

Handwritten text in a stylized, possibly cursive or shorthand script, appearing to be a name or identifier. The characters are highly stylized and difficult to decipher. The text is written in black ink on a white background.

*Zotim, N.*

ZOTIN, N., master-kapitan

New developments in the work organization of the beaconage  
brigade. Rech. transp. 22 no.4:31-32 Ap '63. (MIRA 16:4)

(Beacons)

A SOURCE CODE: UR/0147/66/000/003/0098/0103

AUTHOR: Zotin, V. K.; Talantov, A. V.

ORG: none

TITLE: Dependence of the flame speed in the turbulent flow of a  
homogeneous mixture

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1966, 98-103

TOPIC TAGS: combustion, gas combustion, burning velocity, propulsion

ABSTRACT: A study was made of the turbulent burning velocities of  
premixed gasoline-air flames at flow velocities of 20-100 m/sec, air  
excess coefficients of 1-1.6, and initial temperatures of 423-823C.  
The method of direct flame cone measurement was used. The flame was  
stabilized with recessed flame holders and turbulence was generated with  
grids. The following relationships were plotted: the turbulent burning  
velocity vs air-excess coefficient, the combustion temperature to  
initial temperature ratio  $\theta$  vs turbulent burning velocity, the fluctuating  
velocity vs the turbulent burning velocity, and normal velocity vs  
turbulent burning velocity. The expression  $U_T = \theta^{0.8}$  was obtained for  
the turbulent burning velocity. All the experimental results could be  
correlated by the expression derived from the surface combustion model.

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UDC: 536.46

L 44565-66

ACC NR: AP6030257

$$U_T/U_N - \theta = f(W'/U_N),$$

where  $W'$  is the fluctuating velocity, and  $U_N$  is the normal burning  
velocity. Orig. art. has: 9 figures. [PV]

SUB CODE: 21/ SUBM DATE: 30Oct65/ ORIG REF: 006/ OTH REF: 001  
PRESS: 5079

TSERTELI, Boris Shalvovich; ZOTIN, Vladimir Samsonovich

[Everyday traumatism] [Bytovoi travmatizm. Tbilisi, Gos.  
izd-vo "Sabchota Sakartvelo,"] 1963. 72 p. [In Georgian]  
(MIRA 17:5)



ZOTIN, A.I.; ZOTINA, R.S.

Works of Iaroslav Ivanovich Grdina on the theoretical mechanics  
of living organisms. Biofizika 1 no.5:480-492 '56. (MLRA 9:10)  
(GRDINA, IAROSLAV IVANOVICH, 1871-1931)

207 APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R002065510001-1  
CIA-RDP86-00513R002065510001-1"

ZOTINA, R.S.; ZOTIN, A.I. (Moskva).

Mathematical theories of the movement of living organisms. Usp.  
sov. biol. 44 no.3:285-299 N-D '57. (MIRA 11:1)  
(ANIMAL MECHANICS) (BIOMATHEMATICS)

ZOTINA, R.S.; KIREYEVA, A.Ya.; FABRIKANT, L.D.; STAVSKIY, A.T., red.;  
KAPRALOVA, A.A., tekhn. red.

[Collection of problems in mathematical statistics and  
probability theory] Sbornik zadach po matematicheskoi statistike  
i teorii veroiatnostei. Moskva, Gosstatizdat, 1962. 183 p.

(MIRA 16:2)

(Mathematical statistics) (Probabilities)

ACC NR: AF6021409

(N,A)

SOURCE CODE: UR/0387/66/000/006/0124/0108

AUTHOR: Zotkevich, I. A.

ORG: Siberian Scientific Research Institute of Geology, Geophysics, and Mineral Raw Material (Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki, i mineral'nogo syr'ya)

TITLE: Transformation of the coordinates of the vector of natural residual magnetization in paleomagnetic investigations

SOURCE: AN SSSR. Izvestiya. Fizika zemli, no. 6, 1966, 104-108

TOPIC TAGS: magnetization, paleontology, prospecting, coordinate system, geologic exploration, earth magnetism

ABSTRACT: In view of the fact that the interpretation of the results of paleomagnetic investigations is usually accompanied by the need for transforming the coordinates of the vector of natural residual magnetization of rocks, the author describes coordinate-transformation procedures that ensure a sufficient graphic accuracy when stereographic grids are used or for calculations with accuracy of  $0.1^\circ$ , which is the accuracy limit which can presently be attained in paleomagnetic work. The article gives graphic and analytic relations between the different coordinate frames and a nomogram for graphically obtaining the residual magnetization in the ancient system of coordinates for a folding or for a block of rocks in their contemporary position. A numerical example is given. Orig. art. has: 5 figures and 4 formulas.

SUB CODE: 08/ SUBM DATE: 14May65/ ORIG REF: 002

Card 1/1

UDC: 550.380.11

ZOTKEVICH, I.A.; UMANTSEV, D.F.

Measuring magnetic properties of rocks on an astatic magneto-  
meter. Trudy SNIIGGIMS no.10:74-77 '60. (MIRA 15:12)  
(Rocks--Magnetic properties) (Magnetometer)

ZANOWA, Maria; ZOTKIEWICZ, Regina

A few remarks on the germination of some geophytes. Wiadom botan  
6 no.3:266-268 '62.

1. Ogród Botaniczny Uniwersytetu Warszawskiego, Warszawa.

SMIRNOV, Aleksey Sergeevich; RADUGIN, Aleksey Aleksandrovich; ZOTKIN,  
A.P., otv.red.; LEVOCHKINA, L.I., tekhn.red.

[Efficient designing of molds and dies] Opyt skorostnogo  
proektirovaniia pressform i shtampov. Leningrad, Gos.soiuznoe  
izd-vo sudostroit.promyshl., 1958. 138 p. (MIRA 12:4)  
(Plastics)

ZOTKIN, A.P., meditsinskiy statistik

Medical statistics. Med. sestra 20 no.7:36-38 J1 '61. (MIRA 14:10)

1. Iz Gorodskoy bol'nitsy No.15, Kalinin.  
(MEDICAL STATISTICS)



ANGELEYKO, V.I. (Khar'kov); ZOTKIN, G.V. (Khar'kov); FIDORETS, V.M.  
(Khar'kov); ISKHAKOV, S.I. (Khar'kov); KRIVENKOV, K.V.  
(Khar'kov); RYBIN, A.S. (Khar'kov).

New grindstones. Put' 1 put. khoz. 8 no.11:26-27 '64  
(MIRA 18:2)

ZOTKIN, G.V., kand. tekhn. nauk, dotsent

Determining of stresses in the frog. Trudy KHIIT no.57:51-  
57 '62.

Conditions of the train movement over the siding of switches.  
58-69 (MIRA 16:11)

ZOTKIN, G.V. Cand Tech Sci (diss) "Deterioration and durability <sup>service life</sup>  
of cross-pieces. ~~with drawings~~ Len, 1957 18 pp, 21 cm. (Railway Railways USSR,  
Leningrad Order of Lenin Inst <sup>of Engineers of Railroad Transport</sup> ~~of Engineers of Railroad Transport~~ in Academician  
V.M. Obratsov) 125 copies  
(KL, 11-57, 98)

AUTHOR: Zotkin, I. SOV/29-58-12-15/23

TITLE: Advice for Amateurs to Make a Telescope (Sovety po izgotovleniyu lyubitel'skogo teleskopa)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 12, pp 22-23 (USSR)

ABSTRACT: In this article the author gives some advice to amateurs. A beginner should not start by making a reflector with a large mirror. The best way is to start with an object lens not more than 100 mm in diameter. Only with sufficient experience in grinding one should venture on larger object lenses. At first, 2 equal glass panes of perfect form have to be chosen. The glass should be pure, without bubbles that might get open in grinding. Thickness of the pane should be 1/8 - 1/10 of its diameter. For the grinding, a solid, sturdy table is necessary. A cask filled with sand (Fig 1) may be used as such table. Grinding is done by means of abrasive powder - emery or carborundum. One starts with the coarse powders gradually passing to the finer grades. The lengthy grinding process consists in pushing forward and backward the upper glass pane on the lower pane covered with wet abrasive, turning the pane around its axis and walking around the table. As a consequence of

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Advice for Amateurs to Make a Telescope

SOV/29-38-12-15/23

such grinding, the lower pane gets a convex spherical form and the upper one an accordingly concave form. After several hours of work, the future mirror has got a fine-ground spherical surface with a center deepening of about 1 mm. The focus of such a mirror is 1 - 1.5 m. During the grinding, the upper pane may not be lifted and the abrasive powder must not dry out. The glass thus ground is polished with crocus powder until it has regained its gloss. Then it is submitted to a control. Silver coating of the finished mirror is done by oneself or by a workshop. Fomin recommends to buy the lenses ready-made. Then the dimensions of the tube are calculated considering the focal distance of the object lens and of the lens. Special attention should be paid to the rack (kremal'yernaya) part, to the attachment of the diagonal mirror and to the discharge (razgruzochnyy) mechanism. These parts need an especially precise fitter's work. Figures 4, 5, and 6 show the assembly of telescopes. The stand must be particularly solid and sturdy. A photographic tripod is quite unsuited. A detailed instruction for making a telescope for amateurs can be found in the technical literature. Practical advice and help for the procurement of required material is given by the Vsesoyuznoye

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Advice for Amateurs to Make a Telescope

SOV/29-56-42-15/23

astronomo-geodezicheskoye obshchestvo (All-Union Astronomical-  
Geodetical Society), Moscow, K-9, letter box 1266. There are  
7 figures.

Card 3/3

RADCHENKO, V.G.; ARSENKIN, V.T.; ZOTKIN, I.A.

Electric slag remelting of tool steel scrap. Avtom. svar. 16  
no.6:63-65 Je '63. (MIRA 16:7)

1. Altayskiy politekhnicheskiy institut im. I.I. Polzunova.  
(Tool steel—Electrometallurgy)  
(Scrap metals—Electrometallurgy)

SOV/137-58-8-16472

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 34 (USSR)

AUTHORS: Zotkin, I.A., Kramarov, A.D.

TITLE: An Investigation of Causes of Friability of Ferrosilicon (Issledovaniye prichin rassypayemosti ferrosilitsiya)

PERIODICAL: Tr. Sibirsk. metallurg. in-ta, 1957, Nr 4, pp 208-214

ABSTRACT: Investigations were carried out in order to establish how the friability of Fe-Si preserved in air or water is affected by various contents of Si, Al, and P. It is established that alloys containing 55-65% Si exhibit greatest tendency toward friability; the Al affects this tendency only when the Si content is greater or smaller than indicated above; Al also increases the friability of alloys at reduced concentrations of P. In laboratory conditions, regardless of the content of Si and Al, specimens of alloys did not crumble when the P content amounted to less than 0.01%; shop specimens, however, did not crumble only if the P content was less than 0.03% and their friability increased with increasing P content. An attempt to preserve alloys with friable tendencies under water resulted in a considerable increase in the rate of their disintegration; however,

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SOV/137-58-8-16472

An Investigation of Causes of Friability of Ferrosilicon

alloys possessing no such tendencies in air did not disintegrate in water either. Shielding the alloys from air immediately after casting by means of H<sub>2</sub>, vacuum, or paraffin protected them from crumbling regardless of their Si and P content. Gases which evolved during the first stage of the interaction between the alloys and water were composed of 35-65% H<sub>2</sub> and 30-60% PH<sub>3</sub>, whereas the gases produced in the second stage consisted almost entirely of H<sub>2</sub>. Bibliography: 3 references.

A.Sh.

1. Iron-silicon alloys--Physical properties
2. Silicon--Metallurgical effects
3. Aluminum--Metallurgical effects
4. Phosphorus--Metallurgical effects
5. Air--Metallurgical effects

SOV/137-58-9-18557

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 54 (USSR)

AUTHORS: Zotkin, I. A., Kramarov, A. D.

TITLE: Liquation of Silicon and its Effect on the Friability of Ingots of 75% Ferrosilicon (Likvatsiya kremniya i yeye vliyanie na rassypayemost' slitkov 75%-nogo ferrosilitsiya)

PERIODICAL: Tr. Sibirsk. metallurg. in-ta, 1957, Nr 4, pp 215-221

ABSTRACT: The effect of the thickness of 75% Fe-Si ingots (I) on the degree of liquation of Si contained in them was investigated, together with the effect of the liquation of Si on the friability of the I. During casting of four-step I in lined molds it was established that the liquation of Si, which in this case manifests itself by the fact that the upper portions of the I are richer in this element, increases with increasing thickness of the I and attains significant proportions when the thickness is greater than 100 mm; as a result thereof, the Si content in the lower portion of the I is reduced to 60-68%. I with such Si content and with a P content varying from 0.03% to 0.04%, whether stored in the open air or in an enclosed dry area, disintegrated within one month after casting, whereas I less than 100 mm

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Liquation of Silicon and its Effect (cont.)

thick did not crumble. When I were cast into cast-iron molds, the degree of liquation of Si contained in the I was reduced and the nature of the process was altered, the maximum content of Si being observed in the upper and lower regions of the I, whereas the central region exhibited a minimum amount of Si. In this instance only I with a thickness greater than 170 mm were observed to disintegrate. Bibliography: 4 references.

A. Sh.

1. Iron silicon alloys--Casting
2. Silicon (Liquid)--Metallurgical effects

ZOTKIN, I.A., insh.; KRAMAROV, A.D., prof.

Investigating causes of ferrosilicon crumbling. Trudy Sib. nat. inst.  
no. 4:208-214 '57. (MIRA 11:6)

(Ferrosilicon)

ZOTKIN, I.A., inzh.; KRAMAROV, A.D., prof.

Liquation of silicon and its effect on the crumbling of 75 percent  
ferrosilicon ingots. Trudy Sib. met. inst. no. 4:215-221 '57.  
(Ferrosilicon) (Solidification) (MIRA 11:6)

MATVEYENKO, I.S.; ZOTKIN, I.A.

Accelerating the melting process by oxygen feed to the cupola hearth.  
Izv. vys. ucheb. zav.; chern. met. no.2:132-137 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.  
(Cupola furnaces) (Oxygen--Industrial applications)

BELYAKOV, R.S., kand. tekhn. nauk; SERGIYEVSKIY, V.P., dotsent; ZOTKIN, I.A.,  
kand. tekhn. nauk; TIMOFEYEV, A.A., kand. tekhn. nauk; KHARPOV, A.Ya.,  
kand. tekhn. nauk; APON'KIN, V.A., inzh.; BUDAKEV, V.I., inzh.;  
MATVEYENKO, I.S., inzh.

"Foundry alloys" by P.P. Zhevtunov. Reviewed by R.S. Belyakov and  
others. Izv. vys. ucheb. zav.; chern. met. 2 no.4:157-161 Ap '59.  
(MIRA 12:8)

1. Zaporozhskiy mashinostroitel'nyy institut (for Belyakov).
2. Sibirskiy metallurgicheskiy institut (for all except Belyakov).  
(Foundry machinery and supplies) (Alloys)  
(Zhevtunov, P.P.)

ZOTKIN, I.A.

"Investigation of the causes of the scattering of ferrosilicon."  
Min Higher Education Ukrainian SSR. Dnepropetrovsk Order of  
Labor Red Banner Metallurgical Inst imeni I. V. Stalin.  
Dnepropetrovsk, 1956. (Dissertation for the Degree of Candidate  
in Technical Sciences).

SO: Knizhnaya letopis', No. 16, 1956



1. ZOTKIN, I. I.
2. USSR (600)
4. Viticulture
7. Restoring an overgrown vineyard without removing vines. Vin. SSSR 13  
No. 1, 1953.

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

1. ZOTKIN, I.I.; YALOVENKO, V.T.
2. USSR (600)
4. Viticulture
7. Systematic improvement of scientific practices in agriculture. Vin.SSSR 12 no.10, 1952.

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

ZOTIN, I.P., dots., kand. tekhn. nauk

~~Initial stage in analyzing skyscraper frames. Trudy Ural.~~  
politekh. inst. no.71:40-61 '59. (MIRA 12:8)  
(Structural frames)

ZOTKIN, I.T.; CHIGORIN, A.N.

Observations of Venus in 1949 and 1950. Biul.VAGO no.12:3-9  
'53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, otdel planet i Luny.  
(Venus (Planet))

ZOTKIN, I.T.

Lengthening of the horns of the crescent of Venus. Bial.VAGO  
no.12:9-12 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, otdel planet i Iuny.  
(Venus (Planet))

ZOTKIN, I.T.

Approximate determination of the trajectory of a bolide in the  
atmosphere. Biul.VAGO no.13:25-28 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, meteornyy otdel. (Meteors)

ZOTKIN, I.T., (Moskva)

Processing one-sided photographs of meteors. *Biul. VAGO* no.19:54-61  
'56. (MIRA 10:3)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, meteornyy otdel.  
(Meteors) (Astronomical photography)

ZORKIN, I. T.

Fireball over the Ural Mountains. Astron. tsirk. no. 169:20-21 '56.  
( Meteors) (MLRA 9:10)



ZOTKIN, I.T.; KRINOV, Ye.L.

Studying fall conditions of the Kunashak stone meteorite shower.  
Meteoritika no.15:51-81 '58. (MIRA 11:4)  
(Chelyabinsk Province--Meteorites)

ZOTKIN, I.T.; KRIMOV, Ye.L.

Studying fall conditions of the Nikolskoye stone meteorite.  
Meteoritika no.15:82-96 '58. (MIRA 11:4)  
(Moscow Province--Meteorites)

ZOTKIN, I.T.

Popularization of meteoritics; abridged report. *Meteoritika*  
no.16:120-122 '58. (MIRA 11:8)  
(Meteorites)

ZOTKIN, I.T.; SHERESHVSKAYA, A.B.

Shape of the crescent and surface features of Venus in 1951.  
Biul.VAGO no.23:39-45 '58. (MIRA 11:11)

1. Moskovskoy; otdeleniye Vsesoyuznogo astronomo-geodazicheskogo  
obshchestva, planetnyy otdel.  
(Venus (Planet))

33-35-3-24/27

**AUTHOR:** Bronshten, V.A. and Zotkin, I.T.

**TITLE:** The Seventh Full Assembly of the Commission "Comets and Meteors" of the Astronomical Council of the Academy of Sciences of the USSR (VII plenum komissii po kometam i meteoram astronomicheskogo soveta akademii nauk SSSR)

**PERIODICAL:** Astronomicheskii zhurnal, 1958, Vol 35, Nr 3, pp 503-506 (USSR)

**ABSTRACT:** The seventh full assembly of the commission "Comets and Meteors" took place May 13 - 17, 1957 in Odessa. The participating organizations were: 1. The Astronomical Assembly of the Academy of Sciences of the USSR 2. The Committee for Meteorites of the Academy of Sciences of the USSR 3. The Astronomical Main Observatory of the Ukrainian SSR (Kiyev) 4. Astrophysical Laboratory of the Institute for Physics and Geophysics of the Academy of Sciences of the Turkmenian SSR (Ashkhabad) 5. Astronomical Observatory of the Academy of Sciences of the Tadzhik SSR (Stalinabad) 6. Astronomical Observatory imeni Engel'gardt (Kazan') 7. Problem-Radiolaboratory of the Kazan' University 8. Institute for Theoretical Astronomy of the Academy of Sciences of the USSR (Leningrad) 9. Observatory of the Kiyev University. 10. Observatory of the Odessa University 11.-13. Chairs of Astro-

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33-35-3-24/27

The Seventh Full Assembly of the Commission "Comets and Meteors"

nomy at the Universities Kiev, Odessa, Ural 14. Chair of Radiotechnics at the Khar'kov Polytechnical Institute 15. Chair of Construction of Radio equipment at the Tomsk Polytechnical Institute 16. Odessa Pedagogical Institute 17. Kiev Polytechnical Institute. 18. Central Council of the All-Union Astronomic-geodetic Society, and their Moscow, Odessa, and Sverdlov Sections 19. Representatives of the Astronomical Institute of the Czechoslovakian Academy of Sciences Zd. Tseplekha.

9 general meetings and 5 sectional meetings took place. The following principal questions formed the order of the day of the full assembly.

- 1.) Preparation of the scientific research organizations for the performance of observations in the next geophysical year.
  - 2.) Scientific problems and theory of method of the radio observations of meteors.
  - 3.) Preparation of the discussion on the origin of comets on the occasion of the meeting 1958.
- 63 lectures given in the general meetings and sectional meetings are mentioned in the report.

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The Seventh Full Assembly of the Commission "Comets  
and Meteors"

33-35-3-24/27

The presidency of the commission "Comets and Meteors" was  
confirmed as follows:

- 1.) Chairman : Professor V.V. Fedynskiy
- 2.) Deputy of the chairman : Dotsent K.Y. Kostylev, Doctor of  
physical-mathematical Sciences S.M. Poloskov
- 3.) Scientific Secretary : I.T. Zotkin

SUBMITTED: January 25, 1958

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VLASOV, Yu.P.; ZOTKIN, I.T. (Moskva)

Photographing Jupiter with an ocular magnification. *Biul.VAGO*  
no.24:45-52 '59. (MIRA 13:4)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, otdel planet.  
(Jupiter (Planet))  
(Astronomical photography)



ZOTKIN, I.T.

Concerning the anomalous optical phenomena in the atmosphere, connected with  
the fall of the "Tungusk Meteor."

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"METEORITKA" (Meteorites-Studies) Issue no. 20 - 1961, sponsored by the  
"Committee on Meteorites" of the Soviet Academy of Sciences - Moscow - 1961,  
208 pages, and containing Collected Works ("Trudy") of the "9th Meteorite Conference"  
Organized by the Committee on Meteorites of the Soviet Academy of Sciences" and  
Held in KIEV on 2-4 June 1960.

S/030/60/000/01/049/067  
B015/B011

3 (1)  
AUTHOR:

Zotkin, I. T.

TITLE:

Study of Comets and Meteors

PERIODICAL:

Vestnik Akademii nauk SSSR, 1960, Nr 1, p 96 (USSR)

ABSTRACT:


A plenary meeting of the Komissiya po kometam i meteoram (Commission for Comets and Meteors) was held at Khar'kov from September 25 to 28, 1959. Lectures and communications were for the most part devoted to observation results of meteors in the period from 1957 to 1959. Discussions of the observation results concerning large comets, obtained by the Institut astrofiziki Akademii nauk Tadjikskoy SSR (Institute of Astrophysics of the Academy of Sciences of the Tadjikskaya SSR) disclosed the necessity of using large instruments for such observations. Among other things, the plenary meeting suggested the following measures to be taken for the further development of meteoric and cometic astronomy in the Soviet Union: organization of permanent radar observation posts of meteoric activity (Kiyev, Kazan', Tomsk, Irkutsk, Stalinabad); elaboration of a new method and radio apparatus (Khar'kov, Tomsk, Kazan', Odessa, Ashkhabad); utilization of modern computers for interpretation of observation

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Study of Comets and Meteors

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results; equipment of meteoric stations with special high-power cameras. The recommendation was made to commission the Institut prikladnoy geofiziki Akademii nauk SSSR (Institute of Applied Geophysics at the Academy of Sciences of the USSR) with the coordination of all meteoric investigations. A new body of the Commission for Comets and Meteors was elected under the chairmanship of V. V. Fedynskiy.



ZOTKIN, I.T.

Observations of Draconides, October 8-11, 1959. Biul.sta.opt.  
nabl.isk.sput Zem. no.4:12-16 '60. (MIRA 13:11)

1. Komissiya po kometam i meteoram Astrosoveta AN SSSR.  
(Meteors--October)

S/534/60/000/19/003/005  
D226/D302

Preliminary results of the work ...

Other members of the expedition were: O.A. Kirova -- Minerologist, B.I. Vronskiy -- Geologist, Yu.M. Yemel'yanov -- Chemist, I.T. Zotkin -- Astronomer, S.A. Kuchay -- Physicist, P.N. Paley -- Chemist, 2 KMET laboratory assistants, Ye.I. Malinkin, T.M. Gorbunova, and a "collector" K.D. Yankovskiy, who took part in the expedition of 1929-1930, and who, therefore, was able to evaluate changes in the area during the last 28 years. The expedition was joined by camera operator M.A. Zaplatin from the Moscow Studio of Documentary Films and had two local senior guides: A.I. Dzhenkoul' and A.I. Doonov. The expedition left Moscow on June 3 and returned on August 10 having spent 34 days in the studied area. The tasks of the expedition were as follows:

- 1) To undertake trans-section routes through the whole area of the forest fall of 1908, to determine its general character, its extension and boundaries; 2) to collect soil samples and analyze them on the spot for their iron and nickel content and determine

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Preliminary results of the work ... S/534/60/000/19/003/005  
D226/D302

the ratio Ni : Fe., on the assumption that the meteorite was an iron one. The most interesting samples were to be taken twice and retained for more detailed study in Moscow. It was planned to collect samples throughout the whole area from squares with a side length of 5 km. This plan was abandoned later; 3) to work out a fieldwork plan for the next expedition, based on actual observations and collected data. The expedition established camp in the hamlet Kulik in the north-western part of the area. Preliminary results of the fieldwork: The destruction of the forest, caused by the 1908 meteorite is still the most important evidence of its impact and was, accordingly, most thoroughly investigated. Leafy trees which fell in 1908 were, of course, completely rotten but conifers were well preserved, although general observations were hindered by the growth of young trees. The whole area of forest destruction amounts to 1500 km<sup>2</sup>. This can be clearly observed by the scale of forest-fall and the radial character of its distribution. The whole region was divided by

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Preliminary results of the work ...

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D226/D302

the expedition into three zones. 1) A zone, where the trees fell without any clear orientation, called "unoriented zone". It is situated in the depression around the "Yuzhnoye Boloto" (Southern Marsh) and forms the central region, from whose boundaries the radially oriented forest fall begins; 2) The second area was called the zone of "mass forest fall", although isolated groups of living old trees were to be found in this area. Visual estimation of fallen trees amounted to 80-90 %; 3) The zone of partial forest destruction; its area could be estimated only approximately, the percentage of fallen trees near its boundaries amounting probably to 15 - 20 %. These boundaries estimated by the expedition agreed fairly well with those given by local hunters and with the aerovisual estimation made by K.P. Florenskiy in 1953. The expedition studied also the remainder of the forest conflagration which took place during the catastrophe. Its conclusions differ from those expressed by previous investigators: Ye.L. Krinov (Ref. 1: Tungusskiy Meteorit / Tungussk Me-

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Preliminary results of the work ... S/534/60/000/19/003/005  
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teorite<sup>7</sup> Izd-vo AN SSSR, 1949) and L.A. Kulik (Ref. 14: Danyye po Tunguskomu meteoritu k 1939 g /Data on the Tungusk Meteorite for 1939/ Dokl. AN SSSR, 22, no. 8, 520-524, 1939) both thought that during the catastrophe, spontaneous partial burning of broken trees took place without provoking a general forest fire. The conclusions of the expedition may be summarized as follows: 1) Near the center of the devastation area, many broken trees show burntraces at their breaking spots. This clearly proves the sequence of events: Burning occurred after the action of the shock-wave; 2) Traces of burning do not show any definite orientation toward the center of devastation area. They occur in most cases on the eastern side of trunks, as a result of wind direction during the fire; 3) Many trunks clearly indicate prolonged conflagration. B.I. Vronskiy found on the "Yuzhnoye Boloto" two well developed living twin-larches. One of them was found to be 104 years old. Both trees were devoid of any traces of fire; they survived because they grew in the middle of the marsh,

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Preliminary results of the work ... S/534/60/000/19/003/005  
226/D302

where the fire could not penetrate; 4) In all probability the fire was a result of the catastrophe; in type it differs from typical taiga fires by the clearly surface character of the burn, and its area comprised most of the area of the zone of "mass forest fall", where fallen trees had accumulated in great quantity. Some observations, however, suggest several starting points for the forest conflagration, from which the fire spread in a normal way [Abstractor's note: These not given]. It may be assumed, the authors state, that the timber fall and the forest fire were effects of the same cause. As regards the growth of new trees, the expedition concluded that young trees grow very fast in burned areas. Some of these trees, found to be 35-40 years old, were much thicker than the dead ones (100 or even 300 years old). Old surviving trees, which were dwarfed before the fire, showed an intensified growth subsequently. Further biological investigations are needed, the authors state, but at present one cannot speak of a dwarfing influence of the catastrophe on vegetation.

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Preliminary results of the work ... S/534/60/000/19/003/005  
D226/D302

growth. The expedition carried out an extensive search for any earth disturbances which could be the results of an explosion with a possible energy equaling  $10^{20}$  -  $10^{23}$  ergs., according to F. Whipple (Ref. 7: "The Great Siberian Meteor and the Waves, Seismic and Aerial which it produced". Journ. of the Roy. Meteorological Soc., 56, no. 236, 1930). None were found. Certain depressions or holes which were examined resulted, in fact, from the dissolution of gypsum in the subsoil, and on one occasion from a temporary lake, formed by a dam of fallen trees (since burst). The "Yuzhnoye Boloto" which is one of the proposed places of the meteorite's impact was transpected four times by K.P. Florenskiy, Yu.M. Yemel'yanov and B.I. Vronskiy. No traces of destruction which could possibly be associated with a powerful explosion were observed, no rock eruptions, no peat disruptions. All members of the expedition unanimously agreed, the "Yuzhnoye Boloto" could not be the center of a surface explosion which produced the general forest fall; the formation of a crater,

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D/226/D302

many hundreds of meters in diameter, which was subsequently overgrown, is regarded by the members as a quite improbable assumption, but this opinion does not exclude the possibility that certain parts of the meteorite could have fallen to the bottom of the bog without having any critical explosive consequences. In order to ascertain the presence of iron and nickel, soil samples were taken from about 80 places, most of these in the "unoriented zone". Undisturbed turf and soil layers (5 dm<sup>2</sup> in area and 5 cm thick) were dug out. Their thickness was sufficient, because the increase in soil-thickness in this district is much less than 5 cm per 50 years and therefore, the soil layer corresponding to 1908, was always included in the samples. The samples were then disintegrated over a basin fitted with 3 magnets, (roots removed manually), and the soil was thoroughly washed in the basin. The residual magnetic slush was rinsed many times through a magnetic trap. The particles in the magnetic

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slush were mostly over 0.1 mm, although certain of them were up to ten times smaller. The residue was then dried and samples weighing 0.1 - 1.0 g were dissolved in HCl and tested calorimetrically for Fe and Ni. When no traces of Ni were found in this way, separate iron particles were picked out from the residue and examined by O.A. Kirova. Again only negligible traces of Ni were found, which proves the non-cosmic origin of those particles. Apart from iron particles certain minute silicomagnetic globules were observed. They were not analyzed on the spot, but brought back to Moscow. Even if they did come from outer space, there is no evidence to connect them with the meteorite. Upon returning to Moscow, the expedition forwarded soil and peat from the area of "Yuzhnoye Boloto" to the Institute of Geochemistry and Analytical Chemistry AS USSR to determine their radioactivity. Tests, conducted under the supervision of Professor V.I. Baranov showed that there were no differences in the radioactive content of the given samples and that of similar soils from other regions. The

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Preliminary results of the work ...

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authors conclude that 1) The general aspect of the forest devastation suggests that the basic direction of the shock was from above; this means that the wave center was situated high above the earth's surface; 2) The fact that no parts of the meteorite were found does not prove that they did not fall into the area, for only a few routes -- made on foot -- were investigated; 3) There could have been several starting points for the fire as the result of the shock wave from above; 4) The contours of the zone of mass forest destruction and the excentricity of the "un-oriented zone" suggest the action of a shock-wave having neither the correct spherical shape, nor central symmetry. Nevertheless, this assumption seems to be contradicted by the radial distribution of the fallen trees; 5) During the fieldwork, no particles of an iron meteorite were found. These negative results may have been due to: The great dispersion state of meteorite particles which were too small to be separated by the normal methods applied in fieldwork; the possibility of complete oxidation of minute

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Preliminary results of the work ...

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D226/D302

iron particles over 50 years; the notable deviation of dispersion ellipse from the center of the forest fall. The assumption that the meteorite was of the iron-type has no factual foundation, but, on the basis of currently available data, it is also impossible to place it in any other category; 6) The authors point out the discrepancy between the general atmospheric disturbance in 1908 and the testimony of eye witnesses; None of them spoke of powerful smoke trails of the meteorite. It is possible that such a smoke-tail detached itself from the meteorite in the upper part of the atmosphere. Eye witness testimony was reexamined, but found rather obscure and confusing. All these considerations suggest that at present, it is too early to consider the Tunguska meteorite as belonging to the crater forming category. Apparently the meteorite caused great devastation on the earth's surface without a crater being formed. General information on the destructive action of shock-waves may be found in the work of K.P. Stan-yukovich, G.S. Golitsyn (Ref. 6: Udarnyye volny [Shock Waves]).

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Preliminary results of the work ...

S/534/60/000/19/003/005  
D226 /D302

Priroda, no. 12, 1958) Academician A.P. Vinogradov asked M.A. Tsikulin and V.N. Rodionov (Ref. 15: Priblizhennaya otsenka parametrov Tungusskogo meteorita 1908 g po karte razrusheniy lesnogo massiva /Approximate Evaluation of the Parameters of the Tungusk Meteorite of 1908, according to the Map indicating Forest Zone Destruction<sup>7</sup>, Narodnokhozyaystvennoye ispol'zovaniye vzryva, no. 6, Sibirskoye otd. AN SSSR, 1959) to interpret the findings of the expedition. Their evaluation showed that the observed phenomena could be best explained as the results of a shock wave, submitted to an acute braking action, caused by the disintegration of the meteorite. The authors suggest a plan for further investigations, which includes: 1) Preparing a very detailed map of the forest zone destruction, using all new available topographic data of the whole area; 2) Searching further for meteorite parts on the earth's surface and in the deposits of lake beds; 3) Researching on the dispersion ellipse outside the devastation area; 4) Studies by marsh specialists on possible changes in

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Preliminary results of the work ...

S/534/60/000/19/003/005  
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peat formation in the "Yushnoye Boloto" and in the state of sub-soil permanent freezing; 5) Studying the general ecology of the area; 6) Studying in detail all the material collected. The authors feel, therefore, that it is necessary to organize a new expedition, comprising specialists of many kinds, and that it is important to do it as soon as possible for the traces of the meteorite impact are already fading. There are 27 figures, 1 table and 15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: F. Whipple, "The Great Siberian Meteor and the Waves, Seismic and Aerial which it Produced." Journ. of the Roy. Meteorological Soc., 56, no. 236, 1930. X

Card 13/13



ZOTKIN, I.T.

Determining the path of fireballs. Bul.YAGO no.26:27-35 '60.  
(MIRA 13:10)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, meteornyy otdel.  
(Meteors)

ZOTKIN, I. T.

Observations of Draconids on October 8-11, 1959. Astron. tsir.  
no.209:34-38 Nr '60. (MIRA 13:9)

1. Komissiya po kometam i meteoram Astrosoveta AN SSSR, Moskva.  
(Meteors--October)

ZOTKIN, I.T. Primalni uchastiye: MARTYNEKO, V.V.; SHAKINA, Ye.G.;  
TERENT'YEVA, A.K.; KHOTINOK, B.L. FADYNSKIY, V.V., otv.red.;  
BERKGAUT, V.G., red.isd-va; YUPIFANOVA, L., tekhn.red.

[Instructions for observing meteors] Instruktsiia dlia nablju-  
denii metecrov. Moskva, Izd-vo Akad.nauk SSSR, 1961. 52 p.  
(MIRA 14:4)

(Meteors)

S/169/61/000/011/065/065  
D228/D304

AUTHOR: Zotkin, I. T.

TITLE: Anomalous optical phenomena in the atmosphere related  
to the fall of the Tungus meteorite

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 11, 1961, 24-25,  
abstract 1G232 (V sb. Meteoritika, no. 20, M., 1961,  
40 - 55)

TEXT: Descriptions are presented for the phenomena of the twi-  
light glow of the atmosphere and the appearance of noctilucent  
clouds which were observed in different countries of the world af-  
ter the fall of the Tungus meteorite (end of June to the beginning  
of July 1908). 47 references. [Abstractor's note: Complete transla-  
tion].

Card 1/1

ASTAPOVICH, I.S.; BAKULIN, P.I.; BAKHAREV, A.M.; BRONSHTEIN, V.A.; BUGOSLAVSKAYA,  
N.Ya. [deceased]; VASIL'YEV, O.B.; GRISHIN, N.I.; DAGAYEV, M.M.;  
DUBROVSKIY, K.K. [deceased]; ZAKHAROV, G.P.; ZOTKIN, I.T.; KRAGER, Ye.N.;  
KRINOV, Ye.L.; KULIKOVSKIY, P.G.; KUNITSKIY, R.V.; KUROCHKIN, N.Ye.;  
ORLOV, S.V. [deceased]; POPOV, P.I.; PUSHKOV, N.V.;  
RYBAKOV, A.I.; RYABOV, Yu.A.; SYTINSKAYA, N.N.; TSEBEVICH, V.P.;  
SHCHIGOLEV, B.M.; VORONTSOV-VEL'YAMINOV, B.A., red.; POLOMAREVA, G.A.,  
red.; KRYUCHKOVA, V.N., tekhn. red.

[Astronomical calendar; permanent part] Astronomicheskii kalendar';  
postoiannaia chast'. Izd. 5., polnost'iu perer. Otv. red. P.I. Bakulin.  
Red. kol. V.A. Bronshten i dr. Moskva, Gos. izd-vo fiziko-matem. lit-ry,  
1962. 771 p. (MIRA 15:4)

(Astronomy—Yearbooks)

S/026/62/000/008/003/005  
D050/D113

AUTHORS: Florenskiy, K.P., Candidate of Geological and Mineralogical Sciences,  
and Zotkin, I.T.

TITLE: New explorations, new results

PERIODICAL : Priroda, no. 8, 1962, 31-39

TEXT: The article deals with detailed field investigations conducted by various groups and organizations including the AS USSR in 1958 and 1961 and its Siberian Department, to disclose the nature of the Tungus phenomenon. The following results were obtained: A crater caused by a meteorite fall could not be found; no proof could be obtained that the explosive wave was spherical - a characteristic of a localized central explosion; the forest fires were caused by a flash burn; no meteoric matter could be found except for small amounts contained in magnetite and silicate beads which did not appear to be of cosmic origin. Thus, the described investigations confirm the hypothesis of the cometary nature of the phenomenon, established by I.S. Astapovich and F. Upplo and now supported by Academician V.G. Fesenkov. A new expedition is now continuing research in the Tungus area. There are 4 figures and 1 table.

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3/026/62/000/006/003/005  
D050/D113

New explorations, new results

ASSOCIATIONS: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo  
AN SSSR (Institute of Geochemistry and Analytical Chemistry,  
AS USSR), Moscow (Florenskiy); Komitet po meteoritam AN SSSR  
(Committee on Meteorites, AS USSR), Moscow (Zotkin)

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Visual observations of meteors ... S/831/62/000/008/013/016  
E032/E114

The visual observations were accompanied by telescopic counts. The following VAGO stations took part in the IGY programme: Simferopol', Moscow, Ryazan', Kiev, Alma-Ata, Sverdlovsk and Dushanbe. The Simferopol' station was particularly well equipped and incorporated a photographic meteor patrol, instruments for the observations of telemeteors, and visual observation frames. Regular IGY observations were begun on June 20, 1958. A detailed calendar of observations is reproduced. Altogether about 22 000 meteors were recorded. Analysis of the data is continuing. There are 1 figure and 3 tables.



ZOTKIN, I.T. (Moskva); CHIGORIN, A.N. (Moskva)

Using computers for processing statistics of visual observations  
of meteors. Biul.VAGO no.30:45-52 '62. (MIRA 15:8)

1. Moskovskoye otdeleniya Vsesoyuznogo astronomo-geodeticheskogo  
obshchestva, meteornyy otdel.  
(Electronic analog computers) (Meteors)

ZOTKIN, I.T.; LIPAYEVA, N.A.

Number of Delta-Aquarids in 1960. Biul.VAGO no.32:3-7 '62.  
(MIRA 15:11)

1. Moskovskoye otdeleniya Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva.

(Meteors--May)

ZOTKIN, I.T.; FLORENSKIY, K.P.

Encounter with a comet. Znan.-sila 37 no.5:40-43 My '62.  
(MIRA 15:9)  
(Podkamennaya Tunguska Valley—Meteorites)

37395

S/033/62/039/002/009/014  
E032/E514

3,1550

AUTHOR: Zotkin, I.T.

TITLE: On the ring around Jupiter

PERIODICAL: Astronmicheskiy zhurnal, v.39, no.2, 1962, 303-304

TEXT: In the previous paper in this issue (pp.290-302), S. K. Vsekhsvyatskiy concludes that there is a shadow cast on Jupiter's disc by a ring surrounding this planet. The present author makes use of the data reported by Vsekhsvyatskiy to plot the planetographic latitude of the shadow (band) as a function of the planetographic latitude of the sun. The plot appears to consist of a random distribution of points and the author concludes that there is very little evidence that the equatorial band is in fact a shadow of the hypothetical ring. There is 1 figure.

ASSOCIATION: Komitet po meteoritam Akademii nauk SSSR  
(Committee for Meteorites, Academy of Sciences USSR)

Card 1/1

ZOTKIN, I.T.

Formula for determining the number of meteors. Antron, tsir.  
no.228:28-29 Ap '62. (MIRA 16:6)

1. Moskovskiy otdel Vsesoyuznogo astronomo-geodesicheskogo  
obshchestva.

(Meteors)

FLORENSKIY, K.P., kand.geol.-mineral.nauk; ZOTKIN, I.T.

New search, new results; the expedition of 1961. Prirada 51  
no.8:31-39 Ag '62. (MIRA 15:9)

1. Institut geokhimi i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva (for Florenskiy). 2. Komitet po meteoritam AN SSSR, Moskva (for Zotkin).  
(Podkamennaya Tunguska Valley--Meteorites)

L 14537-63

EWI (1<sup>st</sup> / POC (v) / ADS / EEO-2 / ES (v)

APPTIC / ISS / EEO-3 / APGS

Pi-4 / Po-4 / Pq-4 / Pe-4 GW

ATTENTION: Zoltan, I. T.

... shall be coordinated.

ASSOCIATION: 0326

DATE: 03/26/63

ENCL: 00

SUB CODE: AS

NO RESP 601: 000

OTHER: 000



ZASLAVSKAYA, N. I.; ZOTKIN, I. T.; KIROVA, O. A.

Size distribution of pellets of cosmic origin in the region  
of the fall of the Tungus meteor. Dokl. AN SSSR 156 no. 1:  
47-49 My '64. (MIRA 17:5)

1. Komitet po meteoritam N SSSR. Predstavleno akademikom  
V. G. Fesenkovym.

ACCESSION NR: AT4035837

S/2534/64/000/024/0112/J128

AUTHOR: Boyarkina, A. P.; Demin, D. V.; Zotkin, I. T.; Past, V. G.

TITLE: Study of the shock wave of the Tungus meteorite from the associated forest destruction

SOURCE: AN SSSR. Komitet po meteoritam. Meteoritika, no. 24, 1964. Trudy\* Desyatoy Meteoritnoy konferentsii v Leningrade 29 maya - 1 iyunya 1962 g., 112-128

TOPIC TAGS: meteorite, Tungus meteorite, shock wave

ABSTRACT: The radial flattening of the forest in the area of the explosion of the Tungus meteorite is the most reliable criterion for study of the propagation of the shock wave accompanying the explosion. The forest flattening has been investigated repeatedly on the ground and from the air and a considerable body of literature has accumulated concerning the phenomena, parts of which are reviewed in this paper. Data from the expeditions of 1960 and 1961 are discussed in the greatest detail; the methods applied to study of the forest flattening are becoming increasingly sophisticated. Emphasis in this article is on statistical analysis of data collected over the 2,000-km<sup>2</sup> area of forest flattening. New topographic

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ACCESSION NR: AT4035837

surveys and aerial photography have facilitated the investigation. Data are available for 580 points throughout the area; in the latest expedition a grid was laid out and azimuths of fallen trees measured carefully in the sample areas. A general description of the area of flattening is followed by a statistical analysis of the forest destruction. Particular attention is given to the central area and a study of the influence of relief on the degree of destruction. Fig. 1 of the Enclosure shows the flattening of the forest in the area of falling of the meteorite. Orig. art. has: 25 formulas, 11 figures and 1 table.

ASSOCIATION: Komitet po meteoritam, Akademiya nauk SSSR (Committee on Meteorites, Academy of Sciences SSSR)

SUBMITTED: 00

DATE ACQ: 28May64

ENCL: 02

SUB CODE: AA

NO REF SOV: 012

OTHER: 000

Card

2/4

ACCESSION NR: AP4035807

number, M the mass of spherules,  $S = 1.2$ . A similar distribution applies to all  
meteors observed. It is believed that there is enough evidence to assume that the  
Tungus meteorite was the core of a small comet which exploded in passing the  
atmosphere at a height of about 10 km. Orig. art. has: 2 figures.

ASSOCIATION: Komitet po meteoritam Akademii Nauk SSSR (Committee on Meteorites,  
Academy of Sciences SSSR)

SUBMITTED: 18Dec63

DATE ACQ: 20May64

ENCL: 00

SUB CODE: AA

NO REF SOV: 005

OTHER: 004

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R002065510001-1  
CIA-RDP86-00513R002065510001-1"

ZOTKIN, I.T.

What one should know about solids. Zem. i vsel. l no. 3:80-82 KJ-Je  
'65. (MIRA 18:8)

ACC NUM AP6012062

SOURCE CODE: UA/0384/65/000/006/0463/0066

37  
23

AUTHOR: Zotkin, I. T.

CRG: none

TITLE: Meteorite networks

SOURCE: Zemlya i vseennaya, no. 6, 1965, 63-66

TOPIC TAGS: meteor, meteorite, meteor tracking, meteor observation

ABSTRACT: A great number of problems related to the nature of meteorites and meteorites remain unsolved, primarily because of the lack of an observation network which would ensure location of meteorites soon after their falling to the earth. For this reason it has been necessary to establish special networks of stations for observing such events, such as the American network, with headquarters at Lincoln, Nebraska, described briefly in this article. Another such network exists in East Germany and Czechoslovakia; a map of the area covered by this network accompanies the text. The Czechoslovakian network is designed primarily for obtaining the astronomical characteristics of bolides, such as direction of trajectory and velocity. The search for meteorites in dissected areas such as the Carpathians is difficult, but this is partly compensated by the dense population of the area. In addition, the German and

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ACC NR: AP6012062

Czechoslovakian stations are situated closer together than in the United States. This also is more advantageous in that the lower parts of bolide trajectories can be photographed. All-sky cameras are used in the Czechoslovakian network. Amateur astronomers and the population of East Germany and Czechoslovakia enthusiastically report observation and finds. In the USSR the territory most suitable for such observations is the eastern part of Ukraine, which is a steppe region with a dense population. This facilitates the collection of meteorites which may fall. In addition, there are a great number of meteorological stations where facilities can be used for making such observations. Orig. art. has: 5 figures. [JPRS]

SUB CODE: 03 / SUBM DATE: none

Card 2/2 *20c*

ACC NR. AP601849

SOURCE CODE: UR/0020/60/167/001/0099/0052

AUTHOR: Zotkin, I. T.; Tsikhulin, M. A.

ORG: Committee on Meteorites, AN SSSR (Institut po meteoritnoi AN SSSR); Institute of  
Physics of the Earth, U.S.S.R. Acad. Sci., Moscow, AN SSSR (Institut Fiziki Zemli AN SSSR)

TITLE: Modeling of the explosion of the Tunguska meteorite

SOURCE: AN SSSR. Doklady, v. 167, no. 1, 1966, 99-62

TOPIC TAGS: meteorite, blast wave

ABSTRACT: Extremely time-consuming field work at the site of the destruction  
caused by the Tunguska meteorite, carried out in 1958-1965, yielded much  
factual data, especially on the pattern of falling and searing of the  
forest trees. Data were collected on the azimuths of 40,000 trees which  
were affected by the explosion of 30 June 1908. The evidence indicates  
that the devastation was caused by a powerful air wave with an energy of  
about  $4 \cdot 10^{23}$  ergs. The authors of this study exploited the collected  
data for formulating a modeling of the event. The ballistic wave was  
simulated by a small linear explosion, but particularly strong at the  
end (a photograph shows the model). The trees were simulated by wires  
3 cm in height to which a cylindrical plastic "crown" was attached. The  
wires were bent under the influence of the simulated explosion. The

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UDC: 523.51



ACC NR: AP6018493

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closest similarity between the modeled field of bending of the simulated trees and the pattern of forest destruction at the Tunguska site was for a slope of 30° to the horizon. Different variants of the modeled experiment are described. Apparently at the Tunguska site there was a wave of an axial explosion which determined the pattern of the falling of the trees. The increase of the linear energy of the explosion (ballistic wave) in the terminal part of the trajectory was relatively small. This article was presented by Academician V. G. Pesenkov on 16 June 1965. Orig. art. has: 4 figures and 2 formulas. [JPRS]

SUB CODE: 03 / SUBM DATE: 09Jun65 / ORIG REF: 008 / OTH REF: 003

Card 2/2 CC

I 44237

ACC NR. **AP6022193** SOURCE CODE: **UR/0026/66/000/006/0001/0089**

AUTHOR: Zotkin, I. T.; Tsikulin, M. A.

65  
B

ORG: [Zotkin] Committee for Meteorites AN SSSR (Komitet po meteoritam AN SSSR); [Tsikulin] Institute of Physics of the Earth Im. O. Yu. Schmidt, AN SSSR, Moscow (Institut fiziki zemli AN SSSR)

TITLE: Model of a shock wave of Tungus meteorite explosion

SOURCE: Priroda, no. 6, 1966, 81-89

TOPIC TAGS: meteorite, shock wave, shock wave formation, shock wave propagation, thermal explosion

ABSTRACT: The author discusses the peculiar radial fall of trees during the Tungus meteorite explosion. The topography of the area is described and the work of the eight seasonal field investigating expeditions to the area of the catastrophe is analyzed. The shock wave of the Tungus meteorite which imprinted itself in the area in the pattern of fall of trees, was caused by a flying meteorite breaking up at the end of its flight. The explosion was neither chemical nor nuclear, but thermal.

Pliginskii, G. E. (Candidate of Chemical Sciences); Zoskin, Z. T.;  
Pliginskii, K. P. (Candidate of Geological Mineralogical Sciences)

SOURCE CODE: UM/0030/00/000/009/0109/0111

ORG: none

TITLE: Meteor investigations (Conference at Novosibirsk)

SOURCE: AN SSSR. Vestnik, no. 9, 1966, 109-111

TOPIC TAGS: meteorite, astronomic conference, thermoluminescence

ABSTRACT:

The Committee on Meteorites and the Commission on Meteorites of the Siberian Department Academy of Sciences USSR sponsored the Twelfth Meteorite Conference in Muzhanski during the period 24-27 May. It was attended by 100 persons; 30 reports were presented. Several reports were presented on field and laboratory studies of the Kaali (Estonia) meteorite crater, the largest in the USSR. Study of the scattered meteorite matter has shown that the concentration of metal fragments meteorite crater was discovered. A decreased thermoluminescence of the dolomite from the crater was discovered. The limonitized meteorite fragments contained pyroxene, schreibersite and ferronickel. Yem. N. Kramer reported that photographic studies of meteors revealed that the

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0926-0044

L 10810-67

ACC NR: A27003507

velocity of the individual fragments increases during the disintegration of a meteor body. For determining the pre-atmospheric sizes of meteors and the depth from which they came in the parent body A. K. Lavrukhin and T. A. Ibrayev have proposed the use of pairs of isotopes with close half-lives -- Na<sup>22</sup> and  $\gamma$ 49 or Mn<sup>54</sup>, and for older meteorites -- Ca<sup>36</sup> and K<sup>40</sup>. A. A. Yavnel has shown that the FeO:MgO:SiO<sub>2</sub> relations in the silicates of chondrites confirm the separation of chondrites into three groups. The main silicate minerals of chondrites are not in equilibrium conditions during crystallization. Yu. D. Kozmanov reported on high-temperature oxidation in the crust of meteorites which is characteristic of the segregation of iron and nickel. Numerous reports were given on the Tunguska meteor. Academician V. G. Pesenkov contends it was a small comet. A. V. Zolotov believes that the velocity of the Tunguska body was small and its explosion occurred due to internal energy. K. G. Ivanov proposed that the magnetic effect and glow of the sky associated with the falling of the Tunguska body be attributed to photoionization processes in the ionosphere. The conferees complained that fantastic explanations of the Tunguska event still are being published.

[MRS: 38,460]

SUB CODE: 03 / SUBM DATE: none

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513  
CIA-RDP86-00513R002065510001-1

GORBUNOVA, I.M.; ZVEREV, I.S.

Mounting of a small reflecting telescope. "Izv. teleskopostn."  
no. 1992-109 1961  
(MIRA 1861)

ZOTKIN, Igor' Yur'yavich, inzh.; SLAVERTSOV, P.M., inzh.; VAGIN, V.I.  
[Vahin, V.I.], inzh.; KOLDA, O.P., inzh.; LEVITSKAYA, G.P.  
[Levyts'ka, H.P.], red.; OLEFIRENKO, G.Yu. [Olefirenko, H.A.],  
red.; VAYNSHENER, Y.M. [Vainshener, I.M.], tekhn. red.

[Labor safety in agriculture] Okhorona pratsi v sil's'komu  
hospodarstvi. Kyiv, Derzhsil'hospvydav URSR, 1962. 258 p.  
(MIRA 16:6)

(Ukraine--Agricultural machinery--Safety measures)

ZCTKIN, L. L.

Zotkin, L.L., Evduk, R.A. I Popovkina, R.V.

33866. Vyenyera V 1948 Godu. Byullyatyen', Vayesoyuz. Astron.-- Gyeodyez. O--va,  
No 7, 1949. C. 17-21. Bibliogr: 3 Nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 46, Moskva, 1949.

*Zotin, M.*

**ZOTIN, M.; KONDRASHOV, K.**

Hydrometeorological Service in the Arctic. Mor. flot 17 no.12:10-11  
D '57. (MIRA 11:1)

1. Nachal'nik otdela Arkticheskogo nauchno issledovatel'skogo instituta Glavsevmorputi Ministerstva morskogo flota (for Zotin).
2. Zamestittel' nachal'nika otdela polyarnykh stantsiy Glavsevmorputi Ministerstva morskogo flota (for Kondrashov).  
(Arctic regions--Meteorological stations)

ZOTIN, M.I.

Drift of Soviet scientific research stations in the central Arctic  
regions. Let. Sev. 2:73-78 '57. (MIRA 10:12)

1. Arkticheskiy nauchno-issledovatel'skiy institut Glavsevmorputi,  
Moskovskiy otdel.

(Arctic regions)



KREMS, A.Ya; ZDOROV, S.F.; BONDARENKO, S.M.; ADAHOV, A.I.; ZOTKIN, M.M.  
redaktor; SHMELEV, A.A., redaktor; POLOSINA, A.S., ~~tekhnicheskii~~  
redaktor.

[Oil mining] Shakhtania razrabotka nefnianykh mestorozhdeni. Pod  
red. M.M. Zotkina i A.A. Shmeleva, Moskva, Gos. nauchno-tekhn.  
izd-vo neftianoi i gornotoplivnoi lit-ry, 1955. 273 p. (MLRA 8:8)  
(Petroleum engineering)

AUTHOR: Zotin, V. K.; Talantov, A. V.

ORG: none

TITLE: The effect of initial temperature on the flame speed in the turbulent flow of a uniform mixture

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1. 1966, 115-122

TOPIC TAGS: combustion, propulsion, burning velocity, air breathing engine

ABSTRACT: The temperature of a combustible mixture entering an aviation combustion chamber can vary considerably depending on flight conditions. The temperature can change considerably with the flight velocity and altitude especially in air-breathing engines. Previous studies have dealt with the effect of temperature on the burning velocity but in narrow temperature ranges. Therefore, in the present study, the effect of temperature on the turbulent burning velocity of a homogeneous gasoline-air mixture was studied at flow velocities from 20 to 100 m/sec, air-fuel ratios from 1 to 1.6, and initial temperatures from 150 to 550C. The experimental assembly consisted of a burner, 50 x 50 mm in diameter, equipped with recessed flame holders. The air flowing to the burner was preheated by a heat exchanger. The effects of the air excess factor, flow velocity, and temperature of the initial mixture and turbulence on the turbulent burning velocity were measured. The experimental results were

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UDC: 629.194.34:936.463

L 23044-66  
 ACC NR: AP6011792

correlated by the following formula:

$$\frac{u_T}{u_{T_0}} = \frac{A_1 u_n + \frac{A_2 w'}{\sqrt{\ln\left(1 + \frac{w'}{u_n}\right)}}}{A_1 u_n + \frac{A_2 w'}{\sqrt{\ln\left(1 + \frac{w'}{u_n}\right)}}$$

where  $u_T$  is the turbulent burning velocity at  $T$ ;  $u_{T_0}$  is the turbulent burning velocity at  $T_0$ .  $\theta = T/T_0$  ( $T_0$  is the final temperature of combustion products and  $T_0$ , the temperature at the flame front);  $w'$ , fluctuating velocity; and  $u_n$  is the normal burning velocity. The turbulent burning velocity can be correlated with the temperature at flow conditions of practical interest, i.e., at  $w > 50$  m/sec, by the following formula:

$$\frac{u_T}{u_{T_0}} = \left(\frac{T}{T_0}\right)^{0.63}$$

which can be used for designing combustion chambers with variable air inlet temperatures. Orig. art. has: 11 figures and 3 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 24Mar65/ ORIG REF: 008/ OTH REF: 001/ ATD PRESS: 234  
 Card 2/2

ZOTKIN, V. Ye., Engr.

С. Д. 1000. 001.

Dissertation: "New Columbian-Containing Grades of Steel for Welding." Thesis Order of the Labor Red Banner List of Steel from I. V. Stalin, 12 Jan 47.

SO: Vechernyaya Moskva, Jan, 1947 (Project #R0000)



SHUBIN, V.F., prof.; ZOTIN, V.P., agronom

Collective farm of advanced cultivation practices, Zemledelie  
5 no.12:63-70 D '57. (MIRA 11:1)

1. Kolkhoz "Iskra" Bogorodskogo rayona, Gor'kovskoy oblasti  
(for Zotin).  
(Bogorodsk District, Gorki Province--Collective farms)

SOV/148-59-2-4/24

18(5)

AUTHOR: Zotkin, V.Ye. Candidate of Technical Sciences Docent

TITLE: Tungsten Behavior in Steel Smelting in Oper. Hearth Furnaces  
(O povedenii vol'frama pri vyplavke stali v martenovskikh  
pechakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Chernaya metallur-  
giya, 1959, Nr 2, pp 27-35 (USSR)

ABSTRACT: Different opinions exist on tungsten behavior in liquid steel. High-tungsten steel is usually smelted in electric arc or high frequency furnaces. Smelting in open hearth furnaces was either rejected or questioned. The author investigates tungsten behavior in basic and acid open hearth furnaces. The results of physico-chemical analyses and of experimental investigations are given. It was stated that in basic open hearth furnaces 1) tungsten steel-smelting was accompanied by considerable losses of tungsten due to the formation of calcium tungstenate in the slag; 2) tungsten oxidation increased with lowered temperatures of the metal and the slag and with higher content of free ferric and calcium oxides in the slag; 3) in carbon steel smelting with tungsten-wastes, residual tungsten

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SOV/148-59-2-1/2

### Tungsten Behavior in Steel Smelting in Open Hearth Furnaces

residual tungsten remained in the steel; 4) tungsten in liquid steel did not oxidize if the slag did not contain free calcium oxide; interaction of tungsten trioxide with carbon makes tungsten reduction possible. In acid open hearth furnaces: 1) tungsten oxidation did not occur if ferrotungsten was added directly to the liquid metal; 2) tungsten reduction by carbon was possible; 3) acid open hearth furnaces can be used for tungsten waste remelting; 4) fluidity of ferrotungsten was satisfactory even in the case of high tungsten content. There are 4 graphs, 4 tables and 8 references, 5 of which are Soviet, 2 German and 1 English.

SUBMITTED: October 27, 1958

Card 2/2



Handwritten text in a stylized, possibly cursive or shorthand script, appearing to be a name or identifier. The characters are highly stylized and difficult to decipher. The text is written in black ink on a white background.

John, N.

ZOTIN, N., master-kapitan

New developments in the work organization of the beaconage  
brigade. Rech. transp. 22 no. 4:31-32 Ap '63. (MIRA 16:4)

(Beacons)

A SOURCE CODE: UR/0147/66/000/003/0098/0103

AUTHOR: Zotin, V. K.; Talantov, A. V.

ORG: none

TITLE: Dependence of the flame speed in the turbulent flow of a  
homogeneous mixture

SOURCE: IVUZ. Aviatzionnaya tekhnika, no. 3, 1966, 98-103

TOPIC TAGS: combustion, gas combustion, burning velocity, propulsion

ABSTRACT: A study was made of the turbulent burning velocities of  
premixed gasoline-air flames at flow velocities of 20-100 m/sec, air  
excess coefficients of 1-1.6, and initial temperatures of 423-823C.  
The method of direct flame cone measurement was used. The flame was  
stabilized with recessed flame holders and turbulence was generated with  
grids. The following relationships were plotted: the turbulent burning  
velocity vs air-excess coefficient, the combustion temperature to  
initial temperature ratio  $\theta$  vs turbulent burning velocity, the fluctuating  
velocity vs the turbulent burning velocity, and normal velocity vs  
turbulent burning velocity. The expression  $U_T = \theta^{0.8}$  was obtained for  
the turbulent burning velocity. All the experimental results could be  
correlated by the expression derived from the surface combustion model.

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UDC: 536.46

L 44565-66

ACC NR: AP6030257

$$U_T/U_N - \theta = f(W'/U_N),$$

where  $W'$  is the fluctuating velocity, and  $U_N$  is the normal burning [PV]  
velocity. Orig. art. has: 9 figures.

SUB CODE: 21/ SUBM DATE: 30Oct65/ ORIG REF: 006/ OTH REF: 001  
PRESS: 5079

TSERTELI, Boris Shalvovich; ZOTIN, Vladimir Samsonovich

[Everyday traumatism] [Bytovoi travmatizm. Tbilisi, Gos.  
izd-vo "Sabchota Sakartvelo,"] 1963. 72 p. [In Georgian]  
(MIRA 17:5)

ZOTIN, A.I.; ZOTINA, R.S.

Works of Iaroslav Ivanovich Grdina on the theoretical mechanics  
of living organisms. Biofizika 1 no.5:480-492 '56. (MLRA 9:10)  
(GRDINA, IAROSLAV IVANOVICH, 1871-1931)

207 APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R002065510001-1  
CIA-RDP86-00513R002065510001-1"

ZOTINA, R.S.; ZOTIN, A.I. (Moskva).

Mathematical theories of the movement of living organisms. Usp.  
sov. biol. 44 no.3:285-299 N-D '57. (MIRA 11:1)  
(ANIMAL MECHANICS) (BIOMATHEMATICS)

ZOTINA, R.S.; KIREYEVA, A.Ya.; FABRIKANT, L.D.; STAVSKIY, A.T., red.;  
KAPRALOVA, A.A., tekhn. red.

[Collection of problems in mathematical statistics and  
probability theory] Sbornik zadach po matematicheskoi statistike  
i teorii veroiatnostei. Moskva, Gosstatizdat, 1962. 183 p.

(MIRA 16:2)

(Mathematical statistics) (Probabilities)

ACC NR: AF6021409

(N,A)

SOURCE CODE: UR/0387/66/000/006/0124/0108

AUTHOR: Zotkevich, I. A.

ORG: Siberian Scientific Research Institute of Geology, Geophysics, and Mineral Raw Material (Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki, i mineral'nogo syr'ya)

TITLE: Transformation of the coordinates of the vector of natural residual magnetization in paleomagnetic investigations

SOURCE: AN SSSR. Izvestiya. Fizika zemli, no. 6, 1966, 104-108

TOPIC TAGS: magnetization, paleontology, prospecting, coordinate system, geologic exploration, earth magnetism

ABSTRACT: In view of the fact that the interpretation of the results of paleomagnetic investigations is usually accompanied by the need for transforming the coordinates of the vector of natural residual magnetization of rocks, the author describes coordinate-transformation procedures that ensure a sufficient graphic accuracy when stereographic grids are used or for calculations with accuracy of  $0.1^\circ$ , which is the accuracy limit which can presently be attained in paleomagnetic work. The article gives graphic and analytic relations between the different coordinate frames and a nomogram for graphically obtaining the residual magnetization in the ancient system of coordinates for a folding or for a block of rocks in their contemporary position. A numerical example is given. Orig. art. has: 5 figures and 4 formulas.

SUB CODE: 08/ SUBM DATE: 14May65/ ORIG REF: 002

Card 1/1

UDC: 550.380.11



ZOTKEVICH, I.A.; UMANTSEV, D.F.

Measuring magnetic properties of rocks on an astatic magneto-  
meter. Trudy SNIIGGIMS no.10:74-77 '60. (MIRA 15:12)  
(Rocks--Magnetic properties) (Magnetometer)

ZANOWA, Maria; ZOTKIEWICZ, Regina

A few remarks on the germination of some geophytes. Wiadom botan  
6 no.3:266-268 '62.

1. Ogród Botaniczny Uniwersytetu Warszawskiego, Warszawa.

SMIRNOV, Aleksey Sergeevich; RADUGIN, Aleksey Aleksandrovich; ZOTKIN,  
A.P., otv.red.; LEVOCHKINA, L.I., tekhn.red.

[Efficient designing of molds and dies] Opyt skorostnogo  
proektirovaniia pressform i shtampov. Leningrad, Gos.soiuznoe  
izd-vo sudostroit.promyshl., 1958. 138 p. (MIRA 12:4)  
(Plastics)

ZOTKIN, A.P., meditsinskiy statistik

Medical statistics. Med. sestra 20 no.7:36-38 J1 '61. (MIRA 14:10)

1. Iz Gorodskoy bol'nitsy No.15, Kalinin.  
(MEDICAL STATISTICS)

ANGELEYKO, V.I. (Khar'kov); ZOTKIN, G.V. (Khar'kov); FIDORETS, V.M.  
(Khar'kov); ISKHAKOV, S.I. (Khar'kov); KRIVENKOV, K.V.  
(Khar'kov); RYBIN, A.S. (Khar'kov).

New grindstones. Put' 1 put. khoz. 8 no.11:26-27 '64  
(MIRA 18:2)

ZOTKIN, G.V., kand. tekhn. nauk, dotsent

Determining of stresses in the frog. Trudy KHIIT no.57:51-  
57 '62.

Conditions of the train movement over the siding of switches.  
58-69 (MIRA 16:11)

ZOTKIN, G.V. Cand Tech Sci (diss) "Deterioration and durability <sup>service life</sup>  
of cross-pieces. ~~with drawings~~ Len, 1957 18 pp, 21 cm. (Railway Railways USSR,  
Leningrad Order of Lenin Inst <sup>of Engineers of Railroad Transport</sup> ~~of Engineers of Railroad Transport~~ in Academician  
V.M. Obratsov) 125 copies  
(KL, 11-57, 98)

AUTHOR: Zotkin, I.

SOV/29-58-12-15/23

TITLE: Advice for Amateurs to Make a Telescope (Sovety po izgotovleniyu lyubitel'skogo teleskopa)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 12, pp 22-23 (USSR)

ABSTRACT: In this article the author gives some advice to amateurs. A beginner should not start by making a reflector with a large mirror. The best way is to start with an object lens not more than 100 mm in diameter. Only with sufficient experience in grinding one should venture on larger object lenses. At first, 2 equal glass panes of perfect form have to be chosen. The glass should be pure, without bubbles that might get open in grinding. Thickness of the pane should be  $1/8$  -  $1/10$  of its diameter. For the grinding, a solid, sturdy table is necessary. A cask filled with sand (Fig 1) may be used as such table. Grinding is done by means of abrasive powder - emery or carborundum. One starts with the coarse powders gradually passing to the finer grades. The lengthy grinding process consists in pushing forward and backward the upper glass pane on the lower pane covered with wet abrasive, turning the pane around its axis and walking around the table. As a consequence of

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Advice for Amateurs to Make a Telescope

SOV/29-38-12-15/23

such grinding, the lower pane gets a convex spherical form and the upper one an accordingly concave form. After several hours of work, the future mirror has got a fine-ground spherical surface with a center deepening of about 1 mm. The focus of such a mirror is 1 - 1.5 m. During the grinding, the upper pane may not be lifted and the abrasive powder must not dry out. The glass thus ground is polished with crocus powder until it has regained its gloss. Then it is submitted to a control. Silver coating of the finished mirror is done by oneself or by a workshop. Fomin recommends to buy the lenses ready-made. Then the dimensions of the tube are calculated considering the focal distance of the object lens and of the lens. Special attention should be paid to the rack (kremal'yernaya) part, to the attachment of the diagonal mirror and to the discharge (razgruzochnyy) mechanism. These parts need an especially precise fitter's work. Figures 4, 5, and 6 show the assembly of telescopes. The stand must be particularly solid and sturdy. A photographic tripod is quite unsuited. A detailed instruction for making a telescope for amateurs can be found in the technical literature. Practical advice and help for the procurement of required material is given by the Vsesoyuznoye

Card 2/3

Advice for Amateurs to Make a Telescope

SOV/29-56-42-15/23

astronomo-geodezicheskoye obshchestvo (All-Union Astronomical-  
Geodetical Society), Moscow, K-9, letter box 1266. There are  
7 figures.

Card 3/3

RADCHENKO, V.G.; ARSENKIN, V.T.; ZOTKIN, I.A.

Electric slag remelting of tool steel scrap. Avtom. svar. 16  
no.6:63-65 Je '63. (MIRA 16:7)

1. Altayskiy politekhnicheskii institut im. I.I. Polzunova.  
(Tool steel—Electrometallurgy)  
(Scrap metals—Electrometallurgy)

SOV/137-58-8-16472

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 34 (USSR)

AUTHORS: Zotkin, I.A., Kramarov, A.D.

TITLE: An Investigation of Causes of Friability of Ferrosilicon (Issledovaniye prichin rassypayemosti ferrosilitsiya)

PERIODICAL: Tr. Sibirsk. metallurg. in-ta, 1957, Nr 4, pp 208-214

ABSTRACT: Investigations were carried out in order to establish how the friability of Fe-Si preserved in air or water is affected by various contents of Si, Al, and P. It is established that alloys containing 55-65% Si exhibit greatest tendency toward friability; the Al affects this tendency only when the Si content is greater or smaller than indicated above; Al also increases the friability of alloys at reduced concentrations of P. In laboratory conditions, regardless of the content of Si and Al, specimens of alloys did not crumble when the P content amounted to less than 0.01%; shop specimens, however, did not crumble only if the P content was less than 0.03% and their friability increased with increasing P content. An attempt to preserve alloys with friable tendencies under water resulted in a considerable increase in the rate of their disintegration; however,

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SOV/137-58-8-16472

### An Investigation of Causes of Friability of Ferrosilicon

alloys possessing no such tendencies in air did not disintegrate in water either. Shielding the alloys from air immediately after casting by means of H<sub>2</sub>, vacuum, or paraffin protected them from crumbling regardless of their Si and P content. Gases which evolved during the first stage of the interaction between the alloys and water were composed of 35-65% H<sub>2</sub> and 30-60% PH<sub>3</sub>, whereas the gases produced in the second stage consisted almost entirely of H<sub>2</sub>. Bibliography: 3 references.

A.Sh.

1. Iron-silicon alloys--Physical properties
2. Silicon--Metallurgical effects
3. Aluminum--Metallurgical effects
4. Phosphorus--Metallurgical effects
5. Air--Metallurgical effects

SOV/137-58-9-18557

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 54 (USSR)

AUTHORS: Zotkin, I. A., Kramarov, A. D.

TITLE: Liquation of Silicon and its Effect on the Friability of Ingots of 75% Ferrosilicon (Likvatsiya kremniya i yeye vliyanie na rassypayemost' slitkov 75%-nogo ferrosilitsiya)

PERIODICAL: Tr. Sibirsk. metallurg. in-ta, 1957, Nr 4, pp 215-221

ABSTRACT: The effect of the thickness of 75% Fe-Si ingots (I) on the degree of liquation of Si contained in them was investigated, together with the effect of the liquation of Si on the friability of the I. During casting of four-step I in lined molds it was established that the liquation of Si, which in this case manifests itself by the fact that the upper portions of the I are richer in this element, increases with increasing thickness of the I and attains significant proportions when the thickness is greater than 100 mm; as a result thereof, the Si content in the lower portion of the I is reduced to 60-68%. I with such Si content and with a P content varying from 0.03% to 0.04%, whether stored in the open air or in an enclosed dry area, disintegrated within one month after casting, whereas I less than 100 mm

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SOV/137-58-9-18557

Liquation of Silicon and its Effect (cont.)

thick did not crumble. When I were cast into cast-iron molds, the degree of liquation of Si contained in the I was reduced and the nature of the process was altered, the maximum content of Si being observed in the upper and lower regions of the I, whereas the central region exhibited a minimum amount of Si. In this instance only I with a thickness greater than 170 mm were observed to disintegrate. Bibliography: 4 references.

A. Sh.

1. Iron silicon alloys--Casting
2. Silicon (Liquid)--Metallurgical effects

ZOTKIN, I.A., insh.; KRAMAROV, A.D., prof.

Investigating causes of ferrosilicon crumbling. Trudy Sib. nat. inst.  
no.4:208-214 '57. (MIRA 11:6)

(Ferrosilicon)



ZOTKIN, I.A., inzh.; KRAMAROV, A.D., prof.

Liquation of silicon and its effect on the crumbling of 75 percent  
ferrosilicon ingots. Trudy Sib. met. inst. no. 4:215-221 '57.  
(Ferrosilicon) (Solidification) (MIRA 11:6)

MATVEYENKO, I.S.; ZOTKIN, I.A.

Accelerating the melting process by oxygen feed to the cupola hearth.  
Izv. vys. ucheb. zav.; chern. met. no.2:132-137 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.  
(Cupola furnaces) (Oxygen--Industrial applications)

BELYAKOV, R.S., kand. tekhn. nauk; SERGIYEVSKIY, V.P., dotsent; ZOTKIN, I.A.,  
kand. tekhn. nauk; TIMOFEYEV, A.A., kand. tekhn. nauk; KHARPOV, A.Ya.,  
kand. tekhn. nauk; APON'KIN, V.A., inzh.; BUDAKEV, V.I., inzh.;  
MATVEYENKO, I.S., inzh.

"Foundry alloys" by P.P. Zhevtunov. Reviewed by R.S. Belyakov and  
others. Izv. vys. ucheb. zav.; chern. met. 2 no.4:157-161 Ap '59.  
(MIRA 12:8)

1. Zaporozhskiy mashinostroitel'nyy institut (for Belyakov).
2. Sibirskiy metallurgicheskiy institut (for all except Belyakov).  
(Foundry machinery and supplies) (Alloys)  
(Zhevtunov, P.P.)

ZOTKIN, I.A.

"Investigation of the causes of the scattering of ferrosilicon."  
Min Higher Education Ukrainian SSR. Dnepropetrovsk Order of  
Labor Red Banner Metallurgical Inst imeni I. V. Stalin.  
Dnepropetrovsk, 1956. (Dissertation for the Degree of Candidate  
in Technical Sciences).

SO: Knizhnaya letopis', No. 16, 1956

1. ZOTKIN, I. I.
2. USSR (600)
4. Viticulture
7. Restoring an overgrown vineyard without removing vines. Vin. SSSR 13  
No. 1, 1953.

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

1. ZOTKIN, I.I.; YALOVENKO, V.T.
2. USSR (600)
4. Viticulture
7. Systematic improvement of scientific practices in agriculture. Vin.SSSR 12 no.10, 1952.

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

ZOTIN, I.P., dots., kand. tekhn. nauk

Initial stage in analyzing skyscraper frames. Trudy Ural.  
politekh. inst. no.71:40-61 '59. (MIRA 12:8)  
(Structural frames)

ZOTKIN, I.T.; CHIGORIN, A.N.

Observations of Venus in 1949 and 1950. Biul.VAGO no.12:3-9  
'53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, otdel planet i Luny.  
(Venus (Planet))



ZOTKIN, I.T.

Lengthening of the horns of the crescent of Venus. Bial.VAGO  
no.12:9-12 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, otdel planet i Iuny.  
(Venus (Planet))

**ZOTKIN, I.T.**

Approximate determination of the trajectory of a bolide in the atmosphere. Biul.VAGO no.13:25-28 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, meteornyy otdel. (Meteors)

ZOTKIN, I.T., (Moskva)

Processing one-sided photographs of meteors. *Biul. VAGO* no.19:54-61  
'56. (MIRA 10:3)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, meteornyy otdel.  
(Meteors) (Astronomical photography)

ZOPKIN, I. T.

Fireball over the Ural Mountains. Astron. tsirk. no. 169:20-21 '56.  
( Meteors) (MLRA 9:10)

ZOTKIN, I.T.; KRINOV, Ye.L.

Studying fall conditions of the Kunashak stone meteorite shower.  
Meteoritika no.15:51-81 '58. (MIRA 11:4)  
(Chelyabinsk Province--Meteorites)

ZOTKIN, I.T.; KRIMOV, Ye.L.

Studying fall conditions of the Nikolskoye stone meteorite.  
Meteoritika no.15:82-96 '58. (MIRA 11:4)  
(Moscow Province--Meteorites)

ZOTKIN, I.T.

Popularization of meteoritics; abridged report. *Meteoritika*  
no.16:120-122 '58. (MIRA 11:8)  
(Meteorites)

ZOTKIN, I.T.; SHERESHVSKAYA, A.B.

Shape of the crescent and surface features of Venus in 1951.  
Biul.VAGO no.23:39-45 '58. (MIRA 11:11)

1. Moskovskoy; otdeleniye Vsesoyuznogo astronomo-geodazicheskogo  
obshchestva, planetnyy otdel.  
(Venus (Planet))



33-35-3-24/27

**AUTHOR:** Bronshten, V.A. and Zotkin, I.T.  
**TITLE:** The Seventh Full Assembly of the Commission "Comets and Meteors" of the Astronomical Council of the Academy of Sciences of the USSR (VII plenum komissii po kometam i meteoram astronomicheskogo soveta akademii nauk SSSR)  
**PERIODICAL:** Astronomicheskii zhurnal, 1958, Vol 35, Nr 3, pp 503-506 (USSR)  
**ABSTRACT:** The seventh full assembly of the commission "Comets and Meteors" took place May 13 - 17, 1957 in Odessa. The participating organizations were: 1. The Astronomical Assembly of the Academy of Sciences of the USSR 2. The Committee for Meteorites of the Academy of Sciences of the USSR 3. The Astronomical Main Observatory of the Ukrainian SSR (Kiyev) 4. Astrophysical Laboratory of the Institute for Physics and Geophysics of the Academy of Sciences of the Turkmenian SSR (Ashkhabad) 5. Astronomical Observatory of the Academy of Sciences of the Tadzhik SSR (Stalinabad) 6. Astronomical Observatory imeni Engel'gardt (Kazan') 7. Problem-Radiolaboratory of the Kazan' University 8. Institute for Theoretical Astronomy of the Academy of Sciences of the USSR (Leningrad) 9. Observatory of the Kiyev University. 10. Observatory of the Odessa University 11.-13. Chairs of Astro-

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33-35-3-24/27

The Seventh Full Assembly of the Commission "Comets and Meteors"

nomy at the Universities Kiev, Odessa, Ural 14. Chair of Radiotechnics at the Khar'kov Polytechnical Institute 15. Chair of Construction of Radio equipment at the Tomsk Polytechnical Institute 16. Odessa Pedagogical Institute 17. Kiev Polytechnical Institute. 18. Central Council of the All-Union Astronomic-geodetic Society, and their Moscow, Odessa, and Sverdlov Sections 19. Representatives of the Astronomical Institute of the Czechoslovakian Academy of Sciences Zd. Tseplekha.

9 general meetings and 5 sectional meetings took place. The following principal questions formed the order of the day of the full assembly.

- 1.) Preparation of the scientific research organizations for the performance of observations in the next geophysical year.
  - 2.) Scientific problems and theory of method of the radio observations of meteors.
  - 3.) Preparation of the discussion on the origin of comets on the occasion of the meeting 1958.
- 63 lectures given in the general meetings and sectional meetings are mentioned in the report.

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The Seventh Full Assembly of the Commission "Comets  
and Meteors"

33-35-3-24/27

The presidency of the commission "Comets and Meteors" was  
confirmed as follows:

- 1.) Chairman : Professor V.V. Fedynskiy
- 2.) Deputy of the chairman : Dotsent K.Y. Kostylev, Doctor of  
physical-mathematical Sciences S.M. Poloskov
- 3.) Scientific Secretary : I.T. Zotkin

SUBMITTED: January 25, 1958

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VLASOV, Yu.P.; ZOTKIN, I.T. (Moskva)

Photographing Jupiter with an ocular magnification. *Biul.VAGO*  
no.24:45-52 '59. (MIRA 13:4)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, otdel planet.  
(Jupiter (Planet))  
(Astronomical photography)

ZOTKIN, I.T.

Concerning the anomalous optical phenomena in the atmosphere, connected with  
the fall of the "Tungusk Meteor."

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"METEORITKA" (Meteorites-Studies) Issue no. 20 - 1961, sponsored by the  
"Committee on Meteorites" of the Soviet Academy of Sciences - Moscow - 1961,  
208 pages, and containing Collected Works ("Trudy") of the "9th Meteorite Conference"  
Organized by the Committee on Meteorites of the Soviet Academy of Sciences" and  
Held in KIEV on 2-4 June 1960.

S/030/60/000/01/049/067  
B015/B011

3 (1)  
AUTHOR:

Zotkin, I. T.

TITLE:

Study of Comets and Meteors

PERIODICAL:

Vestnik Akademii nauk SSSR, 1960, Nr 1, p 96 (USSR)

ABSTRACT:


A plenary meeting of the Komissiya po kometam i meteoram (Commission for Comets and Meteors) was held at Khar'kov from September 25 to 28, 1959. Lectures and communications were for the most part devoted to observation results of meteors in the period from 1957 to 1959. Discussions of the observation results concerning large comets, obtained by the Institut astrofiziki Akademii nauk Tadzhikskoy SSR (Institute of Astrophysics of the Academy of Sciences of the Tadzhikskaya SSR) disclosed the necessity of using large instruments for such observations. Among other things, the plenary meeting suggested the following measures to be taken for the further development of permanent cometic astronomy in the Soviet Union: organization of permanent radar observation posts of meteoric activity (Kiyev, Kazan', Tomsk, Irkutsk, Stalinabad); elaboration of a new method and radio apparatus (Khar'kov, Tomsk, Kazan', Odessa, Ashkhabad); utilization of modern computers for interpretation of observation

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Study of Comets and Meteors

S/O30/60/000/01/049/067  
B015/B011

results; equipment of meteoric stations with special high-power cameras. The recommendation was made to commission the Institut prikladnoy geofiziki Akademii nauk SSSR (Institute of Applied Geophysics at the Academy of Sciences of the USSR) with the coordination of all meteoric investigations. A new body of the Commission for Comets and Meteors was elected under the chairmanship of V. V. Fedynskiy.



ZOTKIN, I.T.

Observations of Draconides, October 8-11, 1959. Biul.sta.opt.  
nabl.isk.sput Zem. no.4:12-16 '60. (MIRA 13:11)

1. Komissiya po kometam i meteoram Astrosoveta AN SSSR.  
(Meteors--October)



S/534/60/000/19/003/005  
D226/D302

Preliminary results of the work ...

Other members of the expedition were: O.A. Kirova -- Minerologist, B.I. Vronskiy -- Geologist, Yu.M. Yemel'yanov -- Chemist, I.T. Zotkin -- Astronomer, S.A. Kuchay -- Physicist, P.N. Paley -- Chemist, 2 KMET laboratory assistants, Ye.I. Malinkin, T.M. Gorbunova, and a "collector" K.D. Yankovskiy, who took part in the expedition of 1929-1930, and who, therefore, was able to evaluate changes in the area during the last 28 years. The expedition was joined by camera operator M.A. Zaplatin from the Moscow Studio of Documentary Films and had two local senior guides: A.I. Dzhenskoul' and A.I. Doonov. The expedition left Moscow on June 3 and returned on August 10 having spent 34 days in the studied area. The tasks of the expedition were as follows:

- 1) To undertake trans-section routes through the whole area of the forest fall of 1908, to determine its general character, its extension and boundaries;
- 2) to collect soil samples and analyze them on the spot for their iron and nickel content and determine

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Preliminary results of the work ... S/534/60/000/19/003/005  
D226/D302

the ratio Ni : Fe., on the assumption that the meteorite was an iron one. The most interesting samples were to be taken twice and retained for more detailed study in Moscow. It was planned to collect samples throughout the whole area from squares with a side length of 5 km. This plan was abandoned later; 3) to work out a fieldwork plan for the next expedition, based on actual observations and collected data. The expedition established camp in the hamlet Kulik in the north-western part of the area. Preliminary results of the fieldwork: The destruction of the forest, caused by the 1908 meteorite is still the most important evidence of its impact and was, accordingly, most thoroughly investigated. Leafy trees which fell in 1908 were, of course, completely rotten but conifers were well preserved, although general observations were hindered by the growth of young trees. The whole area of forest destruction amounts to 1500 km<sup>2</sup>. This can be clearly observed by the scale of forest-fall and the radial character of its distribution. The whole region was divided by

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Preliminary results of the work ...

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the expedition into three zones. 1) A zone, where the trees fell without any clear orientation, called "unoriented zone". It is situated in the depression around the "Yuzhnoye Boloto" (Southern Marsh) and forms the central region, from whose boundaries the radially oriented forest fall begins; 2) The second area was called the zone of "mass forest fall", although isolated groups of living old trees were to be found in this area. Visual estimation of fallen trees amounted to 80-90 %; 3) The zone of partial forest destruction; its area could be estimated only approximately, the percentage of fallen trees near its boundaries amounting probably to 15 - 20 %. These boundaries estimated by the expedition agreed fairly well with those given by local hunters and with the aerovisual estimation made by K.P. Florenskiy in 1953. The expedition studied also the remainder of the forest conflagration which took place during the catastrophe. Its conclusions differ from those expressed by previous investigators: Ye.L. Krinov (Ref. 1: Tungusskiy Meteorit / Tungussk Me-

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Preliminary results of the work ... S/534/60/000/19/003/005  
D226/D302

teorite<sup>7</sup> Izd-vo AN SSSR, 1949) and L.A. Kulik (Ref. 14: Dannyye po Tunguskomu meteoritu k 1939 g /Data on the Tungusk Meteorite for 1939/ Dokl. AN SSSR, 22, no. 8, 520-524, 1939) both thought that during the catastrophe, spontaneous partial burning of broken trees took place without provoking a general forest fire. The conclusions of the expedition may be summarized as follows: 1) Near the center of the devastation area, many broken trees show burntraces at their breaking spots. This clearly proves the sequence of events: Burning occurred after the action of the shock-wave; 2) Traces of burning do not show any definite orientation toward the center of devastation area. They occur in most cases on the eastern side of trunks, as a result of wind direction during the fire; 3) Many trunks clearly indicate prolonged conflagration. B.I. Vronskiy found on the "Yuzhnoye Boloto" two well developed living twin-larches. One of them was found to be 104 years old. Both trees were devoid of any traces of fire; they survived because they grew in the middle of the marsh,

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Preliminary results of the work ... S/534/60/000/19/003/005  
226/D302

where the fire could not penetrate; 4) In all probability the fire was a result of the catastrophe; in type it differs from typical taiga fires by the clearly surface character of the burn, and its area comprised most of the area of the zone of "mass forest fall", where fallen trees had accumulated in great quantity. Some observations, however, suggest several starting points for the forest conflagration, from which the fire spread in a normal way [Abstractor's note: These not given]. It may be assumed, the authors state, that the timber fall and the forest fire were effects of the same cause. As regards the growth of new trees, the expedition concluded that young trees grow very fast in burned areas. Some of these trees, found to be 35-40 years old, were much thicker than the dead ones (100 or even 300 years old). Old surviving trees, which were dwarfed before the fire, showed an intensified growth subsequently. Further biological investigations are needed, the authors state, but at present one cannot speak of a dwarfing influence of the catastrophe on vegetation.

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Preliminary results of the work ... S/534/60/000/19/003/005  
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growth. The expedition carried out an extensive search for any earth disturbances which could be the results of an explosion with a possible energy equaling  $10^{20}$  -  $10^{23}$  ergs., according to F. Whipple (Ref. 7: "The Great Siberian Meteor and the Waves, Seismic and Aerial which it produced". Journ. of the Roy. Meteorological Soc., 56, no. 236, 1930). None were found. Certain depressions or holes which were examined resulted, in fact, from the dissolution of gypsum in the subsoil, and on one occasion from a temporary lake, formed by a dam of fallen trees (since burst). The "Yuzhnoye Boloto" which is one of the proposed places of the meteorite's impact was transacted four times by K.P. Florenskiy, Yu.M. Yemel'yanov and B.I. Vronskiy. No traces of destruction which could possibly be associated with a powerful explosion were observed, no rock eruptions, no peat disruptions. All members of the expedition unanimously agreed, the "Yuzhnoye Boloto" could not be the center of a surface explosion which produced the general forest fall; the formation of a crater,

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Preliminary results of the work ... S/534/60/000/19/003/005  
D/226/D302

many hundreds of meters in diameter, which was subsequently over-  
grown, is regarded by the members as a quite improbable assump-  
tion, but this opinion does not exclude the possibility that  
certain parts of the meteorite could have fallen to the bottom  
of the bog without having any critical explosive consequences.  
In order to ascertain the presence of iron and nickel, soil  
samples were taken from about 80 places, most of these in the  
"unoriented zone". Undisturbed turf and soil layers (5 dm<sup>2</sup> in  
area and 5 cm thick) were dug out. Their thickness was suffi-  
cient, because the increase in soil-thickness in this district  
is much less than 5 cm per 50 years and therefore, the soil  
layer corresponding to 1908, was always included in the samples.  
The samples were then disintegrated over a basin fitted with 3  
magnets, (roots removed manually), and the soil was thoroughly  
washed in the basin. The residual magnetic slush was rinsed many  
times through a magnetic trap. The particles in the magnetic

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Preliminary results of the work ...

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D226/D302

slush were mostly over 0.1 mm, although certain of them were up to ten times smaller. The residue was then dried and samples weighing 0.1 - 1.0 g were dissolved in HCl and tested calorimetrically for Fe and Ni. When no traces of Ni were found in this way, separate iron particles were picked out from the residue and examined by O.A. Kirova. Again only negligible traces of Ni were found, which proves the non-cosmic origin of those particles. Apart from iron particles certain minute silicomagnetic globules were observed. They were not analyzed on the spot, but brought back to Moscow. Even if they did come from outer space, there is no evidence to connect them with the meteorite. Upon returning to Moscow, the expedition forwarded soil and peat from the area of "Yuzhnoye Boloto" to the Institute of Geochemistry and Analytical Chemistry AS USSR to determine their radioactivity. Tests, conducted under the supervision of Professor V.I. Baranov showed that there were no differences in the radioactive content of the given samples and that of similar soils from other regions. The

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Preliminary results of the work ...

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D226/D302

authors conclude that 1) The general aspect of the forest devastation suggests that the basic direction of the shock was from above; this means that the wave center was situated high above the earth's surface; 2) The fact that no parts of the meteorite were found does not prove that they did not fall into the area, for only a few routes -- made on foot -- were investigated; 3) There could have been several starting points for the fire as the result of the shock wave from above; 4) The contours of the zone of mass forest destruction and the excentricity of the "un-oriented zone" suggest the action of a shock-wave having neither the correct spherical shape, nor central symmetry. Nevertheless, this assumption seems to be contradicted by the radial distribution of the fallen trees; 5) During the fieldwork, no particles of an iron meteorite were found. These negative results may have been due to: The great dispersion state of meteorite particles which were too small to be separated by the normal methods applied in fieldwork; the possibility of complete oxidation of minute

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Preliminary results of the work ...

S/534/60/00. 79/003/005  
D226/D302

iron particles over 50 years; the notable deviation of dispersion ellipse from the center of the forest fall. The assumption that the meteorite was of the iron-type has no factual foundation, but, on the basis of currently available data, it is also impossible to place it in any other category; 6) The authors point out the discrepancy between the general atmospheric disturbance in 1908 and the testimony of eye witnesses; None of them spoke of powerful smoke trails of the meteorite. It is possible that such a smoke-tail detached itself from the meteorite in the upper part of the atmosphere. Eye witness testimony was reexamined, but found rather obscure and confusing. All these considerations suggest that at present, it is too early to consider the Tunguska meteorite as belonging to the crater forming category. Apparently the meteorite caused great devastation on the earth's surface without a crater being formed. General information on the destructive action of shock-waves may be found in the work of K.P. Stan-yukovich, G.S. Golitsyn (Ref. 6: Udarnyye volny [Shock Waves]).

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Preliminary results of the work ...

S/534/60/000/19/003/005  
D226 /D302

Priroda, no. 12, 1958) Academician A.P. Vinogradov asked M.A. Tsikulin and V.N. Rodionov (Ref. 15: Priblizhennaya otsenka parametrov Tungusskogo meteorita 1908 g po karte razrusheniy lesnogo massiva /Approximate Evaluation of the Parameters of the Tungusk Meteorite of 1908, according to the Map indicating Forest Zone Destruction<sup>7</sup>, Narodnokhozyaystvennoye ispol'zovaniye vzryva, no. 6, Sibirskoye otd. AN SSSR, 1959) to interpret the findings of the expedition. Their evaluation showed that the observed phenomena could be best explained as the results of a shock wave, submitted to an acute braking action, caused by the disintegration of the meteorite. The authors suggest a plan for further investigations, which includes: 1) Preparing a very detailed map of the forest zone destruction, using all new available topographic data of the whole area; 2) Searching further for meteorite parts on the earth's surface and in the deposits of lake beds; 3) Researching on the dispersion ellipse outside the devastation area; 4) Studies by marsh specialists on possible changes in

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Preliminary results of the work ...

S/534/60/000/19/003/005  
D226/D302

peat formation in the "Yushnoye Boloto" and in the state of sub-soil permanent freezing; 5) Studying the general ecology of the area; 6) Studying in detail all the material collected. The authors feel, therefore, that it is necessary to organize a new expedition, comprising specialists of many kinds, and that it is important to do it as soon as possible for the traces of the meteorite impact are already fading. There are 27 figures, 1 table and 15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: F. Whipple, "The Great Siberian Meteor and the Waves, Seismic and Aerial which it Produced." Journ. of the Roy. Meteorological Soc., 56, no. 236, 1930. X

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ZOTKIN, I.T.

Determining the path of fireballs. Bul.YAGO no.26:27-35 '60.  
(MIRA 13:10)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, meteornyy otdel.  
(Meteors)

ZOTKIN, I. T.

Observations of Draconids on October 8-11, 1959. Astron. tsir.  
no.209:34-38 Nr '60. (MIRA 13:9)

1. Komissiya po kometam i meteoram Astrosoveta AN SSSR, Moskva.  
(Meteors--October)

ZOTKIN, I.T. Primalni uchastiye: MARTYNEKO, V.V.; SHAKINA, Ye.G.;  
TERENT'YEVA, A.K.; KHOTINOK, R.L. FADYNSKIY, V.V., otv.red.;  
BERKGAUT, V.G., red.isd-va; YUPIFANOVA, L., tekhn.red.

[Instructions for observing meteors] Instruktsia dlia nablju-  
denii metecrov. Moskva, Izd-vo Akad.nauk SSSR, 1961. 52 p.  
(MIRA 14:4)

(Meteors)

S/169/61/000/011/065/065  
D228/D304

AUTHOR: Zotkin, I. T.

TITLE: Anomalous optical phenomena in the atmosphere related  
to the fall of the Tungus meteorite

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 11, 1961, 24-25,  
abstract 1G232 (V sb. Meteoritika, no. 20, M., 1961,  
40 - 55)

TEXT: Descriptions are presented for the phenomena of the twi-  
light glow of the atmosphere and the appearance of noctilucent  
clouds which were observed in different countries of the world af-  
ter the fall of the Tungus meteorite (end of June to the beginning  
of July 1908). 47 references. [Abstractor's note: Complete transla-  
tion].

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ASTAPOVICH, I.S.; BAKULIN, P.I.; BAKHAREV, A.M.; BRONSHTEIN, V.A.; BUGOSLAVSKAYA,  
N.Ya. [deceased]; VASIL'YEV, O.B.; GRISHIN, N.I.; DAGAYEV, M.M.;  
DUBROVSKIY, K.K. [deceased]; ZAKHAROV, G.P.; ZOTKIN, I.T.; KRAGER, Ye.N.;  
KRINOV, Ye.L.; KULIKOVSKIY, P.G.; KUNITSKIY, R.V.; KUROCHKIN, N.Ye.;  
ORLOV, S.V. [deceased]; POPOV, P.I.; PUSHKOV, N.V.;  
RYBAKOV, A.I.; RYABOV, Yu.A.; SYTINSKAYA, N.N.; TSEBEVICH, V.P.;  
SHCHIGOLEV, B.M.; VORONTSOV-VEL'YAMINOV, B.A., red.; POLOMAREVA, G.A.,  
red.; KRYUCHKOVA, V.N., tekhn. red.

[Astronomical calendar; permanent part] Astronomicheskii kalendar';  
postoiannaia chast'. Izd. 5., polnost'iu perer. Otv. red. P.I. Bakulin.  
Red. kol. V.A. Bronshten i dr. Moskva, Gos. izd-vo fiziko-matem. lit-ry,  
1962. 771 p. (MIRA 15:4)

(Astronomy—Yearbooks)

S/026/62/000/008/003/005  
D050/D113

AUTHORS: Florenskiy, K.P., Candidate of Geological and Mineralogical Sciences,  
and Zotkin, I.T.

TITLE: New explorations, new results

PERIODICAL : Priroda, no. 8, 1962, 31-39

TEXT: The article deals with detailed field investigations conducted by various groups and organizations including the AS USSR in 1958 and 1961 and its Siberian Department, to disclose the nature of the Tungus phenomenon. The following results were obtained: A crater caused by a meteorite fall could not be found; no proof could be obtained that the explosive wave was spherical - a characteristic of a localized central explosion; the forest fires were caused by a flash burn; no meteoric matter could be found except for small amounts contained in magnetite and silicate beads which did not appear to be of cosmic origin. Thus, the described investigations confirm the hypothesis of the cometary nature of the phenomenon, established by I.S. Astapovich and F. Upplo and now supported by Academician V.G. Fesenkov. A new expedition is now continuing research in the Tungus area. There are 4 figures and 1 table.

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3/026/62/000/006/003/005  
D050/D113

New explorations, new results

ASSOCIATIONS: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo  
AN SSSR (Institute of Geochemistry and Analytical Chemistry,  
AS USSR), Moscow (Florenskiy); Komitet po meteoritam AN SSSR  
(Committee on Meteorites, AS USSR), Moscow (Zotkin)

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Visual observations of meteors ... S/831/62/000/008/013/016  
E032/E114

The visual observations were accompanied by telescopic counts. The following VAGO stations took part in the IGY programme: Simferopol', Moscow, Ryazan', Kiev, Alma-Ata, Sverdlovsk and Dushanbe. The Simferopol' station was particularly well equipped and incorporated a photographic meteor patrol, instruments for the observations of telemeteors, and visual observation frames. Regular IGY observations were begun on June 20, 1958. A detailed calendar of observations is reproduced. Altogether about 22 000 meteors were recorded. . Analysis of the data is continuing. There are 1 figure and 3 tables.

ZOTKIN, I.T. (Moskva); CHIGORIN, A.N. (Moskva)

Using computers for processing statistics of visual observations  
of meteors. Biul.VAGO no.30:45-52 '62. (MIRA 15:8)

1. Moskovskoye otdeleniya Vsesoyuznogo astronomo-geodeticheskogo  
obshchestva, meteornyy otdel.  
(Electronic analog computers) (Meteors)

ZOTKIN, I.T.; LIPAYEVA, N.A.

Number of Delta-Aquarids in 1960. Biul.VAGO no.32:3-7 '62.

(MIRA 15:11)

1. Moskovskoye otdeleniya Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva.

(Meteors--May)

ZOTKIN, I.T.; FLORENSKIY, K.P.

Encounter with a comet. Znan.-sila 37 no.5:40-43 My '62.  
(MIRA 15:9)  
(Podkamennaya Tunguska Valley—Meteorites)

37395

S/033/62/039/002/009/014  
E032/E514

3,1550

AUTHOR: Zotkin, I.T.

TITLE: On the ring around Jupiter

PERIODICAL: Astronmicheskiy zhurnal, v.39, no.2, 1962, 303-304

TEXT: In the previous paper in this issue (pp.290-302), S. K. Vsekhsvyatskiy concludes that there is a shadow cast on Jupiter's disc by a ring surrounding this planet. The present author makes use of the data reported by Vsekhsvyatskiy to plot the planetographic latitude of the shadow (band) as a function of the planetographic latitude of the sun. The plot appears to consist of a random distribution of points and the author concludes that there is very little evidence that the equatorial band is in fact a shadow of the hypothetical ring. There is 1 figure.

ASSOCIATION: Komitet po meteoritam Akademii nauk SSSR  
(Committee for Meteorites, Academy of Sciences USSR)

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ZOTKIN, I.T.

Formula for determining the number of meteors. Antron, tsir.  
no.228:28-29 Ap '62. (MIRA 16:6)

1. Moskovskiy otdel Vsesoyuznogo astronomo-geodesicheskogo  
obshchestva.

(Meteors)

FLORENSKIY, K.P., kand.geol.-mineral.nauk; ZOTKIN, I.T.

New search, new results; the expedition of 1961. Prirada 51  
no.8:31-39 Ag '62. (MIRA 15:9)

1. Institut geokhimi i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva (for Florenskiy). 2. Komitet po meteoritam AN SSSR, Moskva (for Zotkin).  
(Podkamennaya Tunguska Valley--Meteorites)

L 14537-63

EWI (1<sup>st</sup> / POC (v) / ADS / EEO-2 / ES (v)

APPTIC / ISS / EEO-3 / AFSS

Pi-4 / Po-4 / Pq-4 / Pe-4 GW

ATTENTION: Zoltan, J. S.

... shall be coordinated.

ASSOCIATION: 0326

DATE: 03/26/63

ENCL: 00

SUB CODE: AS

NO RESP 601: 000

OTHER: 000

ZASLAVSKAYA, N. I.; ZOTKIN, I. T.; KIROVA, O. A.

Size distribution of pellets of cosmic origin in the region  
of the fall of the Tungus meteor. Dokl. AN SSSR 156 no. 1:  
47-49 My '64. (MIRA 17:5)

1. Komitet po meteoritam N SSSR. Predstavleno akademikom  
V. G. Fesenkovym.

ACCESSION NR: AT4035837

S/2534/64/000/024/0112/J128

AUTHOR: Boyarkina, A. P.; Demin, D. V.; Zotkin, I. T.; Past, V. G.

TITLE: Study of the shock wave of the Tungus meteorite from the associated forest destruction

SOURCE: AN SSSR. Komitet po meteoritam. Meteoritika, no. 24, 1964. Trudy\* Desyatoy Meteoritnoy konferentsii v Leningrade 29 maya - 1 iyunya 1962 g., 112-128

TOPIC TAGS: meteorite, Tungus meteorite, shock wave

ABSTRACT: The radial flattening of the forest in the area of the explosion of the Tungus meteorite is the most reliable criterion for study of the propagation of the shock wave accompanying the explosion. The forest flattening has been investigated repeatedly on the ground and from the air and a considerable body of literature has accumulated concerning the phenomena, parts of which are reviewed in this paper. Data from the expeditions of 1960 and 1961 are discussed in the greatest detail; the methods applied to study of the forest flattening are becoming increasingly sophisticated. Emphasis in this article is on statistical analysis of data collected over the 2,000-km<sup>2</sup> area of forest flattening. New topographic

Card 1/4

ACCESSION NR: AT4035837

surveys and aerial photography have facilitated the investigation. Data are available for 580 points throughout the area; in the latest expedition a grid was laid out and azimuths of fallen trees measured carefully in the sample areas. A general description of the area of flattening is followed by a statistical analysis of the forest destruction. Particular attention is given to the central area and a study of the influence of relief on the degree of destruction. Fig. 1 of the Enclosure shows the flattening of the forest in the area of falling of the meteorite. Orig. art. has: 25 formulas, 11 figures and 1 table.

ASSOCIATION: Komitet po meteoritam, Akademiya nauk SSSR (Committee on Meteorites, Academy of Sciences SSSR)

SUBMITTED: 00

DATE ACQ: 28May64

ENCL: 02

SUB CODE: AA

NO REF SOV: 012

OTHER: 000

Card

2/4

ACCESSION NR: AP4035807

number, M the mass of spherules,  $S = 1.2$ . A similar distribution applies to all  
meteors observed. It is believed that there is enough evidence to assume that the  
Tungus meteorite was the core of a small comet which exploded in passing the  
atmosphere at a height of about 10 km. Orig. art. has: 2 figures.

ASSOCIATION: Komitet po meteoritam Akademii Nauk SSSR (Committee on Meteorites,  
Academy of Sciences SSSR)

SUBMITTED: 18Dec63

DATE ACQ: 20May64

ENCL: 00

SUB CODE: AA

NO REF SOV: 005

OTHER: 004



"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R002065510001-1  
CIA-RDP86-00513R002065510001-1"

ZOTKIN, I.T.

What one should know about solids. Zem. i vsel. i no. 3:80-82 KJ-Je  
'65. (MIRA 18:8)

ACC NUM AP601206?

SOURCE CODE: UA/0384/65/000/006/0463/0066

AUTHOR: Zotkin, I. T.

CRG: none

TITLE: Meteorite networks

SOURCE: Zemlya i vseennaya, no. 6, 1965, 63-66

TOPIC TAGS: meteor, meteorite, meteor tracking, meteor observation

ABSTRACT: A great number of problems related to the nature of meteorites and meteorites remain unsolved, primarily because of the lack of an observation network which would ensure location of meteorites soon after their falling to the earth. For this reason it has been necessary to establish special networks of stations for observing such events, such as the American network, with headquarters at Lincoln, Nebraska, described briefly in this article. Another such network exists in East Germany and Czechoslovakia; a map of the area covered by this network accompanies the text. The Czechoslovakian network is designed primarily for obtaining the astronomical characteristics of bolides, such as direction of trajectory and velocity. The search for meteorites in dissected areas such as the Carpathians is difficult, but this is partly compensated by the dense population of the area. In addition, the German and

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37  
2

L 20472

ACC NR: AP6012062

Czechoslovakian stations are situated closer together than in the United States. This also is more advantageous in that the lower parts of bolide trajectories can be photographed. All-sky cameras are used in the Czechoslovakian network. Amateur astronomers and the population of East Germany and Czechoslovakia enthusiastically report observation and finds. In the USSR the territory most suitable for such observations is the eastern part of Ukraine, which is a steppe region with a dense population. This facilitates the collection of meteorites which may fall. In addition, there are a great number of meteorological stations where facilities can be used for making such observations. Orig. art. has: 5 figures. [JPRS]

SUB CODE: 03 / SUBM DATE: none

Card 2/2 *20c*

ACC NR. AP601849

SOURCE CODE: UR/0020/60/167/001/0099/0052

AUTHOR: Zotkin, I. T.; Tsikhulin, M. A.

ORG: Committee on Meteorites, AN SSSR (Institut po meteoritnoi AN SSSR); Institute of  
Physics of the Earth, U.S.S.R. Acad. Sci., Moscow, AN SSSR (Institut Fiziki Zemli AN SSSR)

TITLE: Modeling of the explosion of the Tunguska meteorite

SOURCE: AN SSSR. Doklady, v. 167, no. 1, 1966, 99-62

TOPIC TAGS: meteorite, blast wave

ABSTRACT: Extremely time-consuming field work at the site of the destruction  
caused by the Tunguska meteorite, carried out in 1958-1965, yielded much  
factual data, especially on the pattern of falling and searing of the  
forest trees. Data were collected on the azimuths of 40,000 trees which  
were affected by the explosion of 30 June 1908. The evidence indicates  
that the devastation was caused by a powerful air wave with an energy of  
about  $4 \cdot 10^{23}$  ergs. The authors of this study exploited the collected  
data for formulating a modeling of the event. The ballistic wave was  
simulated by a small linear explosion, but particularly strong at the  
end (a photograph shows the model). The trees were simulated by wires  
3 cm in height to which a cylindrical plastic "crown" was attached. The  
wires were bent under the influence of the simulated explosion. The

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UDC: 523.51

ACC NR: AP6018493

0  
closest similarity between the modeled field of bending of the simulated trees and the pattern of forest destruction at the Tunguska site was for a slope of 30° to the horizon. Different variants of the modeled experiment are described. Apparently at the Tunguska site there was a wave of an axial explosion which determined the pattern of the falling of the trees. The increase of the linear energy of the explosion (ballistic wave) in the terminal part of the trajectory was relatively small. This article was presented by Academician V. J. Pesenkov on 16 June 1965. Orig. art. has: 4 figures and 2 formulas. [JPRS]

SUB CODE: 03 / SUBM DATE: 09Jun65 / ORIG REF: 008 / OTH REF: 003

I 44237

ACC NR. **AP6022193** SOURCE CODE: **UR/0026/66/000/006/0001/0089**

AUTHOR: Zotkin, I. T.; Tsikulin, M. A.

65  
B

ORG: [Zotkin] Committee for Meteorites AN SSSR (Komitet po meteoritam AN SSSR); [Tsikulin] Institute of Physics of the Earth Im. O. Yu. Schmidt, AN SSSR, Moscow (Institut fiziki zemli AN SSSR)

TITLE: Model of a shock wave of Tungus meteorite explosion

SOURCE: Priroda, no. 6, 1966, 81-89

TOPIC TAGS: meteorite, shock wave, shock wave formation, shock wave propagation, thermal explosion

ABSTRACT: The author discusses the peculiar radial fall of trees during the Tungus meteorite explosion. The topography of the area is described and the work of the eight seasonal field investigating expeditions to the area of the catastrophe is analyzed. The shock wave of the Tungus meteorite which imprinted itself in the area in the pattern of fall of trees, was caused by a flying meteorite breaking up at the end of its flight. The explosion was neither chemical nor nuclear, but thermal.

APPROVED FOR RELEASE: Thursday, September 26, 2002  
Zoskin, G. E. (Candidate of Chemical Sciences); Zoskin, Z. T.;  
Plorenskiy, K. P. (Candidate of Geological Mineralogical Sciences)

SOURCE CODE: UM/0030/00/000/009/0109/0111

ORG: none

TITLE: Meteor investigations (Conference at Novosibirsk)

SOURCE: AN SSSR. Vestnik, no. 9, 1966, 109-111

TOPIC TAGS: meteorite, astronomic conference, thermoluminescence

ABSTRACT:

The Committee on Meteorites and the Commission on Meteorites of the Siberian Department Academy of Sciences USSR sponsored the Twelfth Meteorite Conference in Muzhanskiy during the period 24-27 May. It was attended by 100 persons; 30 reports were presented. Several reports were presented on field and laboratory studies of the Kaali (Estonia) meteorite crater, the largest in the USSR. Study of the scattered meteorite matter has shown that the concentration of metal fragments of meteorite from the crater was discovered. The limonitized meteorite fragments contained pyroxene, schreibersite and ferronickel. Yem. N. Kramer reported that photographic studies of meteors revealed that the

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0926-0044

L 10810-67

ACC NR: A27003507

velocity of the individual fragments increases during the disintegration of a meteor body. For determining the pre-atmospheric sizes of meteors and the depth from which they came in the parent body A. K. Lavrukhin and T. A. Ibrayev have proposed the use of pairs of isotopes with close half-lives -- Na<sup>22</sup> and  $\gamma$ 49 or Mg<sup>54</sup>, and for older meteorites -- Ca<sup>36</sup> and K<sup>54</sup>. A. A. Yavnel has shown that the FeO:MgO:SiO<sub>2</sub> relations in the silicates of chondrites confirm the separation of chondrites into three groups. The main silicate minerals of chondrites are not in equilibrium conditions during crystallization. Yu. D. Kosmanov reported on high-temperature oxidation in the crust of meteorites which is characteristic of the segregation of iron and nickel. Numerous reports were given on the Tunguska meteor. Academician V. G. Pesenkov contends it was a small comet. A. V. Zolotov believes that the velocity of the Tunguska body was small and its explosion occurred due to internal energy. K. G. Ivanov proposed that the magnetic effect and glow of the sky associated with the falling of the Tunguska body be attributed to photoionization processes in the ionosphere. The conferees complained that fantastic explanations of the Tunguska event still are being published.

[MRS: 38,460]

SUB CODE: 03 / SUBM DATE: none

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513  
CIA-RDP86-00513R002065510001-1

GORBUNOVA, I.M.; ZVEREV, I.S.

Mounting of a small reflecting telescope. "Izv. teleskopostn."  
no. 1992-109 1961  
(MIRA 1861)



ZOTKIN, Igor' Yur'yavich, inzh.; SLAVERTSOV, P.M., inzh.; VAGIN, V.I.  
[Vahin, V.I.], inzh.; KOLDA, O.P., inzh.; LEVITSKAYA, G.P.  
[Levyts'ka, H.P.], red.; OLEFIRENKO, G.Yu. [Olefirenko, H.A.],  
red.; VAYNSHENER, Y.M. [Vainshener, I.M.], tekhn. red.

[Labor safety in agriculture] Okhorona pratsi v sil's'komu  
hospodarstvi. Kyiv, Derzhsil'hospvydav URSR, 1962. 258 p.  
(MIRA 16:6)

(Ukraine--Agricultural machinery--Safety measures)

ZCTKIN, L. L.

Zotkin, L.L., Evduk, R.A. I Popovkina, R.V.

33866. Vyenyera V 1948 Godu. Byullyatyen', Vayesoyuz. Astron. i Gyeodyez. O-va,  
No 7, 1949. C. 17-21. Bibliogr: 8 Nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 46, Moskva, 1949.

*Zotin, M.*

**ZOTIN, M.; KONDRASHOV, K.**

Hydrometeorological Service in the Arctic. Mor. flot 17 no.12:10-11  
D '57. (MIRA 11:1)

1. Nachal'nik otdela Arkticheskogo nauchno issledovatel'skogo instituta Glavsevmorputi Ministerstva morskogo flota (for Zotin).
2. Zamestittel' nachal'nika otdela polyarnykh stantsiy Glavsevmorputi Ministerstva morskogo flota (for Kondrashov).  
(Arctic regions--Meteorological stations)

ZOTIN, M.I.

Drift of Soviet scientific research stations in the central Arctic  
regions. Let. Sev. 2:73-78 '57. (MIRA 10:12)

1. Arkticheskiy nauchno-issledovatel'skiy institut Glavsevmorputi,  
Moskovskiy otdel.

(Arctic regions)

KREMS, A.Ya.; ZDOROV, S.F.; BONDARENKO, S.M.; ADAHOV, A.I.; ZOTKIN, M.M.  
redaktor; SHMELEV, A.A., redaktor; POLOSINA, A.S., ~~tekhnicheskii~~  
redaktor.

[Oil mining] Shakhtania razrabotka neftiannykh mestorozhdeni. Pod  
red. M.M. Zotkina i A.A. Shmeleva, Moskva, Gos. nauchno-tekhn.  
izd-vo neftianoi i gornotoplivnoi lit-ry, 1955. 273 p. (MLRA 8:8)  
(Petroleum engineering)



L 23044-66  
 ACC NR: AP6011792

correlated by the following formula:

$$\frac{u_T}{u_{T_0}} = \frac{A_1 u_n + \frac{A_2 w'}{\sqrt{\ln\left(1 + \frac{w'}{u_n}\right)}}}{A_1 u_n + \frac{A_2 w'}{\sqrt{\ln\left(1 + \frac{w'}{u_n}\right)}}$$

where  $u_T$  is the turbulent burning velocity at  $T$ ;  $u_{T_0}$  is the turbulent burning velocity at  $T_0$ .  $\theta = T/T_0$  ( $T_0$  is the final temperature of combustion products and  $T_0$ , the temperature at the flame front);  $w'$ , fluctuating velocity; and  $u_n$  is the normal burning velocity. The turbulent burning velocity can be correlated with the temperature at flow conditions of practical interest, i.e., at  $w > 50$  m/sec, by the following formula:

$$\frac{u_T}{u_{T_0}} = \left(\frac{T}{T_0}\right)^{0.63}$$

which can be used for designing combustion chambers with variable air inlet temperatures. Orig. art. has: 11 figures and 3 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 24Mar65/ ORIG REF: 008/ OTH REF: 001/ ATD PRESS: 234  
 Card 2/2

ZOTKIN, V. Ye., Eng.

Dissertation: "New Columbian-Containing Grades of Steel for Welding." Thesis Order of the Labor Red Banner List of Steel Inst. I. V. Stalin, 12 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #R0000)



PROCESSES AND PROPERTIES

Catalysis of oxygen-hydrogen mixtures on smooth, wet platinum. II. K. I. Shtal'm and A. M. Zolotarev. *Sov. Inst. phys. Chem., Abstr. Russ. U.S.S.R. No. 1, 1-20* (1957); *Chemis & Industry U.S.S.R.* -- The poisoning of the catalyst by water and very dil. alkalis depends on adsorption of OH ions which block the active centers of the Pt. The poison. of alkali plays an important part from this standpoint. Alc. also poisons the Pt because of the presence of OH groups; poisoning occurs progressively. H<sub>2</sub>O, being more mobile, has no effect. A. P.-C.

AS 1314 METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS  
OPEN  
METALS

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
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SHUBIN, V.F., prof.; ZOTIN, V.P., agronom

Collective farm of advanced cultivation practices, Zemledelie  
5 no.12:63-70 D '57. (MIRA 11:1)

1. Kolkhoz "Iskra" Bogorodskogo rayona, Gor'kovskoy oblasti  
(for Zotin).  
(Bogorodsk District, Gorki Province--Collective farms)

SOV/148-59-2-4/24

18(5)

AUTHOR: Zotkin, V.Ye. Candidate of Technical Sciences Docent

TITLE: Tungsten Behavior in Steel Smelting in Oper. Hearth Furnaces  
(O povedenii vol'frama pri vyplavke stali v martenovskikh  
pechakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Chernaya metallur-  
giya, 1959, Nr 2, pp 27-35 (USSR)

ABSTRACT: Different opinions exist on tungsten behavior in liquid steel. High-tungsten steel is usually smelted in electric arc or high frequency furnaces. Smelting in open hearth furnaces was either rejected or questioned. The author investigates tungsten behavior in basic and acid open hearth furnaces. The results of physico-chemical analyses and of experimental investigations are given. It was stated that in basic open hearth furnaces 1) tungsten steel-smelting was accompanied by considerable losses of tungsten due to the formation of calcium tungstenate in the slag; 2) tungsten oxidation increased with lowered temperatures of the metal and the slag and with higher content of free ferric and calcium oxides in the slag; 3) in carbon steel smelting with tungsten-wastes, residual tungsten

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SOV/148-59-2-1/2

### Tungsten Behavior in Steel Smelting in Open Hearth Furnaces

residual tungsten remained in the steel; 4) tungsten in liquid steel did not oxidize if the slag did not contain free calcium oxide; interaction of tungsten trioxide with carbon makes tungsten reduction possible. In acid open hearth furnaces: 1) tungsten oxidation did not occur if ferrotungsten was added directly to the liquid metal; 2) tungsten reduction by carbon was possible; 3) acid open hearth furnaces can be used for tungsten waste remelting; 4) fluidity of ferrotungsten was satisfactory even in the case of high tungsten content. There are 4 graphs, 4 tables and 8 references, 5 of which are Soviet, 2 German and 1 English.

SUBMITTED: October 27, 1958

Card 2/2

Handwritten text in a stylized, possibly cursive or shorthand script, appearing to read "B 201 W".

*Zotim, N.*

ZOTIN, N., master-kapitan

New developments in the work organization of the beaconage  
brigade. Rech. transp. 22 no. 4:31-32 Ap '63. (MIRA 16:4)

(Beacons)

A SOURCE CODE: UR/0147/66/000/003/0098/0103

AUTHOR: Zotin, V. K.; Talantov, A. V. 62

ORG: none B

TITLE: Dependence of the flame speed in the turbulent flow of a  
homogeneous mixture

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1966, 98-103

TOPIC TAGS: combustion, gas combustion, burning velocity, propulsion

ABSTRACT: A study was made of the turbulent burning velocities of  
premixed gasoline-air flames at flow velocities of 20-100 m/sec, air  
excess coefficients of 1-1.6, and initial temperatures of 423-823C.  
The method of direct flame cone measurement was used. The flame was  
stabilized with recessed flame holders and turbulence was generated with  
grids. The following relationships were plotted: the turbulent burning  
velocity vs air-excess coefficient, the combustion temperature to  
initial temperature ratio  $\theta$  vs turbulent burning velocity, the fluctuating  
velocity vs the turbulent burning velocity, and normal velocity vs  
turbulent burning velocity. The expression  $U_T = \theta^{0.8}$  was obtained for  
the turbulent burning velocity. All the experimental results could be  
correlated by the expression derived from the surface combustion model.

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UDC: 536.46

L 44565-66

ACC NR: AP6030257

$$U_T/U_N - \theta = f(W'/U_N),$$

where  $W'$  is the fluctuating velocity, and  $U_N$  is the normal burning velocity [PV]  
velocity. Orig. art. has: 9 figures.

SUB CODE: 21/ SUBM DATE: 30Oct65/ ORIG REF: 006/ OTH REF: 001  
PRESS: 5079

TSERTELI, Boris Shalvovich; ZOTIN, Vladimir Samsonovich

[Everyday traumatism] [Bytovoi travmatizm. Tbilisi, Gos.  
izd-vo "Sabchota Sakartvelo,"] 1963. 72 p. [In Georgian]  
(MIRA 17:5)



ZOTIN, A.I.; ZOTINA, R.S.

Works of Iaroslav Ivanovich Grdina on the theoretical mechanics  
of living organisms. Biofizika 1 no.5:480-492 '56. (MLRA 9:10)  
(GRDINA, IAROSLAV IVANOVICH, 1871-1931)

207 APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R002065510001-1  
CIA-RDP86-00513R002065510001-1"

ZOTINA, R.S.; ZOTIN, A.I. (Moskva).

Mathematical theories of the movement of living organisms. Usp.  
sov. biol. 44 no.3:285-299 N-D '57. (MIRA 11:1)  
(ANIMAL MECHANICS) (BIOMATHEMATICS)

ZOTINA, R.S.; KIREYEVA, A.Ya.; FABRIKANT, L.D.; STAVSKIY, A.T., red.;  
KAPRALOVA, A.A., tekhn. red.

[Collection of problems in mathematical statistics and  
probability theory] Sbornik zadach po matematicheskoi statistike  
i teorii veroiatnostei. Moskva, Gosstatizdat, 1962. 183 p.

(MIRA 16:2)

(Mathematical statistics) (Probabilities)

ACC NR: AF6021409

(N,A)

SOURCE CODE: UR/0387/66/000/006/0124/0108

AUTHOR: Zotkevich, I. A.

ORG: Siberian Scientific Research Institute of Geology, Geophysics, and Mineral Raw Material (Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki, i mineral'nogo syr'ya)

TITLE: Transformation of the coordinates of the vector of natural residual magnetization in paleomagnetic investigations

SOURCE: AN SSSR. Izvestiya. Fizika zemli, no. 6, 1966, 104-108

TOPIC TAGS: magnetization, paleontology, prospecting, coordinate system, geologic exploration, earth magnetism

ABSTRACT: In view of the fact that the interpretation of the results of paleomagnetic investigations is usually accompanied by the need for transforming the coordinates of the vector of natural residual magnetization of rocks, the author describes coordinate-transformation procedures that ensure a sufficient graphic accuracy when stereographic grids are used or for calculations with accuracy of  $0.1^\circ$ , which is the accuracy limit which can presently be attained in paleomagnetic work. The article gives graphic and analytic relations between the different coordinate frames and a nomogram for graphically obtaining the residual magnetization in the ancient system of coordinates for a folding or for a block of rocks in their contemporary position. A numerical example is given. Orig. art. has: 5 figures and 4 formulas.

SUB CODE: 08/ SUBM DATE: 14May65/ ORIG REF: 002

Card 1/1

UDC: 550.380.11

ZOTKEVICH, I.A.; UMANTSEV, D.F.

Measuring magnetic properties of rocks on an astatic magneto-  
meter. Trudy SNIIGGIMS no.10:74-77 '60. (MIRA 15:12)  
(Rocks--Magnetic properties) (Magnetometer)

ZANOWA, Maria; ZOTKIEWICZ, Regina

A few remarks on the germination of some geophytes. Wiadom botan  
6 no.3:266-268 '62.

1. Ogród Botaniczny Uniwersytetu Warszawskiego, Warszawa.

SMIRNOV, Aleksey Sergeevich; RADUGIN, Aleksey Aleksandrovich; ZOTKIN,  
A.P., otv.red.; LEVOCHKINA, L.I., tekhn.red.

[Efficient designing of molds and dies] Opyt skorostnogo  
proektirovaniia pressform i shtampov. Leningrad, Gos.soiuznoe  
izd-vo sudostroit.promyshl., 1958. 138 p. (MIRA 12:4)  
(Plastics)

ZOTKIN, A.P., meditsinskiy statistik

Medical statistics. Med. sestra 20 no.7:36-38 J1 '61. (MIRA 14:10)

1. Iz Gorodskoy bol'nitsy No.15, Kalinin.  
(MEDICAL STATISTICS)



ANGELEYKO, V.I. (Khar'kov); ZOTKIN, G.V. (Khar'kov); FIDORETS, V.M.  
(Khar'kov); ISKHAKOV, S.I. (Khar'kov); KRIVENKOV, K.V.  
(Khar'kov); RYBIN, A.S. (Khar'kov).

New grindstones. Put' 1 put. khoz. 8 no.11:26-27 '64  
(MIRA 18:2)

ZOTKIN, G.V., kand. tekhn. nauk, dotsent

Determining of stresses in the frog. Trudy KHIIT no.57:51-  
57 '62.

Conditions of the train movement over the siding of switches.  
58-69 (MIRA 16:11)

ZOTKIN, G.V. Cand Tech Sci (diss) "Deterioration and durability <sup>service life</sup>  
of cross-pieces. ~~with drawings~~ <sup>with drawings</sup> Len, 1957 18 pp, 21 cm. (Railway Railways USSR,  
Leningrad Order of Lenin Inst ~~of Engineers of Railroad Transport~~ <sup>of Engineers of Railroad Transport</sup> in Academician  
V.M. Obratsov) 125 copies  
(KL, 11-57, 98)

AUTHOR: Zotkin, I.

SOV/29-58-12-15/23

TITLE: Advice for Amateurs to Make a Telescope (Sovety po izgotovleniyu lyubitel'skogo teleskopa)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 12, pp 22-23 (USSR)

ABSTRACT: In this article the author gives some advice to amateurs. A beginner should not start by making a reflector with a large mirror. The best way is to start with an object lens not more than 100 mm in diameter. Only with sufficient experience in grinding one should venture on larger object lenses. At first, 2 equal glass panes of perfect form have to be chosen. The glass should be pure, without bubbles that might get open in grinding. Thickness of the pane should be  $1/8 - 1/10$  of its diameter. For the grinding, a solid, sturdy table is necessary. A cask filled with sand (Fig 1) may be used as such table. Grinding is done by means of abrasive powder - emery or carborundum. One starts with the coarse powders gradually passing to the finer grades. The lengthy grinding process consists in pushing forward and backward the upper glass pane on the lower pane covered with wet abrasive, turning the pane around its axis and walking around the table. As a consequence of

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Advice for Amateurs to Make a Telescope

SOV/29-38-12-15/23

such grinding, the lower pane gets a convex spherical form and the upper one an accordingly concave form. After several hours of work, the future mirror has got a fine-ground spherical surface with a center deepening of about 1 mm. The focus of such a mirror is 1 - 1.5 m. During the grinding, the upper pane may not be lifted and the abrasive powder must not dry out. The glass thus ground is polished with crocus powder until it has regained its gloss. Then it is submitted to a control. Silver coating of the finished mirror is done by oneself or by a workshop. Fomin recommends to buy the lenses ready-made. Then the dimensions of the tube are calculated considering the focal distance of the object lens and of the lens. Special attention should be paid to the rack (kremal'yernaya) part, to the attachment of the diagonal mirror and to the discharge (razgruzochnyy) mechanism. These parts need an especially precise fitter's work. Figures 4, 5, and 6 show the assembly of telescopes. The stand must be particularly solid and sturdy. A photographic tripod is quite unsuited. A detailed instruction for making a telescope for amateurs can be found in the technical literature. Practical advice and help for the procurement of required material is given by the Vsesoyuznoye

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Advice for Amateurs to Make a Telescope

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astronomo-geodezicheskoye obshchestvo (All-Union Astronomical-  
Geodetical Society), Moscow, K-9, letter box 1266. There are  
7 figures.

Card 3/3

RADCHENKO, V.G.; ARSENKIN, V.T.; ZOTKIN, I.A.

Electric slag remelting of tool steel scrap. Avtom. svar. 16  
no.6:63-65 Je '63. (MIRA 16:7)

1. Altayskiy politekhnicheskii institut im. I.I. Polzunova.  
(Tool steel—Electrometallurgy)  
(Scrap metals—Electrometallurgy)

SOV/137-58-8-16472

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 34 (USSR)

AUTHORS: Zotkin, I.A., Kramarov, A.D.

TITLE: An Investigation of Causes of Friability of Ferrosilicon (Issledovaniye prichin rassypayemosti ferrosilitsiya)

PERIODICAL: Tr. Sibirsk. metallurg. in-ta, 1957, Nr 4, pp 208-214

ABSTRACT: Investigations were carried out in order to establish how the friability of Fe-Si preserved in air or water is affected by various contents of Si, Al, and P. It is established that alloys containing 55-65% Si exhibit greatest tendency toward friability; the Al affects this tendency only when the Si content is greater or smaller than indicated above; Al also increases the friability of alloys at reduced concentrations of P. In laboratory conditions, regardless of the content of Si and Al, specimens of alloys did not crumble when the P content amounted to less than 0.01%; shop specimens, however, did not crumble only if the P content was less than 0.03% and their friability increased with increasing P content. An attempt to preserve alloys with friable tendencies under water resulted in a considerable increase in the rate of their disintegration; however,

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### An Investigation of Causes of Friability of Ferrosilicon

alloys possessing no such tendencies in air did not disintegrate in water either. Shielding the alloys from air immediately after casting by means of H<sub>2</sub>, vacuum, or paraffin protected them from crumbling regardless of their Si and P content. Gases which evolved during the first stage of the interaction between the alloys and water were composed of 35-65% H<sub>2</sub> and 30-60% PH<sub>3</sub>, whereas the gases produced in the second stage consisted almost entirely of H<sub>2</sub>. Bibliography: 3 references.

A.Sh.

1. Iron-silicon alloys--Physical properties
2. Silicon--Metallurgical effects
3. Aluminum--Metallurgical effects
4. Phosphorus--Metallurgical effects
5. Air--Metallurgical effects

SOV/137-58-9-18557

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 54 (USSR)

AUTHORS: Zotkin, I. A., Kramarov, A. D.

TITLE: Liquation of Silicon and its Effect on the Friability of Ingots of 75% Ferrosilicon (Likvatsiya kremniya i yeye vliyaniye na rassypayemost' slitkov 75%-nogo ferrosilitsiya)

PERIODICAL: Tr. Sibirsk. metallurg. in-ta, 1957, Nr 4, pp 215-221

ABSTRACT: The effect of the thickness of 75% Fe-Si ingots (I) on the degree of liquation of Si contained in them was investigated, together with the effect of the liquation of Si on the friability of the I. During casting of four-step I in lined molds it was established that the liquation of Si, which in this case manifests itself by the fact that the upper portions of the I are richer in this element, increases with increasing thickness of the I and attains significant proportions when the thickness is greater than 100 mm; as a result thereof, the Si content in the lower portion of the I is reduced to 60-68%. I with such Si content and with a P content varying from 0.03% to 0.04%, whether stored in the open air or in an enclosed dry area, disintegrated within one month after casting, whereas I less than 100 mm

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Liquation of Silicon and its Effect (cont.)

thick did not crumble. When I were cast into cast-iron molds, the degree of liquation of Si contained in the I was reduced and the nature of the process was altered, the maximum content of Si being observed in the upper and lower regions of the I, whereas the central region exhibited a minimum amount of Si. In this instance only I with a thickness greater than 170 mm were observed to disintegrate. Bibliography: 4 references.

A. Sh.

1. Iron silicon alloys--Casting
2. Silicon (Liquid)--Metallurgical effects

ZOTKIN, I.A., insh.; KRAMAROV, A.D., prof.

Investigating causes of ferrosilicon crumbling. Trudy Sib. nat. inst.  
no.4:208-214 '57. (MIRA 11:6)

(Ferrosilicon)

ZOTKIN, I.A., inzh.; KRAMAROV, A.D., prof.

Liquation of silicon and its effect on the crumbling of 75 percent  
ferrosilicon ingots. Trudy Sib. met. inst. no. 4:215-221 '57.  
(Ferrosilicon) (Solidification) (MIRA 11:6)

MATVEYENKO, I.S.; ZOTKIN, I.A.

Accelerating the melting process by oxygen feed to the cupola hearth.  
Izv. vys. ucheb. zav.; chern. met. no.2:132-137 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.  
(Cupola furnaces) (Oxygen--Industrial applications)

BELLYAKOV, R.S., kand. tekhn. nauk; SERGIYEVSKIY, V.P., dotsent; ZOTKIN, I.A.,  
kand. tekhn. nauk; TIMOFEYEV, A.A., kand. tekhn. nauk; KHRAPOV, A.Ya.,  
kand. tekhn. nauk; APON'KIN, V.A., inzh.; BUDAKEV, V.I., inzh.;  
MATVEYENKO, I.S., inzh.

"Foundry alloys" by P.P. Zhevtunov. Reviewed by R.S. Belyakov and  
others. Izv. vys. ucheb. zav.; chern. met. 2 no.4:157-161 Ap '59.  
(MIRA 12:8)

1. Zaporozhskiy mashinostroitel'nyy institut (for Belyakov).
2. Sibirskiy metallurgicheskiy institut (for all except Belyakov).  
(Foundry machinery and supplies) (Alloys)  
(Zhevtunov, P.P.)

ZOTKIN, I.A.

"Investigation of the causes of the scattering of ferrosilicon."  
Min Higher Education Ukrainian SSR. Dnepropetrovsk Order of  
Labor Red Banner Metallurgical Inst imeni I. V. Stalin.  
Dnepropetrovsk, 1956. (Dissertation for the Degree of Candidate  
in Technical Sciences).

SO: Knizhnaya letopis', No. 16, 1956



1. ZOTKIN, I. I.
2. USSR (600)
4. Viticulture
7. Restoring an overgrown vineyard without removing vines. Vin. SSSR 13  
No. 1, 1953.

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

1. ZOTKIN, I.I.; YALOVENKO, V.T.
2. USSR (600)
4. Viticulture
7. Systematic improvement of scientific practices in agriculture. Vin.SSSR 12 no.10, 1952.

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

ZOTIN, I.P., dots., kand. tekhn. nauk

~~Initial stage in analyzing skyscraper frames. Trudy Ural.~~  
politekh. inst. no.71:40-61 '59. (MIRA 12:8)  
(Structural frames)

ZOTKIN, I.T.; CHIGORIN, A.N.

Observations of Venus in 1949 and 1950. Biul.VAGO no.12:3-9  
'53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, otdel planet i Luny.  
(Venus (Planet))

ZOTKIN, I.T.

Lengthening of the horns of the crescent of Venus. Bial.VAGO  
no.12:9-12 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, otdel planet i Iuny.  
(Venus (Planet))

ZOTKIN, I.T.

Approximate determination of the trajectory of a bolide in the atmosphere. Biul.VAGO no.13:25-28 '53. (MLRA 7:3)

1. Moskovskoye otdeleniye VAGO, meteornyy otdel. (Meteors)

ZOTKIN, I.T., (Moskva)

Processing one-sided photographs of meteors. *Biul. VAGO* no.19:54-61  
'56. (MIRA 10:3)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodeticheskogo  
obshchestva, meteornyy otdel.  
(Meteors) (Astronomical photography)

ZORKIN, I. T.

Fireball over the Ural Mountains. Astron. tsirk. no. 169:20-21 '56.  
( Meteors) (MLRA 9:10)



ZOTKIN, I.T.; KRINOV, Ye.L.

Studying fall conditions of the Kunashak stone meteorite shower.  
Meteoritika no.15:51-81 '58. (MIRA 11:4)  
(Chelyabinsk Province--Meteorites)

ZOTKIN, I.T.; KRIMOV, Ye.L.

Studying fall conditions of the Nikolskoye stone meteorite.  
Meteoritika no.15:82-96 '58. (MIRA 11:4)  
(Moscow Province--Meteorites)

ZOTKIN, I.T.

Popularization of meteoritics; abridged report. *Meteoritika*  
no.16:120-122 '58. (MIRA 11:8)  
(Meteorites)

ZOTKIN, I.T.; SHERESHVSKAYA, A.B.

Shape of the crescent and surface features of Venus in 1951.  
Biul.VAGO no.23:39-45 '58. (MIRA 11:11)

1. Moskovskoy; otdeleniye Vsesoyuznogo astronomo-geodazicheskogo  
obshchestva, planetnyy otdel.  
(Venus (Planet))

33-35-3-24/27

**AUTHOR:** Bronshten, V.A. and Zotkin, I.T.

**TITLE:** The Seventh Full Assembly of the Commission "Comets and Meteors" of the Astronomical Council of the Academy of Sciences of the USSR (VII plenum komissii po kometam i meteoram astronomicheskogo soveta akademii nauk SSSR)

**PERIODICAL:** Astronomicheskii zhurnal, 1958, Vol 35, Nr 3, pp 503-506 (USSR)

**ABSTRACT:** The seventh full assembly of the commission "Comets and Meteors" took place May 13 - 17, 1957 in Odessa. The participating organizations were: 1. The Astronomical Assembly of the Academy of Sciences of the USSR 2. The Committee for Meteorites of the Academy of Sciences of the USSR 3. The Astronomical Main Observatory of the Ukrainian SSR (Kiyev) 4. Astrophysical Laboratory of the Institute for Physics and Geophysics of the Academy of Sciences of the Turkmenian SSR (Ashkhabad) 5. Astronomical Observatory of the Academy of Sciences of the Tadzhik SSR (Stalinabad) 6. Astronomical Observatory imeni Engel'gardt (Kazan') 7. Problem-Radiolaboratory of the Kazan' University 8. Institute for Theoretical Astronomy of the Academy of Sciences of the USSR (Leningrad) 9. Observatory of the Kiyev University. 10. Observatory of the Odessa University 11.-13. Chairs of Astro-

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The Seventh Full Assembly of the Commission "Comets and Meteors"

nomy at the Universities Kiev, Odessa, Ural 14. Chair of Radiotechnics at the Khar'kov Polytechnical Institute 15. Chair of Construction of Radio equipment at the Tomsk Polytechnical Institute 16. Odessa Pedagogical Institute 17. Kiev Polytechnical Institute. 18. Central Council of the All-Union Astronomic-geodetic Society, and their Moscow, Odessa, and Sverdlov Sections 19. Representatives of the Astronomical Institute of the Czechoslovakian Academy of Sciences Zd. Tseplekha.

9 general meetings and 5 sectional meetings took place. The following principal questions formed the order of the day of the full assembly.

- 1.) Preparation of the scientific research organizations for the performance of observations in the next geophysical year.
  - 2.) Scientific problems and theory of method of the radio observations of meteors.
  - 3.) Preparation of the discussion on the origin of comets on the occasion of the meeting 1958.
- 63 lectures given in the general meetings and sectional meetings are mentioned in the report.

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The Seventh Full Assembly of the Commission "Comets  
and Meteors"

33-35-3-24/27

The presidency of the commission "Comets and Meteors" was  
confirmed as follows:

- 1.) Chairman : Professor V.V. Fedynskiy
- 2.) Deputy of the chairman : Dotsent K.Y. Kostylev, Doctor of  
physical-mathematical Sciences S.M. Poloskov
- 3.) Scientific Secretary : I.T. Zotkin

SUBMITTED: January 25, 1958

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ZOTKIN, I.T.

Concerning the anomalous optical phenomena in the atmosphere, connected with  
the fall of the "Tungusk Meteor."

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"METEORITKA" (Meteorites-Studies) Issue no. 20 - 1961, sponsored by the  
"Committee on Meteorites" of the Soviet Academy of Sciences - Moscow - 1961,  
208 pages, and containing Collected Works ("Trudy") of the "9th Meteorite Conference  
Organized by the Committee on Meteorites of the Soviet Academy of Sciences" and  
Held in KIEV on 2-4 June 1960.

S/030/60/000/01/049/067  
B015/B011

3 (1)  
AUTHOR:

Zotkin, I. T.

TITLE:

Study of Comets and Meteors

PERIODICAL:

Vestnik Akademii nauk SSSR, 1960, Nr 1, p 96 (USSR)

ABSTRACT:

A plenary meeting of the Komissiya po kometam i meteoram (Commission for Comets and Meteors) was held at Khar'kov from September 25 to 28, 1959. Lectures and communications were for the most part devoted to observation results of meteors in the period from 1957 to 1959. Discussions of the observation results concerning large comets, obtained by the Institut astrofiziki Akademii nauk Tadzhikskoy SSR (Institute of Astrophysics of the Academy of Sciences of the Tadzhikskaya SSR) disclosed the necessity of using large instruments for such observations. Among other things, the plenary meeting suggested the following measures to be taken for the further development of meteoric and cometic astronomy in the Soviet Union: organization of permanent radar observation posts of meteoric activity (Kiyev, Kazan', Tomsk, Irkutsk, Stalinabad); elaboration of a new method and radio apparatus (Khar'kov, Tomsk, Kazan', Odessa, Ashkhabad); utilization of modern computers for interpretation of observation

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Study of Comets and Meteors

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results; equipment of meteoric stations with special high-power cameras. The recommendation was made to commission the Institut prikladnoy geofiziki Akademii nauk SSSR (Institute of Applied Geophysics at the Academy of Sciences of the USSR) with the coordination of all meteoric investigations. A new body of the Commission for Comets and Meteors was elected under the chairmanship of V. V. Fedynskiy.

✓

ZOTKIN, I.T.

Observations of Draconides, October 8-11, 1959. Biul.sta.opt.  
nabl.isk.sput Zem. no.4:12-16 '60. (MIRA 13:11)

1. Komissiya po kometam i meteoram Astrosoveta AN SSSR.  
(Meteors--October)

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D226/D302

Preliminary results of the work ...

Other members of the expedition were: O.A. Kirova -- Minerologist, B.I. Vronskiy -- Geologist, Yu.M. Yemel'yanov -- Chemist, I.T. Zotkin -- Astronomer, S.A. Kuchay -- Physicist, P.N. Paley -- Chemist, 2 KMET laboratory assistants, Ye.I. Malinkin, T.M. Gorbunova, and a "collector" K.D. Yankovskiy, who took part in the expedition of 1929-1930, and who, therefore, was able to evaluate changes in the area during the last 28 years. The expedition was joined by camera operator M.A. Zaplatin from the Moscow Studio of Documentary Films and had two local senior guides: A.I. Dzhenskoul' and A.I. Doonov. The expedition left Moscow on June 3 and returned on August 10 having spent 34 days in the studied area. The tasks of the expedition were as follows:

- 1) To undertake trans-section routes through the whole area of the forest fall of 1908, to determine its general character, its extension and boundaries;
- 2) to collect soil samples and analyze them on the spot for their iron and nickel content and determine

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Preliminary results of the work ... S/534/60/000/19/003/005  
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the ratio  $Mi : Fe$ , on the assumption that the meteorite was an iron one. The most interesting samples were to be taken twice and retained for more detailed study in Moscow. It was planned to collect samples throughout the whole area from squares with a side length of 5 km. This plan was abandoned later; 3) to work out a fieldwork plan for the next expedition, based on actual observations and collected data. The expedition established camp in the hamlet Kulik in the north-western part of the area. Preliminary results of the fieldwork: The destruction of the forest, caused by the 1908 meteorite is still the most important evidence of its impact and was, accordingly, most thoroughly investigated. Leafy trees which fell in 1908 were, of course, completely rotten but conifers were well preserved, although general observations were hindered by the growth of young trees. The whole area of forest destruction amounts to 1500 km<sup>2</sup>. This can be clearly observed by the scale of forest-fall and the radial character of its distribution. The whole region was divided by

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the expedition into three zones. 1) A zone, where the trees fell without any clear orientation, called "unoriented zone". It is situated in the depression around the "Yuzhnoye Boloto" (Southern Marsh) and forms the central region, from whose boundaries the radially oriented forest fall begins; 2) The second area was called the zone of "mass forest fall", although isolated groups of living old trees were to be found in this area. Visual estimation of fallen trees amounted to 80-90 %; 3) The zone of partial forest destruction; its area could be estimated only approximately, the percentage of fallen trees near its boundaries amounting probably to 15 - 20 %. These boundaries estimated by the expedition agreed fairly well with those given by local hunters and with the aerovisual estimation made by K.P. Florenskiy in 1953. The expedition studied also the remainder of the forest conflagration which took place during the catastrophe. Its conclusions differ from those expressed by previous investigators: Ye.L. Krinov (Ref. 1: Tunguskiy Meteorit / Tungussk Me-

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Preliminary results of the work ... S/534/60/000/19/003/005  
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teorite<sup>7</sup> Izd-vo AN SSSR, 1949) and L.A. Kulik (Ref. 14: Dannyye po Tunguskomu meteoritu k 1939 g /Data on the Tungusk Meteorite for 1939/ Dokl. AN SSSR, 22, no. 8, 520-524, 1939) both thought that during the catastrophe, spontaneous partial burning of broken trees took place without provoking a general forest fire. The conclusions of the expedition may be summarized as follows: 1) Near the center of the devastation area, many broken trees show burntraces at their breaking spots. This clearly proves the sequence of events: Burning occurred after the action of the shock-wave; 2) Traces of burning do not show any definite orientation toward the center of devastation area. They occur in most cases on the eastern side of trunks, as a result of wind direction during the fire; 3) Many trunks clearly indicate prolonged conflagration. B.I. Vronskiy found on the "Yuzhnoye Boloto" two well developed living twin-larches. One of them was found to be 104 years old. Both trees were devoid of any traces of fire; they survived because they grew in the middle of the marsh,

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Preliminary results of the work ... S/534/60/000/19/003/005  
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where the fire could not penetrate; 4) In all probability the fire was a result of the catastrophe; in type it differs from typical taiga fires by the clearly surface character of the burn, and its area comprised most of the area of the zone of "mass forest fall", where fallen trees had accumulated in great quantity. Some observations, however, suggest several starting points for the forest conflagration, from which the fire spread in a normal way [Abstractor's note: These not given]. It may be assumed, the authors state, that the timber fall and the forest fire were effects of the same cause. As regards the growth of new trees, the expedition concluded that young trees grow very fast in burned areas. Some of these trees, found to be 35-40 years old, were much thicker than the dead ones (100 or even 300 years old). Old surviving trees, which were dwarfed before the fire, showed an intensified growth subsequently. Further biological investigations are needed, the authors state, but at present one cannot speak of a dwarfing influence of the catastrophe on vegetation.

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growth. The expedition carried out an extensive search for any earth disturbances which could be the results of an explosion with a possible energy equaling  $10^{20}$  -  $10^{23}$  ergs., according to F. Whipple (Ref. 7: "The Great Siberian Meteor and the Waves, Seismic and Aerial which it produced". Journ. of the Roy. Meteorological Soc., 56, no. 236, 1930). None were found. Certain depressions or holes which were examined resulted, in fact, from the dissolution of gypsum in the subsoil, and on one occasion from a temporary lake, formed by a dam of fallen trees (since burst). The "Yuzhnoye Boloto" which is one of the proposed places of the meteorite's impact was transacted four times by K.P. Florenskiy, Yu.M. Yemel'yanov and B.I. Vronskiy. No traces of destruction which could possibly be associated with a powerful explosion were observed, no rock eruptions, no peat disruptions. All members of the expedition unanimously agreed, the "Yuzhnoye Boloto" could not be the center of a surface explosion which produced the general forest fall; the formation of a crater,

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many hundreds of meters in diameter, which was subsequently overgrown, is regarded by the members as a quite improbable assumption, but this opinion does not exclude the possibility that certain parts of the meteorite could have fallen to the bottom of the bog without having any critical explosive consequences. In order to ascertain the presence of iron and nickel, soil samples were taken from about 80 places, most of these in the "unoriented zone". Undisturbed turf and soil layers (5 dm<sup>2</sup> in area and 5 cm thick) were dug out. Their thickness was sufficient, because the increase in soil-thickness in this district is much less than 5 cm per 50 years and therefore, the soil layer corresponding to 1908, was always included in the samples. The samples were then disintegrated over a basin fitted with 3 magnets, (roots removed manually), and the soil was thoroughly washed in the basin. The residual magnetic slush was rinsed many times through a magnetic trap. The particles in the magnetic

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Preliminary results of the work ...

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slush were mostly over 0.1 mm, although certain of them were up to ten times smaller. The residue was then dried and samples weighing 0.1 - 1.0 g were dissolved in HCl and tested calorimetrically for Fe and Ni. When no traces of Ni were found in this way, separate iron particles were picked out from the residue and examined by O.A. Kirova. Again only negligible traces of Ni were found, which proves the non-cosmic origin of those particles. Apart from iron particles certain minute silicomagnetic globules were observed. They were not analyzed on the spot, but brought back to Moscow. Even if they did come from outer space, there is no evidence to connect them with the meteorite. Upon returning to Moscow, the expedition forwarded soil and peat from the area of "Yuzhnoye Boloto" to the Institute of Geochemistry and Analytical Chemistry AS USSR to determine their radioactivity. Tests, conducted under the supervision of Professor V.I. Baranov showed that there were no differences in the radioactive content of the given samples and that of similar soils from other regions. The

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authors conclude that 1) The general aspect of the forest devastation suggests that the basic direction of the shock was from above; this means that the wave center was situated high above the earth's surface; 2) The fact that no parts of the meteorite were found does not prove that they did not fall into the area, for only a few routes -- made on foot -- were investigated; 3) There could have been several starting points for the fire as the result of the shock wave from above; 4) The contours of the zone of mass forest destruction and the excentricity of the "un-oriented zone" suggest the action of a shock-wave having neither the correct spherical shape, nor central symmetry. Nevertheless, this assumption seems to be contradicted by the radial distribution of the fallen trees; 5) During the fieldwork, no particles of an iron meteorite were found. These negative results may have been due to: The great dispersion state of meteorite particles which were too small to be separated by the normal methods applied in fieldwork; the possibility of complete oxidation of minute

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Preliminary results of the work ...

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iron particles over 50 years; the notable deviation of dispersion ellipse from the center of the forest fall. The assumption that the meteorite was of the iron-type has no factual foundation, but, on the basis of currently available data, it is also impossible to place it in any other category; 6) The authors point out the discrepancy between the general atmospheric disturbance in 1908 and the testimony of eye witnesses; None of them spoke of powerful smoke trails of the meteorite. It is possible that such a smoke-tail detached itself from the meteorite in the upper part of the atmosphere. Eye witness testimony was reexamined, but found rather obscure and confusing. All these considerations suggest that at present, it is too early to consider the Tunguska meteorite as belonging to the crater forming category. Apparently the meteorite caused great devastation on the earth's surface without a crater being formed. General information on the destructive action of shock-waves may be found in the work of K.P. Stan-yukovich, G.S. Golitsyn (Ref. 6: Udarnyye volny [Shock Waves]).

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Preliminary results of the work ...

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Priroda, no. 12, 1958) Academician A.P. Vinogradov asked M.A. Tsikulin and V.N. Rodionov (Ref. 15: Priblizhennaya otsenka parametrov Tungusskogo meteorita 1908 g po karte razrusheniy lesnogo massiva /Approximate Evaluation of the Parameters of the Tungusk Meteorite of 1908, according to the Map indicating Forest Zone Destruction<sup>7</sup>, Narodnokhozyaystvennoye ispol'zovaniye vzryva, no. 6, Sibirskoye otd. AN SSSR, 1959) to interpret the findings of the expedition. Their evaluation showed that the observed phenomena could be best explained as the results of a shock wave, submitted to an acute braking action, caused by the disintegration of the meteorite. The authors suggest a plan for further investigations, which includes: 1) Preparing a very detailed map of the forest zone destruction, using all new available topographic data of the whole area; 2) Searching further for meteorite parts on the earth's surface and in the deposits of lake beds; 3) Researching on the dispersion ellipse outside the devastation area; 4) Studies by marsh specialists on possible changes in

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peat formation in the "Yushnoye Boloto" and in the state of sub-soil permanent freezing; 5) Studying the general ecology of the area; 6) Studying in detail all the material collected. The authors feel, therefore, that it is necessary to organize a new expedition, comprising specialists of many kinds, and that it is important to do it as soon as possible for the traces of the meteorite impact are already fading. There are 27 figures, 1 table and 15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: F. Whipple, "The Great Siberian Meteor and the Waves, Seismic and Aerial which it Produced." Journ. of the Roy. Meteorological Soc., 56, no. 236, 1930. X

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ZOTKIN, I.T.

Determining the path of fireballs. Bul.YAGO no.26:27-35 '60.  
(MIRA 13:10)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva, meteornyy otdel.  
(Meteors)

ZOTKIN, I. T.

Observations of Draconids on October 8-11, 1959. Astron. tsit.  
no.209:34-38 Nr '60. (MIRA 13:9)

1. Komissiya po kometam i meteoram Astrosoveta AN SSSR, Moskva.  
(Meteors--October)

ZOTKIN, I.T. Primalni uchastiye: MARTYNEKO, V.V.; SHAKINA, Ye.G.;  
TERENT'YEVA, A.K.; KHOTINOK, B.L. FADYNSKIY, V.V., otv.red.;  
BERKGAUT, V.G., red.isd-va; YUPIFANOVA, L., tekhn.red.

[Instructions for observing meteors] Instruktsia dlia nabludenii metecrov. Moskva, Izd-vo Akad.nauk SSSR, 1961. 52 p.  
(MIRA 14:4)

(Meteors)

S/169/61/000/011/065/065  
D228/D304

AUTHOR: Zotkin, I. T.

TITLE: Anomalous optical phenomena in the atmosphere related  
to the fall of the Tungus meteorite

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 11, 1961, 24-25,  
abstract 1G232 (V sb. Meteoritika, no. 20, M., 1961,  
40 - 55)

TEXT: Descriptions are presented for the phenomena of the twi-  
light glow of the atmosphere and the appearance of noctilucent  
clouds which were observed in different countries of the world af-  
ter the fall of the Tungus meteorite (end of June to the beginning  
of July 1908). 47 references. [Abstractor's note: Complete transla-  
tion].

Card 1/1

ASTAPOVICH, I.S.; BAKULIN, P.I.; BAKHAREV, A.M.; BRONSHTEIN, V.A.; BUGOSLAVSKAYA,  
N.Ya. [deceased]; VASIL'YEV, O.B.; GRISHIN, N.I.; DAGAYEV, M.M.;  
DUBROVSKIY, K.K. [deceased]; ZAKHAROV, G.P.; ZOTKIN, I.T.; KRAGER, Ye.N.;  
KRINOV, Ye.L.; KULIKOVSKIY, P.G.; KUNITSKIY, R.V.; KUROCHKIN, N.Ye.;  
ORLOV, S.V. [deceased]; POPOV, P.I.; PUSHKOV, N.V.;  
RYBAKOV, A.I.; RYABOV, Yu.A.; SYTINSKAYA, N.N.; TSEBEVICH, V.P.;  
SHCHIGOLEV, B.M.; VORONTSOV-VEL'YAMINOV, B.A., red.; POLOMAREVA, G.A.,  
red.; KRYUCHKOVA, V.N., tekhn. red.

[Astronomical calendar; permanent part] Astronomicheskii kalendar';  
postoiannaia chast'. Izd. 5., polnost'iu perer. Otv. red. P.I. Bakulin.  
Red. kol. V.A. Bronshten i dr. Moskva, Gos. izd-vo fiziko-matem. lit-ry,  
1962. 771 p. (MIRA 15:4)

(Astronomy—Yearbooks)

S/026/62/000/008/003/005  
D050/D113

AUTHORS: Florenskiy, K.P., Candidate of Geological and Mineralogical Sciences,  
and Zotkin, I.T.

TITLE: New explorations, new results

PERIODICAL : Priroda, no. 8, 1962, 31-39

TEXT: The article deals with detailed field investigations conducted by various groups and organizations including the AS USSR in 1958 and 1961 and its Siberian Department, to disclose the nature of the Tungus phenomenon. The following results were obtained: A crater caused by a meteorite fall could not be found; no proof could be obtained that the explosive wave was spherical - a characteristic of a localized central explosion; the forest fires were caused by a flash burn; no meteoric matter could be found except for small amounts contained in magnetite and silicate beads which did not appear to be of cosmic origin. Thus, the described investigations confirm the hypothesis of the cometary nature of the phenomenon, established by I.S. Astapovich and F. Upplo and now supported by Academician V.G. Fesenkov. A new expedition is now continuing research in the Tungus area. There are 4 figures and 1 table.

Card 1/2

3/026/62/000/006/003/005  
D050/D113

New explorations, new results

ASSOCIATIONS: Institut geokhimii i analiticheskoy khimii im. V.I. Vernadskogo  
AN SSSR (Institute of Geochemistry and Analytical Chemistry,  
AS USSR), Moscow (Florenskiy); Komitet po meteoritam AN SSSR  
(Committee on Meteorites, AS USSR), Moscow (Zotkin)

Card 2/2

Visual observations of meteors ... S/831/62/000/008/013/016  
E032/E114

The visual observations were accompanied by telescopic counts. The following VAGO stations took part in the IGY programme: Simferopol', Moscow, Ryazan', Kiev, Alma-Ata, Sverdlovsk and Dushanbe. The Simferopol' station was particularly well equipped and incorporated a photographic meteor patrol, instruments for the observations of telemeteors, and visual observation frames. Regular IGY observations were begun on June 20, 1958. A detailed calendar of observations is reproduced. Altogether about 22 000 meteors were recorded. Analysis of the data is continuing. There are 1 figure and 3 tables.



ZOTKIN, I.T. (Moskva); CHIGORIN, A.N. (Moskva)

Using computers for processing statistics of visual observations  
of meteors. Biul.VAGO no.30:45-52 '62. (MIRA 15:8)

1. Moskovskoye otdeleniya Vsesoyuznogo astronomo-geodeticheskogo  
obshchestva, meteornyy otdel.  
(Electronic analog computers) (Meteors)

ZOTKIN, I.T.; LIPAYEVA, N.A.

Number of Delta-Aquarids in 1960. Biul.VAGO no.32:3-7 '62.  
(MIRA 15:11)

1. Moskovskoye otdeleniya Vsesoyuznogo astronomo-geodezicheskogo  
obshchestva.

(Meteors--May)

ZOTKIN, I.T.; FLORENSKIY, K.P.

Encounter with a comet. Znan.-sila 37 no.5:40-43 My '62.  
(MIRA 15:9)  
(Podkamennaya Tunguska Valley—Meteorites)

37395

S/033/62/039/002/009/014  
E032/E514

3,1550

AUTHOR: Zotkin, I.T.

TITLE: On the ring around Jupiter

PERIODICAL: Astronmicheskiy zhurnal, v.39, no.2, 1962, 303-304

TEXT: In the previous paper in this issue (pp.290-302), S. K. Vsekhsvyatskiy concludes that there is a shadow cast on Jupiter's disc by a ring surrounding this planet. The present author makes use of the data reported by Vsekhsvyatskiy to plot the planetographic latitude of the shadow (band) as a function of the planetographic latitude of the sun. The plot appears to consist of a random distribution of points and the author concludes that there is very little evidence that the equatorial band is in fact a shadow of the hypothetical ring. There is 1 figure.

ASSOCIATION: Komitet po meteoritam Akademii nauk SSSR  
(Committee for Meteorites, Academy of Sciences USSR)

Card 1/1

ZOTKIN, I.T.

Formula for determining the number of meteors. Antron, tsir.  
no.228:28-29 Ap '62. (MIRA 16:6)

1. Moskovskiy otdel Vsesoyuznogo astronomo-geodesicheskogo  
obshchestva.

(Meteors)

FLORENSKIY, K.P., kand.geol.-mineral.nauk; ZOTKIN, I.T.

New search, new results; the expedition of 1961. Prirada 51  
no.8:31-39 Ag '62. (MIRA 15:9)

1. Institut geokhimi i analiticheskoy khimii im. V.I. Vernadskogo AN SSSR, Moskva (for Florenskiy). 2. Komitet po meteoritam AN SSSR, Moskva (for Zotkin).  
(Podkamennaya Tunguska Valley--Meteorites)



... shall be coordinated.

ASSOCIATION: 0326

DATE: 0016/03

ENCL: 00

SUB CODE: AS

NO RESP 801: 000

OTHER: 000



ZASLAVSKAYA, N. I.; ZOTKIN, I. T.; KIROVA, O. A.

Size distribution of pellets of cosmic origin in the region  
of the fall of the Tungus meteor. Dokl. AN SSSR 156 no. 1:  
47-49 My '64. (MIRA 17:5)

1. Komitet po meteoritam N SSSR. Predstavleno akademikom  
V. G. Fesenkovym.

ACCESSION NR: AT4035837

S/2534/64/000/024/0112/J128

AUTHOR: Boyarkina, A. P.; Demin, D. V.; Zotkin, I. T.; Past, V. G.

TITLE: Study of the shock wave of the Tungus meteorite from the associated forest destruction

SOURCE: AN SSSR. Komitet po meteoritam. Meteoritika, no. 24, 1964. Trudy\* Desyatoy Meteoritnoy konferentsii v Leningrade 29 maya - 1 iyunya 1962 g., 112-128

TOPIC TAGS: meteorite, Tungus meteorite, shock wave

ABSTRACT: The radial flattening of the forest in the area of the explosion of the Tungus meteorite is the most reliable criterion for study of the propagation of the shock wave accompanying the explosion. The forest flattening has been investigated repeatedly on the ground and from the air and a considerable body of literature has accumulated concerning the phenomena, parts of which are reviewed in this paper. Data from the expeditions of 1960 and 1961 are discussed in the greatest detail; the methods applied to study of the forest flattening are becoming increasingly sophisticated. Emphasis in this article is on statistical analysis of data collected over the 2,000-km<sup>2</sup> area of forest flattening. New topographic

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ACCESSION NR: AT4035837

surveys and aerial photography have facilitated the investigation. Data are available for 580 points throughout the area; in the latest expedition a grid was laid out and azimuths of fallen trees measured carefully in the sample areas. A general description of the area of flattening is followed by a statistical analysis of the forest destruction. Particular attention is given to the central area and a study of the influence of relief on the degree of destruction. Fig. 1 of the Enclosure shows the flattening of the forest in the area of falling of the meteorite. Orig. art. has: 25 formulas, 11 figures and 1 table.

ASSOCIATION: Komitet po meteoritam, Akademiya nauk SSSR (Committee on Meteorites, Academy of Sciences SSSR)

SUBMITTED: 00

DATE ACQ: 28May64

ENCL: 02

SUB CODE: AA

NO REF SOV: 012

OTHER: 000

Card

2/4

ACCESSION NR: AP4035807

number, M the mass of spherules,  $S = 1.2$ . A similar distribution applies to all  
meteors observed. It is believed that there is enough evidence to assume that the  
Tungus meteorite was the core of a small comet which exploded in passing the  
atmosphere at a height of about 10 km. Orig. art. has: 2 figures.

ASSOCIATION: Komitet po meteoritam Akademii Nauk SSSR (Committee on Meteorites,  
Academy of Sciences SSSR)

SUBMITTED: 18Dec63

DATE ACQ: 20May64

ENCL: 00

SUB CODE: AA

NO REF SOV: 005

OTHER: 004

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513R002065510001-1  
CIA-RDP86-00513R002065510001-1"

ZOTKIN, I.T.

What one should know about solids. Zem. i vsel. i no. 3:80-82 KJ-Je  
'65. (MIRA 18:8)

ACC NUM AP601206?

SOURCE CODE: UA/0384/65/000/006/0463/0066

37  
23

AUTHOR: Zotkin, I. T.

CRG: none

TITLE: Meteorite networks

SOURCE: Zemlya i vseennaya, no. 6, 1965, 63-66

TOPIC TAGS: meteor, meteorite, meteor tracking, meteor observation

ABSTRACT: A great number of problems related to the nature of meteorites and meteorites remain unsolved, primarily because of the lack of an observation network which would ensure location of meteorites soon after their falling to the earth. For this reason it has been necessary to establish special networks of stations for observing such events, such as the American network, with headquarters at Lincoln, Nebraska, described briefly in this article. Another such network exists in East Germany and Czechoslovakia; a map of the area covered by this network accompanies the text. The Czechoslovakian network is designed primarily for obtaining the astronomical characteristics of bolides, such as direction of trajectory and velocity. The search for meteorites in dissected areas such as the Carpathians is difficult, but this is partly compensated by the dense population of the area. In addition, the German and

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L 20472

ACC NR: AP6012062

Czechoslovakian stations are situated closer together than in the United States. This also is more advantageous in that the lower parts of bolide trajectories can be photographed. All-sky cameras are used in the Czechoslovakian network. Amateur astronomers and the population of East Germany and Czechoslovakia enthusiastically report observation and finds. In the USSR the territory most suitable for such observations is the eastern part of Ukraine, which is a steppe region with a dense population. This facilitates the collection of meteorites which may fall. In addition, there are a great number of meteorological stations where facilities can be used for making such observations. Orig. art. has: 5 figures. [JPRS]

SUB CODE: 03 / SUBM DATE: none

Card 2/2 *20c*

ACC NR. AP601849

SOURCE CODE: UR/0020/60/167/001/0099/0052

AUTHOR: Zotkin, I. T.; Tsikhulin, M. A.

ORG: Committee on Meteorites, AN SSSR (Institut po meteoritnoi AN SSSR); Institute of Physics of the Earth, U.S.S.R. Acad. Sci., Moscow, AN SSSR (Institut Fiziki Zemli AN SSSR)

TITLE: Modeling of the explosion of the Tunguska meteorite

SOURCE: AN SSSR. Doklady, v. 167, no. 1, 1966, 99-62

TOPIC TAGS: meteorite, blast wave

ABSTRACT: Extremely time-consuming field work at the site of the destruction caused by the Tunguska meteorite, carried out in 1958-1965, yielded much factual data, especially on the pattern of falling and searing of the forest trees. Data were collected on the azimuths of 40,000 trees which were affected by the explosion of 30 June 1908. The evidence indicates that the devastation was caused by a powerful air wave with an energy of about  $4 \cdot 10^{23}$  ergs. The authors of this study exploited the collected data for formulating a modeling of the event. The ballistic wave was simulated by a small linear explosion, but particularly strong at the end (a photograph shows the model). The trees were simulated by wires 3 cm in height to which a cylindrical plastic "crown" was attached. The wires were bent under the influence of the simulated explosion. The

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UDC: 523.51



ACC NR: AP6018493

closest similarity between the modeled field of bending of the simulated trees and the pattern of forest destruction at the Tunguska site was for a slope of 30° to the horizon. Different variants of the modeled experiment are described. Apparently at the Tunguska site there was a wave of an axial explosion which determined the pattern of the falling of the trees. The increase of the linear energy of the explosion (ballistic wave) in the terminal part of the trajectory was relatively small. This article was presented by Academician V. J. Pesenkov on 16 June 1965. Orig. art. has: 4 figures and 2 formulas. [JPRS]

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SUB CODE: 03 / SUBM DATE: 09Jun65 / ORIG REF: 008 / OTH REF: 003

I 44237

ACC NR. **AP6022193** SOURCE CODE: **UR/0026/66/000/006/0001/0089**

AUTHOR: Zotkin, I. T.; Tsikulin, M. A.

65  
B

ORG: [Zotkin] Committee for Meteorites AN SSSR (Komitet po meteoritam AN SSSR); [Tsikulin] Institute of Physics of the Earth Im. O. Yu. Schmidt, AN SSSR, Moscow (Institut fiziki zemli AN SSSR)

TITLE: Model of a shock wave of Tungus meteorite explosion

SOURCE: Priroda, no. 6, 1966, 81-89

TOPIC TAGS: meteorite, shock wave, shock wave formation, shock wave propagation, thermal explosion

ABSTRACT: The author discusses the peculiar radial fall of trees during the Tungus meteorite explosion. The topography of the area is described and the work of the eight seasonal field investigating expeditions to the area of the catastrophe is analyzed. The shock wave of the Tungus meteorite which imprinted itself in the area in the pattern of fall of trees, was caused by a flying meteorite breaking up at the end of its flight. The explosion was neither chemical nor nuclear, but thermal.

Plotskiy, G. E. (Candidate of Chemical Sciences); Zoskin, Z. T.;  
Plotskiy, K. P. (Candidate of Geological and Mineralogical Sciences)

ORG: none

TITLE: Meteor investigations (Conference at Novosibirsk)

SOURCE: AN SSSR. Vestnik, no. 9, 1966, 109-111

TOPIC TAGS: meteorite, astronomic conference, thermoluminescence

ABSTRACT:

The Committee on Meteorites and the Commission on Meteorites of the Siberian Department Academy of Sciences USSR sponsored the Twelfth Meteorite Conference in Krasnoyarsk during the period 24-27 May. It was attended by 100 persons; 30 reports were presented. Several reports were presented on field and laboratory studies of the Kaali (Estonia) meteorite crater, the largest in the USSR. Study of the scattered meteorite matter has shown that the concentration of metal fragments of meteorite matter has decreased. A decreased thermoluminescence of the dolomite from the crater was discovered. The limonitized meteorite fragments contained pyroxene, schreibersite and ferronickel. *Yu. N. Kramer* reported that photographic studies of meteor revealed that the

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0926 6044

L 10810-67

ACC NR: A27003507

7  
velocity of the individual fragments increases during the disintegration of a meteor body. For determining the pre-atmospheric sizes of meteors and the depth from which they came in the parent body *A. K. Lavrukhin* and *T. A. Ibravov* have proposed the use of pairs of isotopes with close half-lives --  $Na^{22}$  and  $Y^{49}$  or  $Mn^{54}$ , and for older meteorites --  $Ca^{36}$  and  $Mn^{54}$ . *A. A. Yavnel* has shown that the  $FeO:MgO:SiO_2$  relations in the silicates of chondrites confirm the separation of chondrites into three groups. The main silicate minerals of chondrites are not in equilibrium conditions during crystallization. *Yu. D. Kozmanov* reported on high-temperature oxidation in the crust of meteorites which is characteristic of the segregation of iron and nickel. Numerous reports were given on the Tunguska meteor. Academician *V. G. Pesenkov* contends it was a small comet. *A. V. Zolotov* believes that the velocity of the Tunguska body was small and its explosion occurred due to internal energy. *K. G. Ivanov* proposed that the magnetic effect and glow of the sky associated with the falling of the Tunguska body be attributed to photoionization processes in the ionosphere. The conference complained that fantastic explanations of the Tunguska event still are being published.

[MRS: 38,460]

SUB CODE: 03 / SUBM DATE: none

Card 2/2

"APPROVED FOR RELEASE: Thursday, September 26, 2002  
APPROVED FOR RELEASE: Thursday, September 26, 2002

CIA-RDP86-00513  
CIA-RDP86-00513R002065510001-1

GORBUNOVA, I.M.; ZVEREV, I.S.

Mounting of a small reflecting telescope. "Izv. teleskopostn."  
no. 1992-109 1961  
(MIRA 1861)

ZOTKIN, Igor' Yur'yavich, inzh.; SLAVERTSOV, P.M., inzh.; VAGIN, V.I.  
[Vahin, V.I.], inzh.; KOLDA, O.P., inzh.; LEVITSKAYA, G.P.  
[Levyts'ka, H.P.], red.; OLEFIRENKO, G.Yu. [Olefirenko, H.A.],  
red.; VAYNSHENER, Y.M. [Vainshener, I.M.], tekhn. red.

[Labor safety in agriculture] Okhorona pratsi v sil's'komu  
hospodarstvi. Kyiv, Derzhsil'hospvydav URSR, 1962. 258 p.  
(MIRA 16:6)

(Ukraine--Agricultural machinery--Safety measures)

ZCTKIN, L. L.

Zotkin, L.L., Evduk, R.A. I Popovkina, R.V.

33866. Vyenyera V 1948 Godu. Byullyatyen', Vayesoyuz. Astron. i Gyeodyez. O-va,  
No 7, 1949. C. 17-21. Bibliogr: 8 Nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 46, Moskva, 1949.

*Zotin, M.*

**ZOTIN, M.; KONDRASHOV, K.**

Hydrometeorological Service in the Arctic. Mor. flot 17 no.12:10-11  
D '57. (MIRA 11:1)

1. Nachal'nik otdela Arkticheskogo nauchno issledovatel'skogo instituta Glavsevmorputi Ministerstva morskogo flota (for Zotin).
2. Zamestittel' nachal'nika otdela polyarnykh stantsiy Glavsevmorputi Ministerstva morskogo flota (for Kondrashov).  
(Arctic regions--Meteorological stations)

ZOTIN, M.I.

Drift of Soviet scientific research stations in the central Arctic  
regions. Let. Sev. 2:73-78 '57. (MIRA 10:12)

1. Arkticheskiy nauchno-issledovatel'skiy institut Glavsevmorputi,  
Moskovskiy otdel.

(Arctic regions)



KREMS, A.Ya.; ZDOROV, S.F.; BONDARENKO, S.M.; ADAHOV, A.I.; ZOTKIN, M.M.  
redaktor; SHMELEV, A.A., redaktor; POLOSINA, A.S., ~~tekhnicheskii~~  
redaktor.

[Oil mining] Shakhtania razrabotka nefnianykh mestorozhdeni. Pod  
red. M.M. Zotkina i A.A. Shmeleva, Moskva, Gos. nauchno-tekhn.  
izd-vo neftianoi i gornotoplivnoi lit-ry, 1955. 273 p. (MLRA 8:8)  
(Petroleum engineering)

AUTHOR: Zotin, V. K.; Talantov, A. V.

ORG: none

TITLE: The effect of initial temperature on the flame speed in the turbulent flow of a uniform mixture

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1. 1966, 115-122

TOPIC TAGS: combustion, propulsion, burning velocity, air breathing engine

ABSTRACT: The temperature of a combustible mixture entering an aviation combustion chamber can vary considerably depending on flight conditions. The temperature can change considerably with the flight velocity and altitude especially in air-breathing engines. Previous studies have dealt with the effect of temperature on the burning velocity but in narrow temperature ranges. Therefore, in the present study, the effect of temperature on the turbulent burning velocity of a homogeneous gasoline-air mixture was studied at flow velocities from 20 to 100 m/sec, air-fuel ratios from 1 to 1.6, and initial temperatures from 150 to 550C. The experimental assembly consisted of a burner, 50 x 50 mm in diameter, equipped with recessed flame holders. The air flowing to the burner was preheated by a heat exchanger. The effects of the air excess factor, flow velocity, and temperature of the initial mixture and turbulence on the turbulent burning velocity were measured. The experimental results were

Card 1/2

UDC: 629.194.34:936.463

L 23044-66  
 ACC NR: AP6011792

correlated by the following formula:

$$\frac{u_T}{u_{T_0}} = \frac{A_1 u_n + \frac{A_2 w'}{\sqrt{\ln\left(1 + \frac{w'}{u_n}\right)}}}{A_1 u_n + \frac{A_2 w'}{\sqrt{\ln\left(1 + \frac{w'}{u_n}\right)}}$$

where  $u_T$  is the turbulent burning velocity at  $T$ ;  $u_{T_0}$  is the turbulent burning velocity at  $T_0$ .  $\theta = T/T_0$  ( $T_0$  is the final temperature of combustion products and  $T_0$ , the temperature at the flame front);  $w'$ , fluctuating velocity; and  $u_n$  is the normal burning velocity. The turbulent burning velocity can be correlated with the temperature at flow conditions of practical interest, i.e., at  $w > 50$  m/sec, by the following formula:

$$\frac{u_T}{u_{T_0}} = \left(\frac{T}{T_0}\right)^{0.63}$$

which can be used for designing combustion chambers with variable air inlet temperatures. Orig. art. has: 11 figures and 3 formulas. [PV]

SUB CODE: 21/ SUBM DATE: 24Mar65/ ORIG REF: 008/ OTH REF: 001/ ATD PRESS: 234  
 Card 2/2

ZOTKIN, V. Ye., Engr.

С. Д. 1000. 001.

Dissertation: "New Columbian-Containing Grades of Steel for Welding." Thesis Order of the Labor Red Banner List of Steel from I. V. Stalin, 12 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #R0000)

PROCESSES AND PROPERTIES

Catalysis of oxygen-hydrogen mixtures on smooth, wet platinum. II. K. I. Shtal'ts and A. M. Zolotarev. *Sov. Inst. phys. Chem., Abstr. Russ. U.S.S.R. No. 1, 1-20 (1957); Chemis & Industry 41, 688.*—The poisoning of the catalyst by water and very dil. alkalis depends on adsorption of OH ions which block the active centers of the Pt. The poison. of alkali plays an important part from this standpoint. Alc. also poisons the Pt because of the presence of OH groups: poisoning occurs progressively. H<sub>2</sub>O, being more mobile, has no effect. A. P.-C.

ASB-314 METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS  
OPEN  
METALS

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
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SHUBIN, V.F., prof.; ZOTIN, V.P., agronom

Collective farm of advanced cultivation practices, Zemledelie  
5 no.12:63-70 D '57. (MIRA 11:1)

1. Kolkhoz "Iskra" Bogorodskogo rayona, Gor'kovskoy oblasti  
(for Zotin).  
(Bogorodsk District, Gorki Province--Collective farms)

SOV/148-59-2-4/24

18(5)

AUTHOR: Zotkin, V.Ye. Candidate of Technical Sciences Docent

TITLE: Tungsten Behavior in Steel Smelting in Oper. Hearth Furnaces  
(O povedenii vol'frama pri vyplavke stali v martenovskikh  
pechakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Chernaya metallur-  
giya, 1959, Nr 2, pp 27-35 (USSR)

ABSTRACT: Different opinions exist on tungsten behavior in liquid steel. High-tungsten steel is usually smelted in electric arc or high frequency furnaces. Smelting in open hearth furnaces was either rejected or questioned. The author investigates tungsten behavior in basic and acid open hearth furnaces. The results of physico-chemical analyses and of experimental investigations are given. It was stated that in basic open hearth furnaces 1) tungsten steel-smelting was accompanied by considerable losses of tungsten due to the formation of calcium tungstenate in the slag; 2) tungsten oxidation increased with lowered temperatures of the metal and the slag and with higher content of free ferric and calcium oxides in the slag; 3) in carbon steel smelting with tungsten-wastes, residual tungsten

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### Tungsten Behavior in Steel Smelting in Open Hearth Furnaces

residual tungsten remained in the steel; 4) tungsten in liquid steel did not oxidize if the slag did not contain free calcium oxide; interaction of tungsten trioxide with carbon makes tungsten reduction possible. In acid open hearth furnaces: 1) tungsten oxidation did not occur if ferrotungsten was added directly to the liquid metal; 2) tungsten reduction by carbon was possible; 3) acid open hearth furnaces can be used for tungsten waste remelting; 4) fluidity of ferrotungsten was satisfactory even in the case of high tungsten content. There are 4 graphs, 4 tables and 8 references, 5 of which are Soviet, 2 German and 1 English.

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