

PROCESSES AND PROPERTIES INDEX

467. On the Compton Scattering in Lithium by A Barkhatov Zhur Ekart
 1 Teoret Fiz 18 609-613 (1948) July (In Russian)

A distribution function of the impulses of the conductivity electrons was used to determine the width of the Compton line of lithium. This distribution function takes into account the interaction between the electrons and the lattice structure. The result shows a wider line than that obtained from Fermi's distribution function for free electrons. Equations of the intensity curve of the Compton line in lithium are: (1) using Fermi's distribution function (free electrons) $Y_f = 1 - l^2/l_0^2$; (2) using author's distribution function (interaction between electrons and the lattice, $Y = 0.599 [1 - l^2/l_0^2 - 0.052(1 - l^2/l_0^2)^2] + 0.004$, where l is the distance (in atomic units) from a point in the widened Compton line to the simple Compton line, and $l_0 = lp_0/p_0$, p_0 being the conductivity electron impulse corresponding to l , and p_0 being the maximum impulse which in this case is equal to 0.598.

Gorkiy State U.

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

BARKHATOV, A. N.

✓ 4920. THE STUDY OF A SOUND SHADOW IN A MEDIUM 534.231
WITH VERTICAL GRADIENT OF VELOCITY OF SOUND.
A.N. Barkhatov. *Handwritten mark*

Acust. Zh., Vol. 1, No. 2, 121-5 (1955). In Russian.
Attention is drawn to the possibility of setting up a pattern
in water of vertical distribution of velocity of sound on account
of variations of temperature and of hydrostatic pressure. This
phenomenon may be applied to the study of sound shadows; a
method is described.

C.R.S. Manders

1

RAW

0000

BARKHATOV, A.N.

Handwritten initials

1947. THE MEASUREMENT OF SOUND ATTENUATION IN AN ISOTHERMAL SURFACE LAYER OF WATER. 534.62
A.N. Barkhatov.

Acoust. Zh., Vol. 1, No. 4, 315-20 (1955). In Russian.
Methods of investigating sound propagation in a laminar-inhomogeneous medium can be successfully employed for the study of sound attenuation in a surface, isothermal water layer providing there is a negative vertical gradient of sound velocity. Experimental results appear to be in good agreement with theory.

C.R.S. Manders

Handwritten number 1

Handwritten number 3000

Handwritten signature

BARKHATOV, A. N.

"Experimental Investigations of Some Cases of Sound Propagation in a Stratified-Inhomogeneous Medium".
Abstracted for inclusion in the Second International Congress on Acoustics, Cambridge, Mass., 17-24, Jun 1956

Gor'kiy State University (?)

BARKHATOV, A. N.

SOV/112-58-1-1588

Translation from: Referativnyy zhurnal, Elektrotehnika, 1958, Nr 1, p 234 (USSR)

AUTHOR: Barkhatov, A. N., and Yashkov, V. Ya.

TITLE: Automatic Sound Recording in a Live Tank
(Avtomaticheskaya zapis' zvuka v nezaglushennom basseyne)

PERIODICAL: Uch. zap. Gor'kovsk. un-t, 1956, Vol 30, pp 137-141

ABSTRACT: An installation is described that permits a fairly rapid logarithmic-scale recording the intensity of sound pressure in a tank with a pickup traveling at 7.5 cm/sec along the tank. A block diagram is presented of sound-intensity recording by a "Neyman" type recorder. The recording method suggested has been verified in the case of sound propagation in a homogeneous medium (water); in this case, the graph agrees well with the calculation. Sound-intensity experimental curves are also presented for two cases of a stratified nonhomogeneous medium.

O. Ye. R.

AVAILABLE: Library of Congress

1. Sound--Recording devices 2. Water tanks--Acoustic factors

Card 1/1

BARINATOV, A. N. and GEMELEV, I. I.

"The Focusing of Sound in a Wave-Guide."

Report presented at the 4th All-Union Conf. on Acoustics, Moscow, U.S.S.R. - 2 Jan. 1961.

AUTHOR: Barkhatov, A. N.

46-4-1-1-1

TITLE: Acoustic Field in a Medium with a Homogeneous Surface Layer.
(Zvukovoye pole v srede s poverkhnostnym odnorodnym sloyem.)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol.IV, Nr.1.
pp.13-18. (USSR)

ABSTRACT: The present author described in Ref.1 the apparatus for measurement of sound attenuation in an isothermal homogeneous layer of water in the presence of a non-homogeneous medium with a constant negative gradient of sound velocity beneath the layer. The present paper reports results obtained by using the method described in Ref.1 in investigation of an acoustic field in a homogeneous surface layer and the underlying non-homogeneous medium at various positions of the sound source. The experiments were made in a 3 m long bath filled with water in which a gradient of sound velocity was established. A directed sound source emitted pulses of 50 μ sec duration and 50 c/s repetition frequency. The depths of immersion of the sound source and receiver were measured in relative units, given by

Card 1/3

46-4-1 -2/23
• Acoustic Field in a Medium with a Homogeneous Surface Layer.

shows that the interference region increases in height on increase of the depths of immersion of the source and the receiver. The author also obtained some results (Fig.7) using a 2.74 Mc/s generator producing 10-200 μ sec pulses with a 20-200 c/s repetition frequency. Again various positions of the source, both in the homogeneous surface layer and below it, were employed. The results are discussed in terms of geometrical (ray and wave) theories. The author thanks V. Ya. Yashkov for help in carrying out the experiments. There are 7 figures, 2 tables and 7 references, 6 of which are Soviet and 1 a translation of an English book into Russian.

ASSOCIATION: Radio-Physics Research Institute, Gor'kiy State University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete.)

SUBMITTED: January 18, 1957.

Card 3/3 1. Sound--Attenuation--Measurement 2. Sound--Velocity
3. Water--Applications

46-4 -1-14/23

AUTHORS: Barkhatov, A. N. and Shmelev, I. I.

TITLE: Focusing of Sound on Reflection from a Boundary of a Non-Homogeneous Medium (Fokusirovka zvuka pri otrazhenii ot granitsy neodnorodnoy sredy.)

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol.IV, Nr.1, pp. 100-101. (USSR)

ABSTRACT: Brekhovskikh (Ref.1) found an equation for the caustic curve formed on reflection of sound from a boundary of a non-homogeneous medium. The present authors report in this letter verification of the relationships obtained by Brekhovskikh. The medium with required properties was produced by interdiffusion of salt solution and water in a bath. The experiments were carried out at 2.7 Mc/s. The acoustic field in the reflected wave was measured by means of an acoustic search coil. Fig.2 shows the reflected acoustic field (continuous curves). The horizontal axis represents distance from the point of observation to the caustic curve, and the vertical axis represents the ratio of the reflected wave amplitude to the maximum value of that amplitude. Dashed curves in Fig.2 give the theoretical acoustic field calculated from

Card 1/2

46-4 -2-14/23

Focusing of Sound on Reflection from a Boundary of a Non-Homogeneous Medium.

the expressions given by Brekhovskikh in Ref.1. It is found that, in contrast with the theory, the experimental amplitude never fell to zero, and that the space period of oscillation of the acoustic field observed experimentally was greater than the theoretical period. The continuous curve in Fig.3 represents the caustic curve calculated from expressions in Ref.1. The experimental results are shown by circles in Fig.3, and it is seen that the agreement between experiment and theory is satisfactory. There are 3 figures and 1 Soviet reference.

ASSOCIATION: Gor'kiy State University. (Gor'kovskiy gosudarstvennyy universitet.)

SUBMITTED: August 30, 1957.

1. Sound--Analysis 2. Sound--Reflection 3. Liquids--Applications

Card 2/2

AUTHORS: Barkhatov, A.N. and Simolev, I.I.

46-4-2-2/20

TITLE: Attenuation of a Sound Beam in Traversing a Layer with a Discontinuity of Sound Velocity (Oslableniye zvukovogo puchka pri prokhozhdenii cherez sloj skachka skorosti zvuka,

PERIODICAL: Akusticheskiy Zhurnal, 1958, Vol IV, Nr 2, pp 125-127 (USSR)

ABSTRACT: When a sound beam falls on a transitional layer between two homogeneous media with different values of sound velocity, refraction and reflection of sound occurs. The present paper compares attenuation of sound, found experimentally after transmission through a layer with a discontinuity of sound velocity, with a value obtained by a theoretical calculation which allows for broadening of the sound beam in this layer. Such a transitional layer was formed by diffusion between a solution of rock salt and a layer of water poured on top of this solution. Thickness of this layer may be found experimentally by measurement of salinity at various depths and by calculation using the diffusion equation, assuming that the medium is inhomogeneous and the salinity gradient occurs only in the vertical direction. Distribution of the sound

Card 1/3

46-4-2-2/20

Attenuation of a Sound Beam ~~in~~traversing a Layer with a Discontinuity of Sound Velocity

velocity with depth in such a layer is similar to the distribution of radiowaves in the ionospheric (Einstein) transitional layer (Fig 1). The sound source was in the salt solution and it emitted a sound beam upwards in a Fraunhofer zone 18° wide. Sound pulses of 40-50 μ sec with a carrier frequency of 500 kc/s and a repetition frequency of 50 c/s were used. The acoustic field at various levels on both sides of the transitional layer was investigated by means of horizontal displacement of a hydrophone. Graphs of dependence of the acoustic pressure on the distance from the source were constructed. An example of such a graph is given in Fig 2. If the losses in the transitional layer itself are neglected, then decrease of the acoustic intensity after traversal of the layer may be ascribed to (1) additional broadening of the sound beam on passing through the layer (Fig 3), and (2) reflection of sound from the transitional layer. The second cause can be safely neglected because the reflection coefficient from the layer in all experiments did not exceed 0.1%.

Card 2/3

46-4-2-2/20

Attenuation of a Sound Beam in Traversing a Layer with a Discontinuity of Sound Velocity

The authors show that experimentally determined attenuation agrees with values calculated assuming broadening of the sound beam in the transitional layer. There are 3 figures, 1 table and 2 Soviet references.

ASSOCIATION: Kafedra akustiki Gor'kovskogo gosudarstvennogo universiteta
(Chair of Acoustics, Gor'kiy State University)

SUBMITTED: April 25, 1957

Card 3/3

1. Sound--Attenuation 2. Sound--Refraction 3. Sound--Deflection
4. Sound--Velocity

BARKHATOV, A.N.; SHEMELEV, I.I.

Experimental studies of waveguide sound propagation in layered
inhomogeneous media. Akust.zhur. 5 no.4:403-407 '59.

(MIRA 14:6)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri
Gor'kovskom gosudarstvennom universitete.

(Sound--Transmission)

20231

6,8000 (and 1147, 1155)

S/046/61/007/001/001/015
B104/B204

AUTHORS: Barkhatov, A. N., Myasnikov, S. P

TITLE: Experimental field studies in the case of "antichannel" sound propagation

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 1, 1961, 18-20

TEXT: The authors investigated the sound field in a laminated medium, in which the following relations hold for the velocity of sound:

$$c = \begin{cases} c_0 / \sqrt{1 - 2az} & \text{with } 0 < z \leq H \\ c_m / \sqrt{1 + 2b(z - H)} & \text{with } z \geq H \end{cases}$$

Here, c_0 is the velocity of sound on the level $z = 0$, $c_m = c_0 / \sqrt{1 - 2aH}$ is the maximum velocity with $z = H$, a and b are positive constants and the positive direction of z is directed downward. Further, it is assumed that the velocity of sound in the semispace $z < 0$ is small compared to that in the semispace $z > 0$. Such a medium can be produced experimentally in a tank by diffusion of ethyl alcohol in water. At that depth where 25-30% alcohol is concen-

Card 1/4

20231

Experimental field studies ...

S/046/61/007/001/001/015
B104/B204

trated, a maximum velocity exists. In the experimental arrangements used by the authors, special sound absorbers were used on the bottom, which prevented sound reflection, while sound reflection from the walls was avoided by using a sound emitter with a narrow directional diagram. Investigations were carried out at 450 kc, 950 kc, and 2 Mc by means of ~~essentially~~ ~~continuous~~ pulses, with a pulse frequency of 50 pulses/sec and a duration of 150-200 μ sec. On the left side of Fig. 1, the velocity of sound as a function of depth is graphically represented. In Fig. 1, on the right, the sound field is outlined, if the sound emitter O is below that layer, in which the velocity of sound attains a maximum. Furthermore, a report is made on a region, in which the sound intensity decreases more quickly than might be expected if the receiver is moved away from the sound emitter. The position of this dark region depends on the gradient of sound velocity above and below the axis of the "antichannel". With an increase of this gradient, this boundary shifts in the direction of that region, in which intensity decreases corresponding to spherical sound propagation. Besides the velocity gradients, the sound frequency produces an effect upon the damping of sound within this dark region. Fig. 2 shows the sound intensity in the plane of the sound emitter (Fig. 1) as a function of the distance

Card 2/4

20231

S/046/61/007/001/001/015
B104/B204

Experimental field studies ...

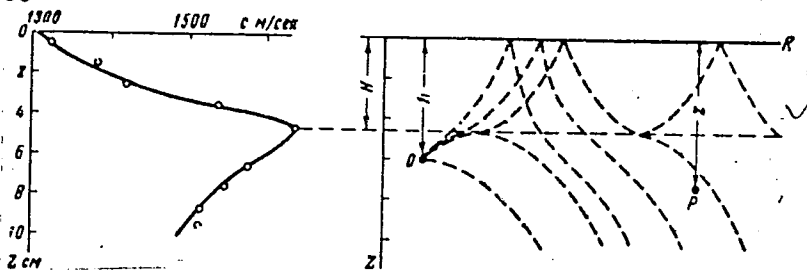
from the emitter. Two zones of the decrease of the sound amplitude may be distinctly discerned. The dotted line shows the boundary of the geometric shadow. Within the region above that layer, which has the maximum sound velocity, the sound amplitude is attenuated to an extent that corresponds to cylinder waves. There are 3 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: N.-i radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Scientific Radio-physical Research Institute, Gor'kiy State University)

SUBMITTED: March 18, 1960

Fig. 1

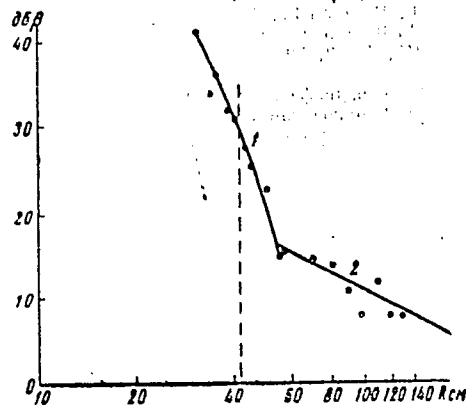
Card 3/4



Experimental field studies ...

20231
S/046/61/007/001/001/015
B104/B204

Fig. 2



Card 4/4

BARKHATOV, A.N.; CHERKASHIN, Yu.N.; YASHKOV, V.Ya.

Experiments on measuring sound intensity in a laminated medium
bounded by an undulatory surface. Akust.zhur. 7 no.2:159-164 '61.
(MIRA 14:7)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom
gosudarstvennom universitete.
(Sound—Measurement)

S/046/62/008/001/005/018
B125/B102

201,200 (046/62/008/001/005/018)

AUTHORS: Barkhatov, A. N., Cherkashin, Yu. N.

TITLE: Measurement of the backscattering of sound from an internal wave

PERIODICAL: Akusticheskiy zhurnal, v. 8, no. 1, 1962, 56 - 59

TEXT: The authors estimated the scattering of sound from an internal wave between two liquids whose refractive indices differed relatively little from one another. The measuring apparatus consisted of a plexiglas tank, a vibrator for exciting the internal standing and running waves with 4 to 20-cm wavelengths and 0.3 to 4-cm amplitudes at the boundaries between two liquids, sound emitter and sound receiver, transmitting and receiving electrical channels connected with the counter. The shape and the statistical properties of the internal wave were studied by an electrical resistance pickup. Fig. 3 shows the curves for the correlation coefficients of the inhomogeneities superimposed on the periodic wave in the direction of the propagation (Curve 1) and in the direction vertical to it (Curve 2). The fluctuations in the boundary displacement were $\sim 1/10$ of the mean wave amplitude. The modulation of the scattered wave

Card 1/3

Measurement of the...

S/046/62/008/001/005/016
B125/B102

was studied by means of a generator for standard signals, a mixer, and a selective amplifier of the intermediary frequency that were connected to the receiver channel. The identically equal sound emitter and sound receiver consist of sintered barium titanate. For the field scattered from the wavy surface $\kappa = \sigma p / p_0 = v' / v_0$ holds within the Fraunhofer region (i.e. for distances $r \gg A^2 / \lambda$, A is the double amplitude of the internal wave, λ is the length of the sound wave). κ is the radiation intensity, σp is the sound pressure of the field scattered from the receiver, p_0 is the pressure of the wave on that part of the scattered surface that has to be studied. v_0 is the amplified voltage corresponding to the sound pressure. For 10 to 20 cm long internal waves with an amplitude of 1 to 2 cm κ is 10^{-3} to 10^{-4} . In the second measuring method of strobing a part of the received signal and the signal produced in the standard signal generator were received by a mixer. The resultant signal with the frequency difference then passed through a filter of intermediary frequency. The results of this second method agree well with the results of the method already described. The scattering of the sound propagating in the

Card 2/4

Measurement of the...

3/048/02/008/001/003/011
3125/3102

transition layer between media with similar refractive indices in the presence of internal gravitation-induced waves was studied already by G. B. Malyushinets (Akust. zh., 1959, 5, 1, 70 - 76). The present paper demonstrates the possibility of studying weak effects by laboratory experiments. P. I. Kozinyuk and L. N. Yurkova are thanked for adjusting the apparatus; A. A. Viktorova and D. A. Selivanovskiy are thanked for their calculations. There are 4 figures and 1 Soviet reference.

ASSOCIATION: N.-i. radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Radiophysical Scientific Research Institute of the Gor'kiy State University)

SUBMITTED: April 26, 1961

Card 3/4

S/046/63/009/001/019/026
B104/B186

AUTHORS: Barkhatov, A. N., Cherkashin, Yu. N.

TITLE: The deformation of a sound beam by an internal wave on the interface of two liquids

PERIODICAL: Akusticheskiy zhurnal, v. 9, no. 1, 1963, 112 - 113

TEXT: The field of a sound beam scattered from a quasiperiodic interface of two immiscible liquids (water and turpentine) was studied in an experimental apparatus. The angle of incidence was 30° , and the periodicity was excited mechanically. The aim of the study was to demonstrate that it is possible to simulate the influence of internal waves on the sound field. The emitter was installed in turpentine and sent pulses (500 kc/s) of 10 - 150 μ sec duration) to the interface. The sound field was measured with a receiver which was identical with the emitter. Results: The beam width varies periodically. The distortion of long waves is greater than that of short waves. The pressure maximum in the reflected beam is somewhat smaller if the interface is periodical than if the beam is reflected from a plane interface. If the beam impinges on a convex part of the interface it is broadened to $\approx 10\%$ of the width compared with that reflected from a
Card 1/2

The deformation of a sound beam...

S/046/63/009/001/019/026
B104/B186

plane interface. The beam width is smaller if it is reflected from a concave part of the interface. There is 1 figure.

ASSOCIATION: N.-i. radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Scientific Research Institute of Radio-Engineering at the Gor'kiy State University)

SUBMITTED: March 28, 1962

Card 2/2

БАРКХАТОВ, А. В.

ca

9

Automobile sheet metal rejected because of cavities and measures for preventing this condition. N. A. Tatarintsev and A. V. Barkhatov. *Ural. Met.* 8, No. 1-5, 28-31 (1939); *Chem. Zvest.* 1940, 1, 2376. — Cavity formation in the sheet metal may be due to incorrect metallurgical treatment of the steel (insufficient heating of the ingot before rolling or oxidation during heating); in this case the cavities may have either a mirror-bright surface or an oxidized mat surface. Blowholes also appear after pickling, as a result of the accumulation of H₂ in cavities. In order to remove the blowholes the ingot must be heated to 1100-1200°. Their formation is prevented by correct operation of the furnace. Their dispersion as far as possible from the surface of the ingot is accomplished by maintaining the correct casting rate. Hot furnace operation, slags contg. 38-45% CaO and 9-12% FeO with a CaO/SiO₂ ratio of 2.2-2.6 and a MnO/FeO ratio of 1-1.3, energetic boiling, deoxidation with ferromanganese (without ferrosilicon) and a casting rate of not more than 0.15-0.2 t. per min. are recommended.

M. G. Moore

1ST AND 2ND ORDERS

PROCESSES, D PROPERTIES, QUALITY

BARKHATOV, A.V.

CA

The possibility of intensifying the boiling period in open hearth smelting. N. A. Tatarintsev and A. V. Barkhatov. *Tr. M. S. No. 9, 19 20(1930). Chem Zvezd 1940, 1, 3164 5.* - By using high temps. with mobile slags it was possible to shorten the boil to 1-1.5 hrs. with acceleration of the combustion of C (0.63% C per hr. during the first half of the smelting and 0.43% during the last half) without increasing the FeO content of the steel. The transfer of FeO from the slag into the metal was vigorous (the slag content in FeO + Fe₂O₃ was 8-11% with a CaO to SiO₂ ratio of 2-2.5) but its reduction by the burning C was equally vigorous (final C content of the steel 0.00-0.12%). This method also provided an energetic boil of the steel in the ingot mold so that a good crust free from blowholes was obtained and the steel was low in both micro and macro nonmetallic inclusions. Addnl. deoxidation of the steel with Cr was not advisable since such treatment resulted in inclusions of Cr₂O₃ (the Cr content of the steel was increased to more than 0.12%) with a consequent unnatural boil in the mold and an increase in the viscosity of the steel. M. G. Moore

COMMON ELEMENTS

OPEN

MATERIALS INDEX

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

23000 577.0316

31000 577.0316

32000 577.0316

33000 577.0316

34000 577.0316

35000 577.0316

36000 577.0316

37000 577.0316

38000 577.0316

39000 577.0316

40000 577.0316

41000 577.0316

42000 577.0316

43000 577.0316

44000 577.0316

45000 577.0316

46000 577.0316

47000 577.0316

48000 577.0316

49000 577.0316

50000 577.0316

51000 577.0316

52000 577.0316

53000 577.0316

54000 577.0316

55000 577.0316

56000 577.0316

57000 577.0316

58000 577.0316

59000 577.0316

60000 577.0316

61000 577.0316

62000 577.0316

63000 577.0316

64000 577.0316

65000 577.0316

66000 577.0316

67000 577.0316

68000 577.0316

69000 577.0316

70000 577.0316

71000 577.0316

72000 577.0316

73000 577.0316

74000 577.0316

75000 577.0316

76000 577.0316

77000 577.0316

78000 577.0316

79000 577.0316

80000 577.0316

81000 577.0316

82000 577.0316

83000 577.0316

84000 577.0316

85000 577.0316

86000 577.0316

87000 577.0316

88000 577.0316

89000 577.0316

90000 577.0316

91000 577.0316

92000 577.0316

93000 577.0316

94000 577.0316

95000 577.0316

96000 577.0316

97000 577.0316

98000 577.0316

99000 577.0316

Low Level Gauge of the Glass Frit

SOV/72-59-5-12/23

ASSOCIATION: Ashkhabadskiy stekol'nyy zavod imeni M. I. Kalinina (Ashkhabad
Glass Factory imeni M. I. Kalinin)

Card 2/2

BARKHATOV, B.; VLASOV, N.G.; ZAKHAROV, S.A.; KUKHTIKOV, M.M.

[Excursion guide of the second All-Union Tectonics Society] Putevoditel' ekskursii. Dushanbe, In-t geologii AN Tadzhik.SSR, 1962. 98 p. (MIRA 17:7)

1. Vsesoyuznoye tektonicheskoye soveshchaniye, 2d, Dushanbe.

SECRET, T.P.

2000-000000-000000 (000000) 7 000000
000000-000000 (000000)
(000000-000000)

BARKHATOV, B. P.

"Summer Work of Geology Students in the Caucasus," Vest. Len. un., 6, No.11, 1951

1. BARKHATOV B.P.

2. USSR (600)

4. Geology - Tajikistan

7. Geology of the Kulyab strata in the Tajik Depression. Dokl.
AN SSSR 83 No. 6, 1952. Leningradskiy Gosuderstvennyy Universitet
im. A. A. Zhdanova
rcd. 8 Jan. 1952.

9. Monthly List of Russian Accessions, Library of Congress, September 1952. UNCLASSIFIED.

BARKHATOV, B.P.

Correlation between the Taurian and Eski-Orda mountainous Crimea.
Vest.Len.un. 10 no.7:123-136 J1'55. (MIRA 8:12)
(Crimea--Geology, Stratigraphic)

15-57-2-1596

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 2,
p 62 (USSR)

AUTHOR: Barkhatov, B. P.

TITLE: The Geology of the Intrusions in the Region of the
Junction of the Southwestern and the Central Tectonic
Zones of Pamir (K geologii intruziy oblasti styka
yugo-zapadnoy i tsentral'noy tektonicheskikh zon
Pamira)

PERIODICAL: Uch. zap. LGU, 1956, Nr 209, pp 179-216

ABSTRACT: The region between the Gunt River and the divide on
the Yazgulem Range is divided into three almost east-
west subzones, distinguished by their peculiarities
of magmatism: the Gunt subzone is the northern margin
of the occurrence of the southern Pamir (Precambrian)
metamorphic sequence, cut chiefly by concordant in-
trusions; the Rushan tectonic subzone, which contains

Card 1/3

15-57-2-1596

The Geology of the Intrusions (Cont.)

a metamorphic series broken by numerous intrusions and provisionally referred to the lower Paleozoic, schists tentatively assigned to the upper Paleozoic, and small outcrops of Lower and Middle Jurassic rocks, characterized by breaks and the presence of volcanics; and the Yazgulem-Bartang tectonic subzone, composed of shales, limestones, and red beds of the Mesozoic, sedimentary-volcanic beds of the Permo-Triassic, and limestones of Upper Devonian age. The oldest igneous rocks (Precambrian) are 1) aplitic gneissic granites, 2) gneissose chloritized basic rocks, 3) two-mica gneissic granites and apophyses associated with them. The second group of intrusives (Paleozoic ?) consists of 1) two-mica granites and gneissic granites and 2) augen orthogneisses. The characteristic features of these rocks are concordance of intrusions, gneissic structure, and blasto-granitic, rarely porphyroblastic structure, intrusive nature of the contacts, and dike-like features, giving rise to pegmatite veins and schlieren with abundant schorl. The intrusive rocks of the third group [early Cimmerian granitoid rocks (Mesozoic)] are

Card 2/3

15-57-2-1596

The Geology of the Intrusions (Cont.)

characterized by considerable areal distribution in numerous isolated outcrops and by great variety in composition, structure, and mode of occurrence. The intrusives generally have concordant contacts with the country rocks, though some cross-cutting relationships are observed. They are not everywhere gneissic; marked cataclasis is absent, and there is a general manifestation of protoclasis, large apophyses in the country rocks, and dike derivatives: pegmatites, diabase porphyrites, kersantites, and diorite porphyrites. Intrusions of the fourth group (late Cimmerian granitoid rocks) are characterized by uniform petrographic composition, porphyritic texture, invariable presence of orthite, discordant attitude, absence of gneissose structure, and by dike rocks, including lamprophyres, pegmatites, aplites, and quartz veins. The fifth group of rocks includes two intrusions of quartz diorites (the Alpine cycle).

Card 3/3

S. P. B.

BARKHATOV, B.P.; BARKHATOVA, N.N.

D.L. Ivanov, first Russian explorer of the geology of the Pamirs.
Trudy Geol. muz. AN SSSR no.1:159-164 '57. (MIRA 11:4)
(Pamirs--Geology) (Ivanov, Dmitrii L'vovich, 1846-1924)

BARKHATOV, B.P.

Division of the Pamirs into tectonic zones. Uch.zap.LGU no.268:
220-247 '58. (MIRA 12:6)
(Pamirs--Geology, Structural)

BARKHATOV, B.P.

Geological and geographical study of the Brown Mountain region
(Antarctica, Wilhelm II Coast). Nauch.dokl.vys.shkoly; geol.-geog.
nauki no.1:29-34 '59. (MIRA 12:6)

1. Leningradskiy universitet geologicheskoy fakul'tet, kafedra
obshchev geologii.
(Brown Mountain--Geology)

BARKHATOV, B.P.

Hasty conclusions on the stratigraphy of the lower Paleozoic of
the Pamirs. Izv. Otd. est. nauk AN Tadzh. SSR no.1:133-134 '59.
(MIR 13:3)

(Pamirs--Geology, Stratigraphic)

3(5).

AUTHORS:

Barkhatov, B. P., Miklukho-Maklay, A.D., SOV/20-125-6-37/61
Roman'ko, Ye. P., Tairov, L. Z.

TITLE:

New Data Concerning Permian Deposits of the North Pamirs (Novyye dannyye o permskikh otlozheniyakh Severnogo Pamira)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6, pp 1303-1306 (USSR)

ABSTRACT:

Permian deposits characterized by their fauna predominate in the northern and south-eastern structural-facial zone of Pamir (Ref 1). The stratigraphy of the Permian deposits in the south-east of Pamir could be precisely defined in the last years by investigations of the Upravleniye geologii i okhrany nedr pri Sovete Ministrov SSSR (Administration of Geology and Protection of Mineral Resources of the Council of Ministers of the USSR) as well as of Leningradskiy universitet (Leningrad University). New Permian exposures were found in addition. The separation of the individual zones is indicated (Refs 1,4,5) (see Scheme in Fig 1). On the strength of a tectonic and paleontological analysis the authors draw the conclusion that the stratigraphic position of the so-called "violet" suite (earlier ascribed to the central part of the Lower Permian by M. I. Shabalkin) has

Card 1/3

New Data Concerning Permian Deposits of Northern Pamir SOV/20-125-6-37/61

to be revised. The "violet" suite, which contains Upper Permian fauna in the conglomerate, is obviously bound to have a stratigraphically higher position; it is, however, as well possible that these deposits belong to the Mesozoic (Jurassic, and even Cretaceous). The detection of Lower Permian fauna in the rocks of the northern metamorphic zone of Pamir indicates the uniformity in the geological development of the entire northern zone during the Paleozoic and Mesozoic or at least up to the Upper Permian. The southern boundary of maximum downwarps in the Upper Paleozoic is distinctly marked; it is in accordance with the southern boundary of the Darvaz-Sarykol lower zone. Thus, the development of the northern branch of the Pamir geosyncline in the Upper Paleozoic was better determined. There are 1 figure and 5 Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova
(Leningrad State University imeni A. A. Zhdanov) Upravleniye
geologii i okhrany nedr pri Sovete Ministrov, Tadzhikistana SSR
(Administration of Geology and Protection of Mineral Resources
of the Council of Ministers of the Tadzhik SSR)

Card 2/3

New Data Concerning Permian Deposits of Northern Pamir SOV/20-125-6-37/61

PRESENTED: December 9, 1958, by D. V. Nalivkin, Academician

SUBMITTED: December 2, 1958

Card 3/3

BARKHATOV, B.P.

Principles of the tectonic regionalization of the Pamirs. Vest.
LGU 16 no.18:19-31 1961. (MIRA 14:10)
(Pamirs--Geology, Structural)

BARKHATOV, B.P.; MEL'NIK, G.G.

Lower Paleozoic of the Pamirs and the Darvaza Range. Dokl. AN
SSSR 136 no.2:408-411 '61. (MIRA 14:1)

1. Leningradskiy gosudarstvennyy universitet imeni A.A. Zhdanova
i Upravleniye geologii i okhrany neдр pri Sovete Ministrov TadzhSSR.
Predstavleno akademikom D.V. Nalivkinym.
(Pamirs—Geology, Stratigraphic)
(Darvaza Range—Geology, Stratigraphic)

BARKHATOV, Boris Petrovich; BARKHATOVA, Nina Nikolayevna; KUZNETSOV,
S.S., doktor geol.-mineral.nauk, otv.red.; SHENGER, I.A., red.
izd-va; GALIGANOVA, L.M., tekhn.red.

[Development of concepts of the tectonics of the Pamirs]
Razvitie vzgliadov na tektoniku Pamira. Moskva, Izd-vo Akad.
nauk SSSR, 1962. 51 p. (Akademiia nauk SSSR, Geologicheskii
muzei. Trudy, no.14). (MIRA 16:2)
(Pamirs--Geology, Structural)

BARKHATOV, Boris Petrovich; OGNEV, V.K., prof., otv. red.;
PETROVSKAYA, T.I., red.; YELIZAROVA, N.A., tekhn. red.

[Tectonics of the Pamirs] Tektonika Pamira. Leningrad,
Izd-vo Leningr. univ. 1963. 241 p. (MIRA 17:1)

LICHEN, N. S., geologo-ved., prof.; SHAFRANOVSKIY, I. I., prof.,
otv. red.; BARKHATOV, B. P., prof., otv. red.;
SHKRYNNIK, M. I., red.

[Principles of the modern theory of the earth] K osnovam
sovremennoi teorii Zemli. Leningrad, Izd-vo Leningr. univ.,
1965. 147 p. (MIRA 18:7)

BARKHATOV, B.I.

Work of the section "Prognosis of the Alps and Hindurves" at the
12th session of the International Geological Congress in Tehran.
Vest. IGU 20 no. 38 "65 Letoia geologii i geografii no. 3119-143

(MIRA 1969)

BARNILTOV, B.P.

Northern geological boundary of the Alpine fold belt in
the southern part of the U.S.S.R. Vest. IGU 10 no. 24:
135-136 1965. (MIRA 19:1)

1. Submitted May 27, 1965.

Боринг Д.Р.

VESHEV, A.V.; MEYER, V.A.; LARIONOV, L.V.; BARKHATOV, D.R.

Magnetic susceptibility logging in slightly magnetic rocks.
Vop.rud.geofiz. no.1:69-78 '57. (MIRA 10:10)
(Borings) (Prospecting--Geophysical methods)

S/169/62/000/005/034/093
D228/D307

AUTHORS: Semenov, A. S., Turchaninov, L. V. and Barkhatov, D. R.

TITLE: The average gradient method on large-scale geologic mapping

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 34, abstract 5A265 (V sb. Vopr. rušn. geofiz., no. 2, M., Gosgeoltekhizdat, 1961, 15-35)

TEXT: The procedure and the technique of electric prospecting work in accordance with the average gradient scheme are stated. The method fixes the change in the resistance of rocks, chiefly in a horizontal direction; this favors its use for detailed geologic mapping. In order to allow for the influence of the electroresistance's vertical change, it is suggested that the "normal" curves ρ_x and ΔU of the average gradient method should be taken into account. A means of calculating these curves from theoretical or experimental data of B93 (VEZ) / Abstracter's note: Vertical electric sound-

Card 1/2

The average gradient ...

S/169/62/000/005/034/093
D226/D307

ing? / is stated. Normal curves, calculated for a two-layer medium, are cited. An approximate formula is given for calculating the system's coefficients. A table and graphs of the coefficients, computed from this formula when AB = 2 km, MN = 20 m, and the inter-profile distance is 50 m, are given for one-quarter of the plotter. The apparatus, used in conducting observations by the average gradient method with a low-frequency alternating current, is briefly described. It is pointed out that the average gradient method possesses a high sensitivity to horizontal heterogeneities. It is recommended that the technique should be employed for geologic mapping during large-scale surveys, in conjunction with the methods of VEZ and profiling. [Abstracter's note: Complete translation.]

Card 2/2

BARKHATOV, D.R.

Vehicle-mounted magnetometer. Geofiz. prib. no.9:100-107
'61. (MIRA 15:11)
(Magnetometer)

BARKHATOV, D.R.

NChMU low-frequency electric prospecting apparatus. Uch.zap.LGU
no.303:241-244 '62. (MIRA 15:11)
(Electric prospecting--Equipment and supplies)

BARKHATOV, G.V.; VASIL'YEV, V.G.; KISELEV, S.I.; TIKHOMIROV, Yu.P.

Oil- and gas-bearing potential of the Verkhoyansk piedmont fault
and basic trends in prospecting this region. Geol. nefi 1 no.4:
1-7 Ap '57. (MLRA 10:8)

(Verkhoyansk Range--Petroleum geology)
(Verkhoyansk Renge--Gas, Natural--Geology)

BARKHATOV, G.V.; VASIL'YEV, V.G.; GRISHIN, G.L.; KARASEV, I.P.; KISELEV,
S.I.; KRAVCHENKO, Ye.V.; MORDOVSKIY, V.T.; TIKHOMIROV, YU.P.;
CHEPIKOV, K.R.; YUNGANS, S.M., ved.red.; FEDOTOVA, I.G., tekhn.red.

[Oil and gas in the eastern Siberian Platform] Neftegazonosnost'
Vostochno-Sibirskoi platvormy. Pod red. K.R. Chepikova. Moskva,
Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1958.
130 p. (MIRA 12:1)

1. Chlen-korrespondent AN SSSR (for Chepikov).
(Siberian Platform--Gas, Natural)
(Siberian Platform--Petroleum)

BABAYAN, G.D.; BARKHATOV, G.V.; BOBROV, A.K.; BONDARENKO, V.I.; VASIL'YEV, V.G.; KOBELYATSKIY, I.A.; NIKOLAYEVSKIY, A.A.; TIKHOMIROV, Yu.P.; CHEPIKOV, K.R.; CHERSKIY, N.V.; CHICHMAREV, V.G.; BEKMAN, Yu.K., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Geology, and oil and gas potentials of the Yakut A.S.S.R.] Geologicheskoe stroenie i neftegazonosnost' Iakutskoi ASSR. Pod red. V.G.Vasil'eva. Moskva, Gos.nauchno-tekhn.izd-vo nef. i gornotoplivnoi lit-ry, 1960. 478 p. (MIRA 13:11)

(Yakutia--Petroleum geology)
(Yakutia--Gas, Natural--Geology)

BARKHATOV, G.V.; VLADIMIROVA, G.I.; PLEVALOV, I.I.; SIROTKO, V.K.

Transistorized relay protection of 35 kv. electric lines.
Sbor. rab. po vop. elektromekh. no.5:117-132 '61. (MIRA 14:6)
(Electric lines)
(Electric protection)

BARKHATOV, G.V.

Crystalline bedrock in the northern slope of the Aldan massif and Vilyuy syncline based on deep drilling and geophysical data.
Mat.po geol.i na iskop.IAk. ASSR no.2:23-24 '60. (MIRA 15:10)

(Aldan Plateau--Geology, Stratigraphic)

(Vilyuy Valley--Geology, Stratigraphic)

BAPKINOV, N.A., aspirant; STUDENTOV, A.P., prof., nauchnyy rukovoditel'

Organization of the insemination of brood cows kept in field shelters. Veterinariia 22 no.7:84-85 J1 '69. (SIRA 18:9)

1. Kazanskiy veterinarnyy institut. 2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni Lenina (for Studentov).

BARSHIMTOV, V.

"An X-Ray Examination of the Structure of $K_2SO(SO_3)_6$,"

Acta Phys., 16, No. 1-2, 1942 Inst. of Physical Chemistry, in.
L. Ya. Karpov, Dept Chem. Sci., Acad. Sci. 1942

AUTHOR: Barkhatov, V.A., Engineer SOV-88 88-2-1/21

TITLE: Concrete With a Minor Cement Content is to Be Adopted for Water Power Construction (Vnedryat v gidrotekhnicheskoye stroitel'stvo betony s malym sodержaniyem tsementa)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, Nr 2, pp 1-5 (USSR)

ABSTRACT: The average expenditure of cement for 1 cu m of concrete at the Tsimlyanskaya Hydroelectric Power Plant was 300 kg, at the Kuybyshev Hydroelectric Power Plant - over 305 kg, and at the Stalingrad Hydroelectric Power Plant - about 270 kg. A reduction in the use of cement is not only necessary for economical reasons, but also to improve the properties of concrete. According to foreign data, the average expenditure of cement with plasticized and air-absorbing admixtures was reduced to 250 kg/cu m on the dam's external parts and 150 kg/cu m of concrete on the internal parts. The author gives details on the use of coarse fillers and on scientific-research work during the construction of the Stalingrad GES. One of the materials used was a 50% concentration of sulfite-alcohol vinasse from the Krasnokamskiy bumazhno-tsellyuloznyy kombinat (Krasnokamsk Paper-Cellulose Combine).
To improve the granulometric composition of the coarse

Card 1/3

ССВ-98-58-2-1/21

Concrete With a Minor Cement Content is to Be Adopted for Water Power Construction

filler, and to ensure its durability thus obtaining a mixture with a possibly small number of cavities, crushed stone of a fixed gradation was used (Table 2). The author enumerates the various brands of concrete that were examined, how the selection was carried out and the method of determining the permeability of the samples established. The results of the tests conducted to establish the strength under pressure, frost resistance, water permeability, etc, are shown in Table 5. The author reports on other tests for various purposes which proved that water structure concrete with a cement expenditure of 220 - 230 kg/cu m concrete, adding 0.2% SSB, can be used in practice (the brands are enumerated). The tests have confirmed that the concrete mixture prepared with reduced quantities of cement, are easy to place and treat. The research was carried out by Engineer A.A. Gordeyev under the direction of the chief of the section for examining building materials, Stalingradgidrostroy, Candidate of Technical Sciences, V.M. Medvedev, Engineer G.A.

Card 2/3

SOV-98-58-2-1/21

Concrete With a Minor Cement Content is to Be Adopted for Water Power Construction

Shisho and Engineer of the Concrete Laboratory M.R. Kaplun.
There are 5 tables.

1. Concrete--Applications
2. Power plants--Construction

Card 3/3

Баркатова А. Н.

"Self-Sound Recorder in an Undeafened Tank. II," by A. N. Barkatova and V. Ya. Yakhov, Uch. Zap Gor'kovsk. Un-ta 30, 1956, pp 137-141 (From Referativnyy Zhurnal -- Fizika No 10, Oct 56, Abstract No 29654)

A schematic of conversion of varying dc electric voltage into ac is presented. It facilitates recording on a high-speed logarithmic level recorder. The converter consists of a multivibrator operating on a frequency of 10 kc, a modulator and limiter, built on two rectifiers. Results of measurement are presented showing the dependence of the level of sound pressure in the tank on distance in a stratified unhomogeneous medium with a constant temperature gradient 0.8° for each cm of depth. The measurements were carried out using pulse techniques. The results agree with computations based on geometric acoustics.

5/24/74

SAPIRO, David Naftal'yevich, inzh.-elektrik; BARKHATOVA, E., red.;
LUKASHEVICH, V., tekhn.red.

[Electrification of the province] Elektrifikatsia oblasti.
Saratov, Saratovskoe knizhnoe izd-vo, 1960. 73 p.
(Saratov Province--Electrification) (MIRA 13:11)

KALYUZHNOV, Anatoliy Konstantinovich, inzh.; BARKHATOVA, E., red.;
LUKASHEVICH, V., tekhn.red.

[Automatic control in industrial power engineering] Elektro-
avtomatika v promyshlennoi energetike. Saratov, Saratovskoe
knizhnoe izd-vo, 1960. 85 p. (MIRA 14:4)
(Automatic control) (Electric power distribution)

GUREVICH, F.A., DROKIN, A.I., BARKHANOVA, I.M.

Effect of ultrasound on the early periods of plant growth. Izv.
Sib. otd. AN SSSR no. 7:83-90 '60. (MIRA 13:8)

1. Krasnoyarskiy meditsinskiy institut fiziki Sibirskogo
otdeleniya AN SSSR.

(Plants, Effect of ultrasonic waves on)

APRILESC, M. V. VOROB'YEV, G. I. KUMIN, N. I. BERNADINA, L. M.

Transformation of human excretions with the help of a natural
algae-bacterial community. Izv. Akad. Nauk. 1959, 6:2-165.
(MIRA 18:4)

L 14261-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AT6003897

SOURCE CODE: UR/2865/65/004/000/0598/0604

AUTHOR: Rerberg, M. S.; Vorob'yeva, T. I.; Kuz'mina, R. I.; Barkhatova, I. M. 46

ORG: none

TITLE: Processing human excrement by means of naturally occurring algal and bacterial populations B+1

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 598-604

TOPIC TAGS: Chlorella, bacteria, algae, life support system, chemical precipitation, excretion, vacuum distillation, closed ecology system, centrifugation, water, processed animal product, chemical purity, water purification

ABSTRACT: Small, closed, life-support systems based on recirculation of biosubstances consist of three phases: 1) synthesis, 2) consumption, and 3) reutilization (i.e., recirculation into the system of the products of human vital activity). An attempt was made to reclaim water. Naturally occurring populations of Chlorella vulgaris and bacteria were chosen as agents by which it was hoped to achieve a higher degree of efficiency than is usual with phytoplankton and bacterial flora in sewage basins. A three-step culture process, affording sufficient mineralization of excreted organic matter, the creation of an algae biomass, and production of secondary, humus-type organic matter, was used.

Card 1/5

L 14261-66
 ACC NR: AT6003897

Results show that the regenerated water conforms to most international standards (see Table 1). Organic matter, mostly humus (as is characteristic of aerobic processing) can easily be precipitated by the addition of Fe-AL cations. Further physical and chemical purification is simple, without significant loss of water from the system.

Table 1. Results of biological processing (USSR) compared with foreign standards

Country	Dry residue	Organic matter	H ⁺	Cl ⁻	SO ₄ ²⁻	NO ₂ ⁻	NO ₃ ⁻	NH ₄ ⁺
	mg/liter							
Belgium	500	2-5	20	8	2-65	4	—	—
Sweden	500	2.5	—	20	—	20	0	0,02
France	500	2,0	—	40	—	—	0	0
USSR	500-600	2-3	19	20-30	80	30-40	traces	traces

The most serious disadvantage is that 1 to 2 months are required to process and regenerate water from the normal excretion of 24 hours. Culture intensification (dilution of 1 : 40 instead of 1 : 80, with 8 hours of

Card 2/5

L 11,261-66
 ACC NR: AT6003897

illumination in 24) cut this time to 72 hours. The water obtained (after precipitation of secondary organic matter) conformed to the GOST standard 2761 (1957) for water supply sources. Results of chemical analysis are given in Table 2.

Table 2. Medium from human wastes (dilution 1 : 40) processed by stepwise laboratory cultivation

Medium from human excreta	NIH	NO.	NO.	Albumi- noid N	Alka- linity	Hard- ness,	Cl'	SO ₄ '	Mg	Ca	P	Fe ₂ O ₃	Perman- ganate number
	mg/liter			mg/eq	mg/eq	mg/liter							
Before	8.5	4.5	0.04	15.2	2.6	2.5	180.00	137.7	11.2	25.90	23.5	0.1	100.8
After	0.34	1.07	0.001	—	2.5	1.1	170.40	97.5	8.16	9.5	0.00	0.05	35.6

Intensive algae culture on a potassium-urine substrate in a water-closed system for 5 months showed: 1) Due to the presence in human wastes of substantial amounts of minerals not required by the organisms

Card 3/5

I. 71261-66
 ACC NR: AT6003897

Table 3. Utilization of elements by *Chlorella* in human waste culture (in mg)

Element	Medium at outset (1:40)	Amount of element used by algae	Medium at end	Remainder
Carbon	118,3	1640	36,9	13.6-fold deficit
Nitrogen	82,19	67,75	14,47	82,23
Phosphorus	23,5	22,76	0,0	22,76
Sulfur	18,86	5,86	13,0	18,86
Magnesium	11,2	3,04	8,16	11,2
Calcium	25,9	15,84	9,5	25,34

used (*Chlorella* and bacterial flora), mineral salts were not assimilated but accumulated to saturation and then began to precipitate out of solution. This led to pH fluctuations in the medium. 2) Prolonged (5 months) culture caused saturation of the medium with soluble and nonsoluble humus-type organic matter. Nonsoluble matter can be removed by precipitation, but the soluble matter accumulates and suppresses the vital activity of the *Chlorella* and bacteria. Physical and chemical purification to remove soluble organics is required from time to time to prevent deterioration of the system. Centrifugation followed by vacuum distillation proved highly

Card 4/5

L:11261-66

ACC NR: AT6003897

effective for removing sodium and sulfur. NaCl (up to 2 g/liter stimulated the algae, and larger amounts (up to 4 or 5 g/liter) did no harm. Table 3 shows the amounts of various elements present in the medium at the beginning, used by the Chlorella, and present in the medium at the end of the process.

One approach to these problems may be the alteration of human diet to bring the composition of excreta more closely in line with the requirements of the algal-bacterial link. For instance, human diet might be enriched with nitrogen, phosphorus, and magnesium to combine with excess sulfur and potassium to form compounds more easily assimilable by the algae-bacteria population.

Biological recirculation of substances advantageously combines four functions in a single process: 1) primary biomass synthesis, 2) reutilization of raw waste, 3) primary purification of water, and 4) regeneration of oxygen. Orig. art. has: 2 figures and 3 tables. [ATD PRESS: 4091-F]

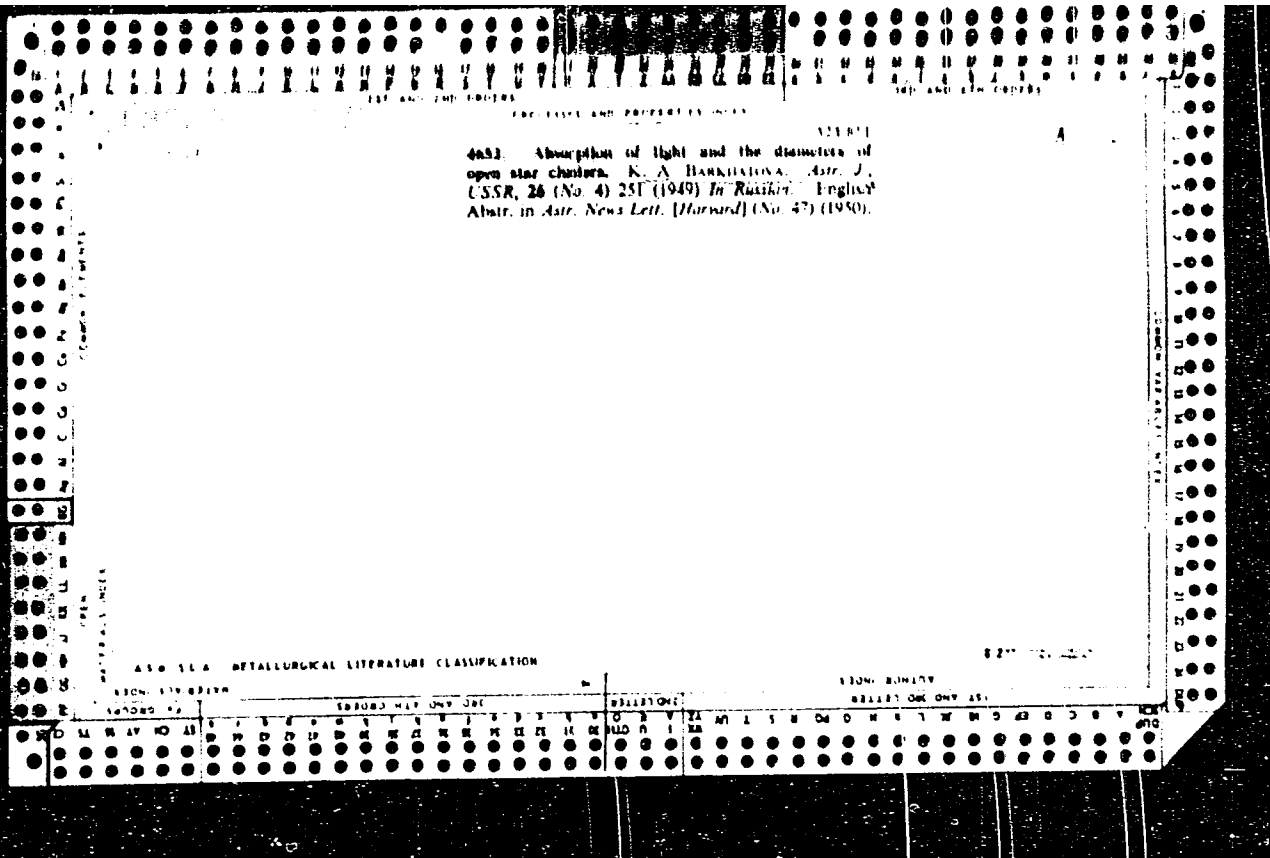
SUB CODE: 06, 07 / SUBM DATE: none

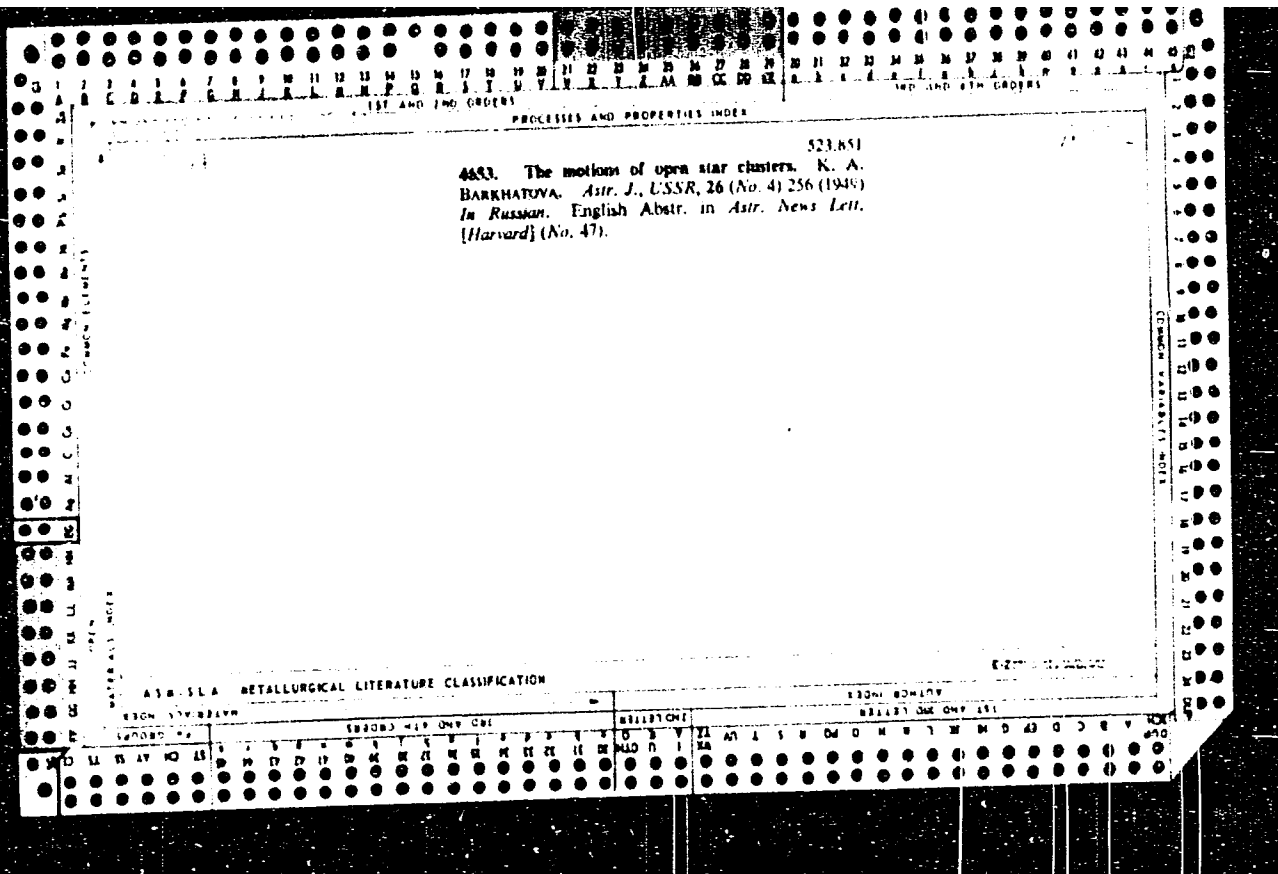
TS
Card 5/5

BARKHATOVA, K. A.

37166. Prostranstvennoye raspredeleniye rasseyannykh zvezdnykh skopleniy.
Astron. Zhurnal, 1949, Vyp. 6, s. 336-43 — Bibliogr: 7 Nzv.

SO: Letopis' Zhurnal'nykh Statey, Vol 7, 1949





BARKHATOVA, K. A.

PA 161T4

USSR/Astronomy - Stars

May/Jun 50

"Dispersed Star Clusters," K. A. Barkhatova, Ural
State U, 7 pp

"Astron Zhur" Vol XXVII, No 3

Considers determination of distances to dispersed
stellar conglomerations, as part of general study of
their spatial distribution. Includes 6 pp of tables
of pertinent stellar data.

161T4

AMHATVA, P. A.

24 03 77

USSR/Astronomy - Star Clusters

Nov/Dec 52

"Investigation of Color Indexes of Stars Inside
Dispersed Star Clusters," K. A. Barkhatova and
V. V. Syrova, Ural State U

"Astron Zhur" Vol 29, No 6, pp 664-667

Writers consider effect of light absorption on
linear and angular dimensions of diam of clusters
and investigate the connected change of color of
stars. They tabulate all pertinent data of many
clusters. Indebted to Prof Parenago. Submitted
5 Jun 52.

239T75

BAKHATOVA, K. A.

A 001076

USSR/Astronomy - Star Clusters

Nov/Dec 52

"Dependence of Galactic Concentration Beta on Class
of Dispersed Star Clusters," K. A. Barkhatova, Ural
State U

"Astron Zhur" Vol 29, No 6, pp 668-670

Attempts to clarify the variation of galactic concn,
beta, in relation to type of cluster, according to
R. Trumpler's classification. She concludes that the
greatest concn in the galactic plane is exhibited by
clusters of various luminosity and of low central
concn. Indebted to P. P. Parenago. Submitted
5 Jun 52.

239T76

BARKHATOVA, K.A.

Open cluster NGC 7086. Astron. zhur. 33 no.4:556-562 J1 - Ag '56.
(MIRA 9:11)

1. Gosudarstvennyy astronomicheskiy institut imeni P. K. Shternberga.
(Stars--Clusters)

BARKHATOVA, K.A.

Open clusters NGC 1528 and NGC 1545. Astron.zhur. 33 no.5:
733-740 S-O '56. (MLRA 9:12))

1. Gosudarstvennyy astronomicheskiy institut imeni
P.K. Shternberga.
(Stars--Clusters)

BARKHATOVA, K.A.

Open cluster NGC 188 [with summary in English]. Astron.zhur.33
no.6:850-854 N-D '56. (MLRA 10:1)

1. Gosudarstvennyy astronomicheskiy institut imeni P.K. Shternberga.
(Stars--Clusters)

AUTHOR: Barkhatova, K. A. 502

TITLE: The open stellar cluster NGC 6811. (Rasseyannoye zvezdnoye skopleniye NGC 6811).

PERIODICAL: "Astronomicheskiy Zhurnal" (Journal of Astronomy), 1957, Vol.34, No.2, pp. 203 - 205 (USSR).

ABSTRACT: The open cluster NGC 6811 was photographed using the 15 inch Schmidt telescope of the Engelhardt Observatory. A total of 16 photographs of the cluster was obtained in addition to 12 photographs of standard areas. Stars of Kapteyn area 39 were used as photographic standards. In the treatment of observational data stellar magnitudes were obtained in the International system of photographic and photovisual magnitudes. Mean square errors were: $\pm 0.^m.05$ (photographic magnitude), $\pm 0.^m.05$ (photovisual magnitude), $\pm 0.^m.07$ (colour index). Photographic magnitudes obtained are in agreement with ref.2. On the basis of the photographic and photovisual magnitudes of 357 stars distributed in the cluster and its neighbourhood diagrams of colour index - visual magnitude were constructed (Figs. 1 - 6) for six separate concentric zones. Fig.7 shows the corresponding diagram for the first three zones taken together. Fig.8 shows a photograph of the cluster. As can be seen (Figs. 1 - 6) the main sequence has a clear outline only for the stars of the first three zones. For higher zones background stars predominate.

The open stellar cluster NGC 6811. (Cont.)

502

For 19 stars of spectral class A0 - A9 the mean value $CE = 0.10$ was obtained. The distance was determined as $r = 1000$ parsec. (corrected for light absorption). This is in good agreement with refs. 1 - 4. The cluster is at an appreciable distance from the plane of the Galaxy ($z = +190$ parsec.). The angular diameter, derived from star counts, is $20'$, while the linear diameter is 5.8 parsec. 11 figures, 5 non-Russian references.

State Astronomy Institute
imeni P. K. Shternberg.

Recd. Aug.25, 1956.

Баркхатова, К.А.
BARKHATOVA, K.A.

Open star clusters NGC 6823 and NGC 6830 [with summary in English].
Antron. zhur. 34 no.6:848-855 N-D '57. (MIRA 11:2)

1. Ural'skiy gosudarstvennyy universitet im. A.M. Gor'kogo.
(Stars--Clusters)

BARKHATOVA, K.A.

[Atlas of color-magnitude diagrams] Atlas diagramm tsvet-
svetimost' rasseiannykh zvezdnykh skoplenii. Moskva, Izd-
vo Akad. nauk SSSR, 1958. 127 p. (MIRA 15:2)
(Stars color)

69858

SOV/35-59-9-7116

3.1560

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 9, p 39 (USSR)

AUTHOR: Barkhatova, K.A.

TITLE: The Open Stellar Cluster NGC 1582

PERIODICAL: Uch. zap. Ural'skogo un-ta, 1958, Nr 22, pp 3 - 18

ABSTRACT: The photographic and photovisual magnitudes of 473 stars have been determined in the NGC 1582 open cluster ($\alpha = 4^h25^m$, $\delta = +43^{\circ}38'$, 1900.0) from photographs taken in 1954 - 1955, with Schmidt's 15" telescope of the Astronomical Observatory im. Engel'gardt. The photographic magnitudes were obtained from 4 plates, with the root-mean-square-error being $0^m.05$. The photovisual magnitudes were obtained from three plates with the error of $0^m.06$. The root-mean-square-error of the color indices totals $0^m.09$. On the basis of the calculation of stars in the region of the open cluster, the diameter of the latter is estimated to be 32 - 36'. The open cluster has an insignificant concentration of stars towards the center. On the average the density of the stars of various stellar magnitudes in the center of the cluster exceeds the density along its boundary by 3.5 times. Diagrams of the visual magnitude versus the color index were plotted for stars in different

Card 1/2

X

The Open Stellar Cluster NGC 1582

69858

SOV/33-59-9-7110

concentric zones around the center of the cluster. The main sequence of open-cluster stars begins apparently, from the B8-A2 spectral classes. The upper end of the main sequence ascends sharply upwards. The diagram resembles the diagram used for the stars in the Pleiades. The excess of color in the direction of the cluster amounts to $0^m.37$. The visual modulus of distance, determined from the diagram of the color index versus the visual magnitude amounts to $12^m.45$. The absorption of light in the direction of the open cluster is equal to $1^m.74$; the true modulus of distance is $10^m.76$ ($r = 1380$ parsec). The linear diameter of the open cluster ~ 13 parsec. On the basis of the diagram of the color index versus the visual magnitude and the calculation of stars, the function of the luminosity of the open-cluster stars has been plotted.

N.M. Artyukhina

4

Card 2/2

AUTHOR: Barkhatova, K.A.

31-35-3-13/27

TITLE: Clusters in the Region of the North America Nebula
(Skopleniya v oblasti tumannosti Severnaya Amerika)

PERIODICAL: Astronomicheskii zhurnal, 1958, Vol 35 Nr 3, pp 448-457 (USSR)

ABSTRACT: The paper contains the results of observations of the clusters in the region of the North America nebula carried out in 1954-1955 by the Observatory imeni Engel'gardt. The clusters NGC 6996, Cr 428 and a cluster with the center coordinates $\alpha_{1900} = 20^{\text{h}}50^{\text{m}}$; $\delta_{1900} = +45^{\circ}40'$ were observed. The medium qua-

dratic error amounted to $\pm 0.^{\text{m}}05$ to $\pm 0.^{\text{m}}07$.

For NGC 6996 the photographic and photovisual magnitudes of 112 stars were determined within the diameter $15'$. There was a good coincidence with the measurements of Müller [Ref 2]. The distance from the sun is 500 ps.

Cr 428 contains few stars; within the diameter $20'$ there lie 37 stars only. In the region of the Cr 428 the photographic and photovisual data were determined for 115 stars on the whole. The distance from the sun is 480 ps.

Card 1/2 For ($\alpha = 20^{\text{h}}50^{\text{m}}$, $\delta = +45^{\circ}40'$) 126 stars were measured; the

Clusters in the Region of the North America Nebula

33-35-3-13/2"

distance from the sun is 470 ps. There is a remarkable central
density : $270 \frac{\text{stars}}{\text{ps}^3}$.

The observations seem to confirm the conjecture of Ambartsumyan [Ref 20] that there lies a star association in the investigated region.

There are 5 tables, 13 figures, and 25 references, 9 of which are Soviet, 12 American, 1 Swedish, and 3 German.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo
(Ural State University imeni A.M. Gor'kiy)

SUBMITTED: January 1, 1957

Card 2/2

AUTHOR: Barbhatova, N.A., Dryakhlushina, L.I. 33-35-3-20/27

TITLE: The Open Cluster NGC 1664 (Rasseyanoye zvezdnoye skopleniye NGC 1664)

PERIODICAL: Astronomicheskiy zhurnal, 1958, Vol 35, Nr 3, pp 491-494 (USSR)

ABSTRACT: The authors describe the results of photo-observations of the open cluster NGC 1664 carried out by Schmidt in 1954-55 with the aid of a 15" telescope in the astronomical observatory imeni Engel'gardt. Altogether 250 stars (in the center as well as on the periphery of the cluster) have been observed reliably. The size, distance and light absorption in the direction of the cluster have been determined. The authors' results confirm the incomplete data of Raab [Ref 3], Collinder [Ref 4] and other authors. According to the classification of Trumpler [Ref 2] the cluster NGC 1664 can be classified into the type 2a, since possibly there appear some giants and the chief sequence begins with stars of the type B9 - A0. There are 4 figures and 5 references, 1 of which is Soviet, 2 Swedish, 1 German, and 1 English.

ASSOCIATION: Ural'skiy gosuderstvennyy universitet imeni A.M. Gor'kogo, Astronomicheskaya observatoriya imeni Engel'gardta (Ural State University imeni A.M.Gor'kiy, Astronomical Observatory imeni

Card 1/2

BARKHATOVA, K.A.

~~Source: ...~~

New data on the open star cluster NGC 188. Astron. tsir. no.191:
11-12 My '58. (MIRA 11:9)

1. Ural'skiy gosudarstvennyy universitet, Sverdlovsk.
(Stars--Clusters)

SENTSOVA, Yu.Ye., mladshiy nauchnyy sotrudnik; LATYPOV, A.A.; BARKHATOVA,
K.A.; TORAO, M.;

Results of photographic observations of artificial earth
satellites. Biol.sta.opt.nabl.isk.sput.Zem. no.4:18-23
'59. (MIRA 13:6)

1. Astronomicheskij Sovet AN SSSR (for Sentsova). 2. Nachal'nik
fotograficheskoy stantsii iskusstvennykh sputnikov Zemli
Tashkentskoy astronomicheskoy observatorii AN UzSSR (for
Latypov). 3. Rukovoditel' Astronomicheskoy observatorii Ural'-
skogo gosuniversiteta (for Barkhatova). 4. Sotrudnik
Astronomicheskoy Mitaka bliz Tokio (for Torao).
(Artificial satellites--Tracking)

3(1)

AUTHOR: Barkhatova, K.A.

SOV/33-36-1-12/31

TITLE: An Atlas of Colour-Magnitude Diagrams for Open Stellar Clusters

PERIODICAL: Astronomicheskiy zhurnal, 1959, Vol 36, Nr 1, pp 100-105 (USSR)

ABSTRACT: The author describes the above mentioned atlas published by him in 1958 [Ref 3]. In the atlas the author has collected all published observation data for the colour-magnitude diagram; that explains some inhomogeneity (e.g. in the exactness). The author has used the papers of the following Soviet scientists: P.P. Parenago [Ref 5,37], T.S.Kirillova [Ref 13], and T.A.Uranova [Ref 3]. In order to compare the conformity with the law in the spatial distribution of the open clusters with their physical properties, the following three groups are separated 1. clusters with stars of the early spectral class O and B often combined with diffused nebula, 2. clusters containing only stars

Card 1/2

An Atlas of Colour-Magnitude Diagrams for Open
Stellar Clusters

SOV/33-36-1-12/31

of the principal sequence beginning with the class B 1, 3.
clusters containing also star-giants in addition to the stars of
principal sequence.

There is 1 figure and 64 references, 11 of which are Soviet,
35 American, 11 German, 4 Swedish, and 3 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M.Gor'kogo (Ural
State University imeni A.M.Gor'kiy)

SUBMITTED: October 5, 1958

Card 2/2

S/033/60/037/005/010/024
E032/E514

AUTHORS: Barkhatova, K. A. and Chentsov, Ye. L.

TITLE: A Study of the Open Cluster NGC 1605

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol. 37, No. 5,
pp. 864-869

TEXT: The stars belonging to the open cluster NGC 1605 were investigated photometrically by K. A. Barkhatova and Yu. A. Pupyshev using the 15" Schmidt telescope at the Astronomical Observatory imeni Engel'hardt. Star counts showed that the NGC 1605 cluster consists of approximately eighty stars. The cluster has an elongated form without any noticeable concentration towards the centre. In projection the cluster resembles an ellipse rather than a disc, the ratio of the semi-axes being 1:1.5 (Fig. 3). The major axis of the ellipse is almost perpendicular to the plane of the Galaxy (Fig. 3). The star No. 21 (Fig. 4) was taken as the centre of the cluster in the star count. The colour index - apparent magnitude diagram was constructed on the basis of the photometric data. Table 1 on p. 868 gives the photographic and photovisual magnitudes and also the colour indices of the stars

Card 1/3

S/033/60/037/005/010/024
E032/E514

A Study of the Open Cluster NGC 1605

(numbered in accordance with Fig. 4). The main sequence can be clearly seen in the colour-magnitude diagram (Fig. 5). The brightest members of the cluster have an apparent photographic magnitude of $14^m.5$ and a colour index of $+0^m.5$. The unusual slope of the main sequence may possibly be explained by the fact that for the majority of the faint stars their position on the diagram is not known with certainty. A more careful determination of the stellar magnitudes and colour indices will be necessary before it will be possible to state unequivocally that the unusual slope is in fact real. The distance to the cluster was found to be 1480 pc and the angular diameter $7''$. It follows that the linear diameter is 2.6 pc. It is noted that the brightest members of the clusters have magnitudes of $14^m.5$ so that the problem of the reality of the unusual slope of the main sequence will take some time to resolve. Acknowledgments are expressed to Sh T Khabibullin and Yu. A. Pupyshv of AOE and to E. S. Brodskuy, L. S. Galkin and I. M. Kopylov of the Crimean Astronomical Observatory for their collaboration. There are 5 figures, 1 table and 5 references.

Card 2/3

S/033/60/037/005/010/024
E032/E514

A Study of the Open Cluster NGC 1605
2 Soviet and 3 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni
A. M. Gor'kogo
(Ural State University imeni A. M. Gor'kiy)

SUBMITTED: November 22, 1959

Card 3/3

BARKHATOVA, K.A.

Motion of open clusters of stars. Astron.zhur. 38 no.4:665-
668 J1-Ag '61. (MIRA 14:8)

1. Ural'skiy gosudarstvennyy universitet im. A.M. Gor'kogo,
Kafedra astronomii i geodezii.
(Stars--Clusters)