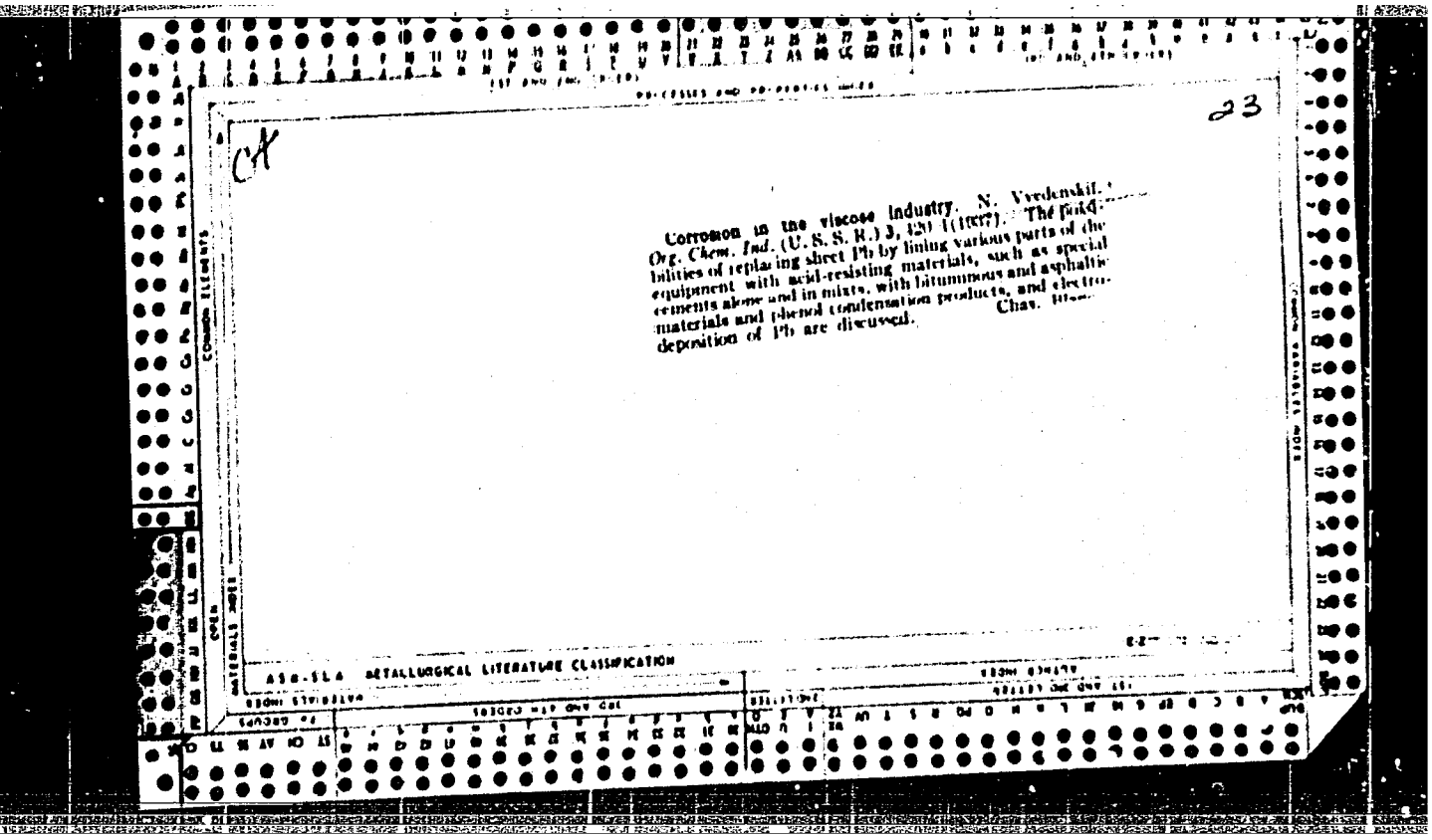

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