L 14998-66
ACC NR: AP5028563

mogeneities which retard the motion of dislocations. In this work, the influence of the decomposition of the K-state was studied in terms of high temperature strength. The temperature dependence of electrical resistivity was obtained as a function of temperature and heating rate. For each alloy, the resistivity increased initially and at 500°C reached a peak, whereupon it dropped to a minimum (about 700° to 900°C depending on the alloy) and rose again. The drop in resistivity was associated with the decomposition of the K-state. Deformation by compression (60 to 70%) in the temperature interval from -196 to +20°C showed that the decomposition of the K-state was practically independent of deformation temperature. At higher temperatures (between 500° and 1000°C) and at high rates of heating, the decomposition of the K-state was studied by increasing the heating rate to 10^6 deg/min. The interval for the maximum decomposition was displaced to higher temperatures (300 to 450° higher), depending on the type of alloy. In the K-state region a significant strengthening was also noted when the speed of deformation was increased from 0.03%/min to 0.3%/min, while in the region of K-state decomposition no effect on strength was apparent. For fast heating rates, the rise in strength was maintained at higher temperatures than for slow heating rates. In particular, for Ni-Cr this region was expanded to 700°C, while for the other alloys to 900 or 1000°C. Where the K-state was decomposed at room temperature, no additional strengthening occurred upon pulse heating. Orig. art. has: 4 figures.

SUB CODE: 11/ SUBM DATE: 06Aug64/ ORIG REF: 011/ OTH REF: 003

Card 2/2

PETRENKO, N.S.

YAMKOVOY, G.T., inzh.; DYDZINSKIY, V.V., inzh.; PETRENKO, N.S., inzh.; CHUB, V.P., inzh; MIKHAYLOV, Yu.I., inzh.

Technical progress in the mining industry. Mekh. trud. rab. 11 no.12:12-15 D '57. (MIRA 11:3)
(Mining machinery)

PETRENKO, N.S., inzh.; KRUCHININA, Ye.V., inzh.; IVANOV, A.G., kand. tekhn. nauk; YAMKOVOY, G.T., kand. tekhn. nauk.

Ways of increasing bore rod resistance. Gor. zhur. no.2:26-31 F '58. (Rock drills) (MIRA 11:3)

PERVAKOV, V.A.; PETRENKO, N.S.; KHOTKEVICH, V.I.

Effect of plastic deformations on the filling of vacancies in hardened gold. Fiz. met. i metalloved. 12 no.3:460-461 S '61. (MIRA 14:9)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Gold-hardening)
(Crystal lattices--Defects)

BLYASHENKO, [illegible] [illegible]; [illegible]; [illegible], V.S. [illegible], V.[illegible]; [illegible], V.I. [illegible]

Latent energy of [illegible] of nickel containing small [illegible] of tin. Ukr. [illegible] no.11:12[illegible] [illegible] (MIRA [illegible])

1. Fiziko-tekhnicheskiy institut [illegible], [illegible] gosudarstvennyy universitet.

CHISTYAKOV, A.D.; BURKOVA, M.V.; ORLOVA, Ye.M.; GLAZOVA, O.P.; PED', D.A.; BERLYAND, M.Ye.; ABRAMOVICH, K.G.; POPOVA, T.P.; MATVEYEV, L.T.; BACHURINA, A.A.; LEBEDEVA, N.V.; PESKOV, B.Ye.; ROMANOV, N.N.; VOLKVAKHA, N.M.; POKHLKO, I.G.; PETRENKO, N.V.; KOSHELENKO, I.V.; PINUS, N.Z.; SHMETER, S.M.; BAKAYEVA, T.P.; MININA, L.S.; BEL'SKAYA, N.N., nauchn. red.; ZVEREVA, N.I., nauchn. red.; KURGANSKAYA, V.M., nauchn. red.; MERTSALOVA, A.N., nauchn. red.; TOMASHEVICH, L.V., nauchn. red.; SAGATOVSKIY, N.V., otv. red.; KOTIKOVSKAYA, A.B., red.

[Manual of short-range weather forecasting] Rukovodstvo po kratkosrochnym prognozam pogody. Leningrad, Gidrometeoizdat. Pt.2. Izd.2. 1965. 491 p. (MIRA 18:8)

1. Moscow. TSentral'nyy institut prognozov.

PETRENKO, N. V.

Determination of wind by means of aircraft equipped with a radioaltimeter. (in Russian)
Leningrad, Gidromet. Izdat., 1949, 16 p., figs., tables.

PETRENKO, N. V.

VETLOV, IVAN PAVLOVICH

VETLOV, IVAN PAVLOVICH

OSADKI KHOLOKNYKH FRONTOV V TSENTRAL'NOY CHASTI YEVROPEYSKOY TERRITORII SSSR V TEPLOYE VREMYA GODA (SETTLING OF COLD FRONTS IN THE CENTRAL PART OF EUROPEAN TERRITORY OF USSR IN THE WARM SEASON, BY) I. P. VETLOV I N. V. PETRENKO.

LENINGRAD, GIDROMETEOIZDAT, 1955.

63, (1) P. MAPS, TABLES.

BIBLIOGRAPHY: P. (64)

AT HEAD OF TITLE: LENINGRAD.

TSENTRAL'NYY INSTITUT PROGNOZOV.

S/050/60/000/007/004/004/XX
B012/B063

AUTHOR: Petrenko, N. V.

TITLE: Resolutions Adopted at the Second Session of the Aviation Meteorology Commission of the World Meteorological Organization

PERIODICAL: Meteorologiya i gidrologiya, 1960, No. 7, pp. 56 - 60

TEXT: The Second Session of the Aviation Meteorology Commission of the World Meteorological Organization (WMO) and the Fifth Session of the Meteorological Department of the International Civil Aviation Organization (ICAO) were simultaneously held in Montreal in September, 1959. The author gives a survey of the resolutions and recommendations adopted at this joint meeting. Most of the recommendations call for basic changes in the Technical Instructions of the WMO for the meteorological service of international aviation under Section "Meteorology" (PANS-MET) of the ICAO. These changes are made necessary by the new demands made on civil aviation, especially in connection with the turbojet aircraft and turboprop aircraft. The other recommendations have to do with flight

Card 1/2

Card 2/2

3.5000
6.1130

28580
S/546/61/000/081/001/003
D039/D112

AUTHOR: Petrenko, N. V.

TITLE: Characteristics of fog according to data of aerostatic sounding in Dolgoprudnyy

PERIODICAL: Moscow, Tsentral'nyy institut prognozov. Trudy. no. 81, 1961. Voprosy aviatsionnoy meteorologii; tuman, oblachnost', osadki i grozy, 3-47

TEXT: The paper determines the vertical distribution of meteorological elements in fog over the central part of the European territory of the USSR. It is based on data obtained from aerostatic soundings made by the TsAO (Tsentral'naya aerologicheskaya observatoriya [Central Aerological Observatory]) in Dolgoprudnyy , Moskovskaya oblast', for the period 1953 - 1956. Within this period, the Central Aerological Observatory conducted 83 soundings under fog conditions in Dolgoprudnyy and 72 soundings at neighboring points, i.e. Bykovo, Vnukovo, Zakharkovo, Moscow, and Tushino. Radio-sounding data, mainly on distribution of temperature in height in fogs, had previously been processed by Ye. G. Zak (Ref. 13: Clouds in anticyclonic inversions. Trudy nauchno-issledovatel'skikh uchrezhdeniy Gidrometeosluzhby,

Card 1/ 12

Characteristics of fog .....

ser. II, vyp. 14, 1946) for fogs in anticyclones over the European part of the USSR and Western Siberia, by G. F. Prikhot'ko (Ref. 22: Stratification of the atmosphere in fogs. Meteorologiya i gidrologiya, No. 7, 1953) for different types of fog over the Ukraine, and by Yo. P. Dranevich (Ref. 12: Experience of forecasting the development of advection fog over the Leningradskaya oblast'. Meteorologiya i gidrologiya, No. 8, 1956). I. V. Koshelenko (Ref. 14: Meteorological conditions for the formation of advection fogs over the central part of the YeTS. Trudy UkrNIGMI, vyp. 4, 1955) established limit values of the vertical temperature gradient for 14 cases of transition of low clouds into fog and 12 cases in which the clouds were preserved without descending. Aerostatic sounding materials was widely used by P. A. Vorontsov (Ref. 8: Aerologicheskiye issledovaniya pogranichnogo sloya atmosfery [Aerological research into the boundary layer of the atmosphere]. Gidrometeoizdat. L. 1960). The soundings discussed in the present paper were made by the aerostatic sounding group of the TsAO under the guidance of R. C. Tydel'skaya, and processed by O. K. Gorbunova. The following characteristics were determined for each of the 83 soundings: 1) synoptic situation; 2) the region from which the air mass was displaced within 6-12 hrs prior to the formation of fog; 3) temperature and dew point of the arriving air mass and

Card 2/ 12

Characteristics of fog .....

the state of the ground surface in the region indicated above. The soundings during the period of advection fog were chiefly conducted in the western part of an anticyclone, as well as in the eastern part and warm section of a cyclone. In 85 per cent of soundings conducted during advection fog, the temperature in the near-the ground-layer decreased with height. This is one of the signs of the development of a turbulence exchange in the majority of cases of advection fog. As a result, it was also determined that in the lowest layer the turbulent exchange was hindered by the ground inversion under the raised inversion. In general, the frequency of ground inversions during fog, according to data obtained by aerostatic sounding, proved considerably smaller than according to data obtained by radiosondes. An analysis of aerostatic sounding data helped to give a more correct idea of the character of air stratification during fog. The data on the vertical temperature gradients in the lower slab of air show that in the cases of advection fog the positive vertical temperature gradient was more than $0.3^{\circ}C$ in most of the soundings. Gradients of $0.6^{\circ}C$ and more were observed when the inversion started at 100 - 260 m and small gradients in cases when the inversion started at 400 m and more. In radiation fog, the value of the negative vertical gradient was less than $-1^{\circ}C$ in 11 of all 35 soundings. The absolute value

of the negative gradient increased with an increase in the thickness of the ground inversion. A positive vertical temperature gradient was noted in radiation fog in more than 50 per cent of all soundings. In order to elucidate the thermodynamic conditions of the existence of fog, an analysis of stratification was carried out in each case of the aerostatic sounding of fog on an aerological diagram. Advection fog was observed when the vertical temperature gradient under the raised inversion or under the intercepting layer was equal to the moist-adiabatic one. Only in 1/3 of the soundings was the vertical temperature gradient lower than the moist-adiabatic one in the presence of advection fog. It is therefore not possible to state that the temperature gradient must be less than the moist-adiabatic gradient in order that advection fog may form, as did I. V. Koshelenko (Ref. 15: On the role of advection in the formation of advection fogs. Trudy UkrNIGMI, vyp. 6. 1956, and Ref. 16: Consideration of the basic physical factors in forecasting advection fog. Trudy UkrNIGMI, vyp. 11. 1959). In order to characterize the degree of moisture saturation of air on the upper limit of fog, the author defined the difference between temperature and the dew point with an accuracy up to 0.5°C according to the data of 44 soundings conducted with the purpose of determining the upper fog limit. Thus, it was found that at positive temperatures, the limit value for the majority of cases is the difference

Characteristics of fog .....

of 1.5°C, and at 0°C - 1°C. At negative temperatures of up to -12°C, the prevailing difference is 2°C and at -16°C it does not exceed 3°C. These prevailing values of the deficit of the dew point may be used as one of the signs for determining the upper fog limit. According to the data of aerostatic soundings conducted in Dolgoprudnyy , it was revealed that the change in the wind velocity with height depends on the value of wind velocity at a level of 12 m. Thus, at a wind velocity of up to 0-1 m/sec at the a/m level, there took place an increase in the wind velocity up to a height of 50 meters. In the layer stretching from 50 - 100 m, the velocity of wind increased with height in less than half of all cases, being mostly 1 m/sec. In the layer from 100-300 m, the increase of wind velocity with height was noted only in 5 of all 21 cases, and amounted to 1-3 m/sec. In the remaining cases it either remained constant (11 out of 21) or increased with height. An analysis of the distribution of wind with height in the layer from 300 to 600 m and from 600 to 900 m, the wind velocity changes with height either little, or increases within the same limits as in the layer from 100 to 300 m. Consequently, when there is a calm or only a gentle wind at a height of 12 m, increase of wind velocity with height takes place mainly in the lower 50-100 m layer, and more seldom in the layer of 100-300 m. This coin-

Card 5/12

Characteristics of fog .....

cides with the assumption that a complete calm does not favor the development of fog, previously formulated by the author (Ref. 20: Prognoz tumana [Forecasting of Fog]. Rukovodstvo po kratkosrochnym prognozam pogody [A Guide to Short-Range Weather Forecasting], ch. II, 156-187. Gidrometeoizdat. L. 1954). A considerable increase of wind velocity with height in a slab of up to 300 m was discovered in pilot balloon observations conducted by V. M. Mikhel in 1938 and confirmed later by Ye. I. Gogoleva (Ref. 10: Usloviya vozniknoveniya nizkoy oblachnosti nad Yevropeyskoy territoriyey SSSR i vozmozhnosti yeye prognoza [The conditions of the development of low cloudiness over the European territory of the USSR and the possibilities of forecasting it]. Gidrometeoizdat. L. 1956). Mean wind profiles plotted by P. A. Vorontsov (Ref. 7: Profili osnovnykh meteorologicheskikh elementov v pogranichnom sloye atmosfery [Profiles of basic meteorological elements in the boundary layer of the atmosphere]. Trudy GGO, vyp. 63. 1956) and V. A. Devyatova (Ref. 11: Mikroaerologicheskiye issledovaniya nizhnego kilometrovogo sloya atmosfery [Microaerological investigations of the lower 1-km atmospheric layer]. Gidrometeoizdat. L. 1957) were characterized in all seasons of the year by a rapid increase of wind velocity with height in the lower slab of air up to a height of 100 m. A similar conclusion was made

Card 6/12

Characteristics of fog .....

by K. G. Abramovich (Ref. 2: On the conditions of the formation of the lower cloudiness layer. Trudy TsIPa, vyp. 80. 1958) when investigating low cloudiness in the cold half-year period. Through the use of a table, the author arrived to a new conclusion on the dependence of the increase of wind velocity with height on the value of its velocity at the level of 12 m in the presence of fog. It was found that ground inversion cannot be present in the cold period of the year above a snow cover, if the wind velocity at a height of 12 m exceeds 5 m/sec. This is a more precise version of a similar conclusion arrived at by P. A. Vorontsov (Ref. 6: Aerological research into ground inversions. Trudy GGO, vyp. 63. 1956). The results of an analysis of data obtained by aerostatic sounding conducted during radiation fog and little cloudiness in Dolgoprudnyy, provide a basis for the conclusion that in comparison with the warmer season of the year there may exist ground inversions above the snow cover in the cold period of the year, when the increase in wind velocity with height in the lower 100 m is large. The examined data on the vertical jumps in velocity in the lower 100 m, occurring in cases of ground inversions over the ground and the snow cover at various temperatures make it possible to arrive at the following conclusions: 1) in ground inversions, the jumps in wind velocity may be more considerable over

Card 7/ 12

a snow cover at negative temperatures, than over the ground at positive temperatures; 2) the lower the temperature of air at the earth's surface, the higher are the maximum velocities of wind and the values of the velocity increase in the lower 100-300 m during the presence of ground inversions; 3) to determine the possibility of the destruction of the ground inversion or its lower part, it is necessary to forecast both the change in the vertical temperature gradient, resulting from radiation heating during the day or cooling at night of the lower slab of air during fog, steam fog and fair weather with some cloud, as well as the changes in the velocity of wind and its distribution with height taking place as a result of a change in the baric gradient and the horizontal temperature gradient; 4) the critical value of the vertical gradient of wind velocity for the destruction of the ground inversions are higher than those presented by Ye. I. Gogoleva (Ref. 10) on the basis of pilot balloon observations, and increase with a decrease in temperature. Apparently, this also applies to the critical values of the Richardson number indicated in the paper by K. G. Abramovich (Ref. 1: The characteristics of the atmospheric turbulence on days with low cloudiness. Meteorologiya i gidrologiya, No. 9, 1958). The information on the vertical thickness of fog was obtained during aerostatic soundings conducted

Characteristics of fog .....

in Dolgoprudnyy with the participation of observers in aircraft. All data were obtained in the cold season of the year; the vertical thickness of fog in the majority of soundings was within 110 to 600 m, and exceeded this limit only three times. In one of the soundings, the thickness of the radiation fog layer was 60 m, and in 12 soundings - from 100 to 300 m. The vertical thickness of fog coming from descending stratified clouds varies within wide limits. An investigation of four cases of the change in the upper limit of fog and stratified clouds causing fog patches showed that this change took place as a result of three basic causes: 1) the diurnal variation of temperature and the relative humidity in the upper part of the fog layer; 2) the intensification of wind in the lower slab of air, which first raises the lower limit of the raised inversion and increases the thickness of the fog layer, and then raises this layer and changes it into stratified clouds; 3) the lowering of the inversion layer in the anticyclone and the decrease in the height of the upper limit of fog or stratified clouds causing fog. On the basis of all data of aerostatic soundings, the author arrives at the following conclusions: a) as a rule, the radiation fog develops due to the condensation of water vapor in the layer of ground inversion, but as soon as the horizontal visibility in the lower slab of air

Card 9/12

deteriorates to less than 1,000 m, the ground inversion is sometimes destroyed up to a height of 20-100 m; b) the closer is the air to the state of saturation in the lower 50-300 m before sunset, the smaller is the time interval between the beginning of the formation of ground inversion in the presence of a cloudless sky and the appearance of fog; c) in winter, radiation fog can develop when the initial difference between temperature and the dew point at the earth's surface is more than 3-5°C and when it diminishes with height. Under these conditions, the radiation fog develops owing to the long duration of night and the very effective radiation of the snow cover. In such instances, the air is preliminarily cooled at the earth's surface by 10-15°C and the thickness of the ground inversion is 300-600 m and more; d) ground inversions appearing in summer have only a value of 3-7°C and a thickness of 50-250 m because of the short duration of night. Therefore, radiation fog develops more frequently when the starting difference between temperature and the dew point is not more than 3-5°C and when it decreases with height. As a rule, the latter conditions are present in summer after a fall of rain onto a strongly heated ground in the region of fog formation, or wherever air moves into the region of fog formation. In discussing the four most characteristic ways in which radiation fog is

Characteristics of fog .....

formed, the author refers to material of S. S. Gaygerov and V. G. Kastrov (Ref. 9: Investigation of thermal modification of moving air on the basis of data obtained from the flights of free balloons. Trudy TsAO, vyp. 6. 1952), I. V. Koshelenko (Ref. 17: On considering the radiation factor when forecasting fog. Trudy UkrNIGMI, vyp. 11. 1959), D. L. Laykhtman (Ref. 18: On introducing a temperature correction for condensation during radiational cooling of the lowest atmospheric layer. Trudy GGO, vyp. 27 [89]. 1951), L. T. Matveyev (Ref. 19: On the influence of vertical currents and condensation of water vapor on the local change of temperature and the formation of temperature inversions. Trudy LKVVIA im. A. F. Mozhayskogo, vyp. 248. 1958) and M. Ye. Berlyand (Ref. 5: Predskazaniye i regulirovaniye teplogo rezhima prizemnogo sloya atmosfery [The forecasting and control of the thermal behavior of the lowest atmospheric layer]. Gidrometeoizdat. L. 1956). The paper also discusses the dependence of the radiation balance on the change in stratification, stating that the value of this balance is subject to change due to the meteorological conditions at the ground layer and the stratification of air. There are 9 figures, 13 tables, 22 Soviet-bloc and 4 non-Soviet-bloc references. The references to English-language

Card 11/12

28580
S/546/61/000/081/001/003
D039/D112

Characteristics of fog .....

publications read as follows: James, D. G., Nocturnal dissipation of strato-cumulus cloud. Met. Mag., London, vol. 85. 1956; Shaw, I. B., Vertical temperature gradient in the first 2,000 ft. Met. Mag., vol 84. London, 1955.

Card 12/12

LH

L 17979-63 EWT(1)/BDS AFFTC/ASD/ESD-3 RB

ACCESSION NR: AT3002087 S/2546/62/000/118/0041/0055

AUTHOR: Petrenko, N. V.

59
57

TITLE: Definition of a tropopause in the light of requirements of aeronautical meteorology

SOURCE: Moscow. Tsentral'nyy institut prognozov. Trudy, no. 118, 1962. Doklady na soveshchanii po opredeleniyu tropopauzy, 41-55

TOPIC TAGS: tropopause, aeronautical meteorology, cirrus type clouds, vertical cloud development, maximum wind shear, aircraft flight acceleration, vertical temperature gradient, contrail

ABSTRACT: This survey-type paper investigates the relationship between the tropopause and the upper boundary of Ci and Cs clouds, aircraft, contrails, the tops of powerful Cu and Cb clouds and their anvils, and the recurrence of intense flight accelerations in aircraft. Various methods of defining the tropopause from the point of view of aviation requirements are analyzed. The results of the experimental determination of the tropopause from RAOBS data by N. F. Vel'tishchev, Yu. K. Fedorov, and B. S. Chuchkalov, under the direction of the author, are discussed. Proposals are made for an improved method of the determination of the

Card 1/4

ACCESSION NR: AT3002087

2

character and elevation of the tropopause. The paper provides a broad survey of existing literature on the relationship between the heights attained by high clouds and by clouds with vertical development and regions of intense wind shear and turbulence in terms of the definition of a tropopause as established by the World Meteorological Organization (WMO) and in the Soviet KN-04 weather-reporting code. The problems arising from the relative thinness of the polar (mid-latitude) tropopause in the subtropical latitudes of the USSR and from the passage of diffuse frontal surfaces over high mountain systems are discussed. The problems of an aeronautically significant definition of the tropopause in Arctic and Antarctic regions, where a clear-cut temperature inversion does not occur, are mentioned. Inasmuch as serious inconsistencies have been observed between aeronautically significant high-altitude weather phenomena and the existing WMO definitions of the tropopause, and in order that an improvement in the method for the determination of the tropopause be achieved, the Department of Aviation Meteorology of the Tsentral'nyy institut prognozov (Central Forecasting Institute) performed an analysis of the RAOBS material obtained at 3 points located in physically-geographically different regions of the USSR, namely: (1) Khabarovsk, which is located in the Far-East region of monsoon climate; (2) at the temporary RAOBS station in the Eastern Pamir, in the valley of the Ak-Su River, in a region where mid-latitude and tropical air masses interact; (3) at the Antarctic Soviet

observatory at Mirnyy. According to the program, the character and elevation of the tropopause according to WMO criteria, with due consideration of the changes introduced by the KN-04 Soviet code, were correlated with the level of the significant change in vertical lapse rate (more than 3 degrees/km) underneath the first tropopause, according to the WMO criterion, the thickness of the layer between the first tropopause and the given level, and the magnitude of the vertical temperature lapse rate in that layer; (2) the elevation of the level of minimum temperature and the difference between it and the level of the first and second tropopause; (3) the elevation of the maximal wind velocity and its location relative to the elevation of the tropopause (first and second), the level of the significant change in temperature lapse rate underneath the first tropopause, and the level of the minimal temperature, the direction and celerity of the maximal wind velocity (for the principal and secondary wind maxima, if such existed). The details of each of these comparisons are described. The data and reasonings thus collected yield a new formulation for the determination of the tropopause from an aeronautical point of view as follows: (1) The tropopause is defined as the lowest level at which a transition from a decrease in temperature to an inversion, an isothermal layer, or a decrease in temperature lapse rate to 2 degrees/km (0.2 degrees per 100 m) and less in the stratosphere occurs; (2) a level which satisfies the requirements in (1) but which is located below the 500-mb level in polar regions and the temperate zone and

below the 400-mb level in the subtropical zone must not be designated as a tropopause, if it is not the only one in the entire sounded atmospheric layer up to at least 200 mb; (3) if above the tropopause as afore-defined a layer exists in which a temperature lapse rate of more than 3 degrees/km occurs throughout a thickness of not less than 1 km, then the same criterion is applied to designate a second tropopause; (4) if, during the Arctic or Antarctic winter, a temperature lapse rate exceeding 2 degrees/km is observed up to the 200-mb level, then a nominal tropopause can be defined as the level of a significant decrease of lapse rate (more than 3 degrees/km or 0.3 degrees per 100 m) when above that level the gradient does not exceed 3.0-3.5 degrees/km in a layer 2 km or more thick. These criteria are then translated into criteria for the identification of a tropopause from RAOBS temperature curves. Orig. art. has 1 table illustrated with typical T vs. H curves.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 30Apr63 ENCL: 00

SUB CODE: AS NO REF SOV: 028 OTHER: 006

PETRENKO, N.V.

Factors in the formation of easterly winds in the upper troposphere over Siberia in February 1959. Trudy TSIP no.121:18-30 '63.
(MIRA 16:8)
(Siberia--Winds)

ABRAMOVICH, K.G.; PETRENKO, N.V.

Ivan Grigor'evich Pchelko, 1904- ; on his 60 birthday.
Meteor. i gidrol. no.9:55-56 S '64. (MIRA 17:9)

PETRENKO, N.V., kand. fiz.-mat. nauk

Decisions of the Third Session of the Commision of Aviation Meteorology of the World Meteorological Organization. Meteor. i gidrol. no.12:50-52 D '64 (MIRA 18:1)

1. TSentral'nyy institut prognozov.

S/137/61/000/011/021/123
A060/A101

AUTHORS: Kudrin, V. A., Oyks, G. N., Petrenko, O. D., Yudson, A. A., Nechkin, Yu. M., Nam, V. P., Ansheles, I. I., Ivanov, R. M., Adrianova, V. P.

TITLE: Characteristic features of the smelting technology for high-quality steel with heating of open hearth furnaces by natural gas

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 30, abstract 11V192 (V sb.: "Novoye v teorii i praktike proiz-va martenovsk. stali". Moscow, Metallurgizdat, 1961, 280 - 289. Discuss. 332 - 334)

TEXT: An investigation carried out upon 140-ton open hearth furnaces operating on the scrap process and heated by a mixture of natural gas and mazut, has shown that in operating with the gas-mazut mixture the smelting duration is increased on account of the reduction in the heat-transfer as result of slag frothing, which occurs with greatest intensity at the end of the smelting period. The frothy slag hinders the active transfer of O_2 from the gas atmosphere leading to a lowering in V_c and the accumulation of Fe_2O_3 at the upper levels of the slag. Thus, the Fe_2O_3 content in the surface layer of the slag turned out to be greater by a factor of 1.5 than in heats fueled by mazut only. Simultaneously

Card 1/2

S/137/61/000/011/021/123
A060/A101

with the lowering of V_c the process of hydrogen-saturation of the metal is intensified. It was discovered that the principal place where the metal was being saturated with hydrogen is the run-off cap, since at the feed-in cap the slag thickness is small, the metal is bubbling intensely, the degasification is proceeding, while at the run-off cap the metal, covered by a thick layer of slag froth, bubbles poorly, and the metal is being saturated with hydrogen. This is promoted by an increase in the water-vapor content of the combustion products when the gas-mazut mixture is utilized. The increased H_2 content of the metal is supported by crushing tests to determine flaking sensitivity. Metal smelted by the use of gas-mazut mixture has an increased tendency to flaking and lowered ductility characteristics.

Yu. Nechkin

[Abstracter's note: Complete translation]

KUDRIN, V.A.; OYKS, G.N.; SOROKIN, S.P.; NECHKIN, Yu.M.; GLUSHTSOV, M.V.; NAM, B.P.; LAPSHOVA, M.P.; YUDSON, A.A.; PETRENKO, O.D.; ADRIANOVA, V.P.

Smelting high-grade steel in open-hearth furnaces fired with natural gas. Stal' 20 no. 7:599-602 Jl '60. (MIRA 14:5)
(Open-hearth furnaces--Equipment and supplies)

PETRENKO, G. D.

85

PHASE I BOOK EXPLOITATION SOV/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

Card 1/14

New [Developments] in the Theory (Cont.) SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, R.P. Nam, V.I. Yavoyskiy, G.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Puklov (Central Asian Polytechnic Institute)

Card 2/14

New [Developments] in the Theory (Cont.) SOV/5556

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

TABLE OF CONTENTS:

S/102/62/000/002/002/004
D201/D302

AUTHOR: Petrenko, O.I. (Kiyev)

TITLE: Theory of a CRT function generator

PERIODICAL: Avtomatika, no. 2, 1962, 23 - 41

TEXT: The author describes a photoformer with a pass-band of a few kilocycles and having an accuracy of 0.5 - 1 %. The instrument is basically a position follow-up system with the beam of a CRT as the output. Analysis of the principle of operation is given and basic static equations of the system are derived which show that within certain predetermined limits the system is linear. Stabilization of the spot brightness is proved to be possible by application of local feedback between the screen and control grid and that of decreasing the noise level by means of a filter in the last amplifier stage which is outside the overall feedback loop. The minimum brightness of the spot for a given S/N ratio and the pass-band of the system is determined together with the gain and the parallax of the optical system. From analysis of the dyna-

Card 1/3

S/102/62/000/002/002/004
D201/D302

Theory of a CRT function generator

Truxal, Servo-mechanism Synthesis through Pole-zero Configuration, Tech. Report 162, Research Laboratory Electronics , M.I.T., 1950.

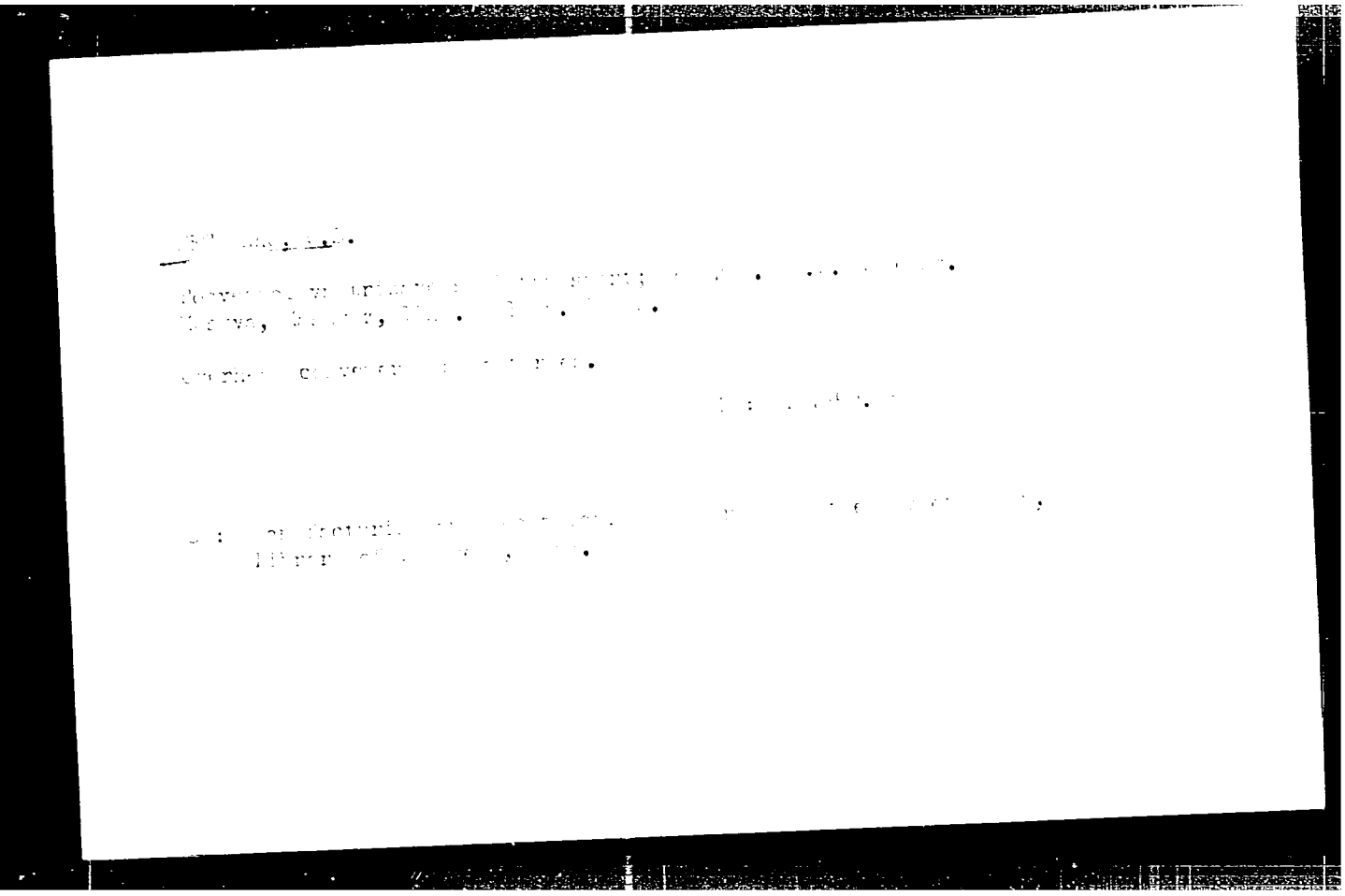
SUBMITTED: October 18, 1960

Card 3/3

PETRENKO, O. S..

Factory conveying machinery Moskva, Gos. nauch. -tekhn. izd-vo mashinostroit. lit-ry, 1949. 313 p. (49-29393)

TJ1350.P35



PETRENKO, O. S. Engr.

On the expansion of areas for the adoption of the interdepartmental railless transportation

Vest Mash p. 66, Sep 51

PETRENKO, O. S.

Podvesnoi vnutriazvodskii transport (Overhead intra-plant transport). Izd. 2-e. Moskva, Mashgiz, 1952. 383 p.

SO: Monthly List of Russian Accessions, Vol 6, No. 3, June 1953

PETRENKO, O. S.

Technology

Overhead intra-plant transport, Izd. 2-e, Moskva, Mashgiz, 195?

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

PETRENKO, O.S.; ANDREYEV, K.I., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor.

[Factory overhead conveyers] Podvesnoi vnutrizavodskii transport. Izd. 2., perer. i dop. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1953. 382 p. (MLRA 7:1)
(Conveying machinery) (Factories--Equipment and supplies)

BARTASHEV, L.V.;KATS, B.I., inzh., retsenzent; PETRENKO, O.S., inzh., retsenzent; LYUBOVICH, Yu.O., kand. ekonom. nauk, red.; ZUBKO, L.T., tekhn. red.

[Organization of intershop conveying] Organizatsiia vnutritsekhovogo transporta. Moskva, Mashgiz, 1950. 98 p. (MIRA 15:3)

(Machinery industry--Equipment and supplies)
(Conveying machinery)

PILYUGIN, G.T.; PETRENKO, O.Ye.

Synthetic dyes. Part 50: Synthesis of N-o-nitrophenyl-5,6-benzoquinaldinium perchlorate and its transformations. Zhur. org. khim. 1 no.6:1143-1147 Je '65. (MIRA 18:7)

1. Chernovitskiy gosudarstvennyy universitet.

PILYUGIN, G.T.; PETRENKO, O.Ye.; OPANASENKO, Ye.P.

Study of synthetic dyes. Part 40: 1-(o-Hydroxyphenyl)quinaldinium perchlorate and its transformations. Zhur. ob. khim. 34 no.10: 3333-3336 O '64.

Study of synthetic dyes. Part 41: 1-o-Hydroxyphenylbenzoquinaldinium perchlorates and their transfromation to carbocyanine dyes. Ibid.: 3337-3341 (MIRA 17:11)

1. Chernovitskiy gosudarstvennyy universitet.

PILYUGIN, G.T.; OPANASENKO, Ye.P.; PETRENKO, O.Ye.

Synthetic dyes. Part 33: Synthesis of 1-o-methoxyphenyl-7, 8-benzoquinaldinium perchlorate and its transformations. Zhur.ob.khim. 33 no.10:3228-3231 O '63. (MIRA 16:11)

1. Chernovitskiy gosudarstvennyy universitet.

PETRENKO, O.Ye.; PILYUGIN, G.T.; OPANASENKO, Ye.P.

Synthetic dyes. Part 49: Styryl dyes from derivatives of N-aryl quinaldinium salts. Zhur. org. khim. 1 no.8.1484-1486 Ag '65. (MIRA 18.11)

1. Chernovitskiy gosudarstvennyy universitet.

MALAKHOV, G.M.; VASHCHENKO, V.S.; KHIVRENKO, A.F.; VERESA, F.I.; BELEN'KIY, Ye.V.; PETRENKO, P.D.; BEZUKH, V.R.

Fundamental improvement in the technology of mining at the "Gigant" Mine. Gor.zhur. no.1:36-40 Ja '65. (MIRA 18:3)

PETRENKO, P. V., Cand Phys-Math Sci -- (diss) "Anomalies in properties of iron-aluminum alloys and their nature." Kiev, 1960. 10 pp; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, Kiev Order of Lenin State Univ im T. G. Shevchenko); 200 copies; price not given; (KL, 26-60, 130

PETRENKO, Mariya Ivanovna; PIS'MENNYY, R.Ya.

[Electrocardiogram for children in normal and certain pathological states] Elektrokardiogramma u detei v norme i pri nekotorykh patologicheskikh sostoianiiakh. Moskva, Medgiz, 1959. 158 p. (MIRA 13:7)

(ELECTROCARDIOGRAPHY)

SOV/137-59-5-9864

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 57 (USSR)

AUTHOR: Petrenko, O.D.

TITLE: The Use of a Complex Ferroalloy - the "18" Silico-Chromium - for Smelting Chrome-Containing Steel Grades in Open Hearth Furnaces

PERIODICAL: Stalingr. prom-st' (Sovnarkhoz Stalingr. ekon. adm. r-na), 1958, Nr 2 - 3, p 28

ABSTRACT: Experiments were carried out at the "Krasnyy Oktyabr'" Plant for the purpose of replacing low-carbon Fe-Cr by "18" silico-chromium in smelting the 15Kh, 20Kh and 20KhN3A steel grades in 130-ton open hearth furnaces. The smelting process was carried out without preliminary deoxidation of the metal by 12% Fe-Si. Si-Cr was introduced to the bubbling pool 10 minutes prior to tapping when the required [C] amount was obtained. The steel produced does not differ from conventional

Card 1/2

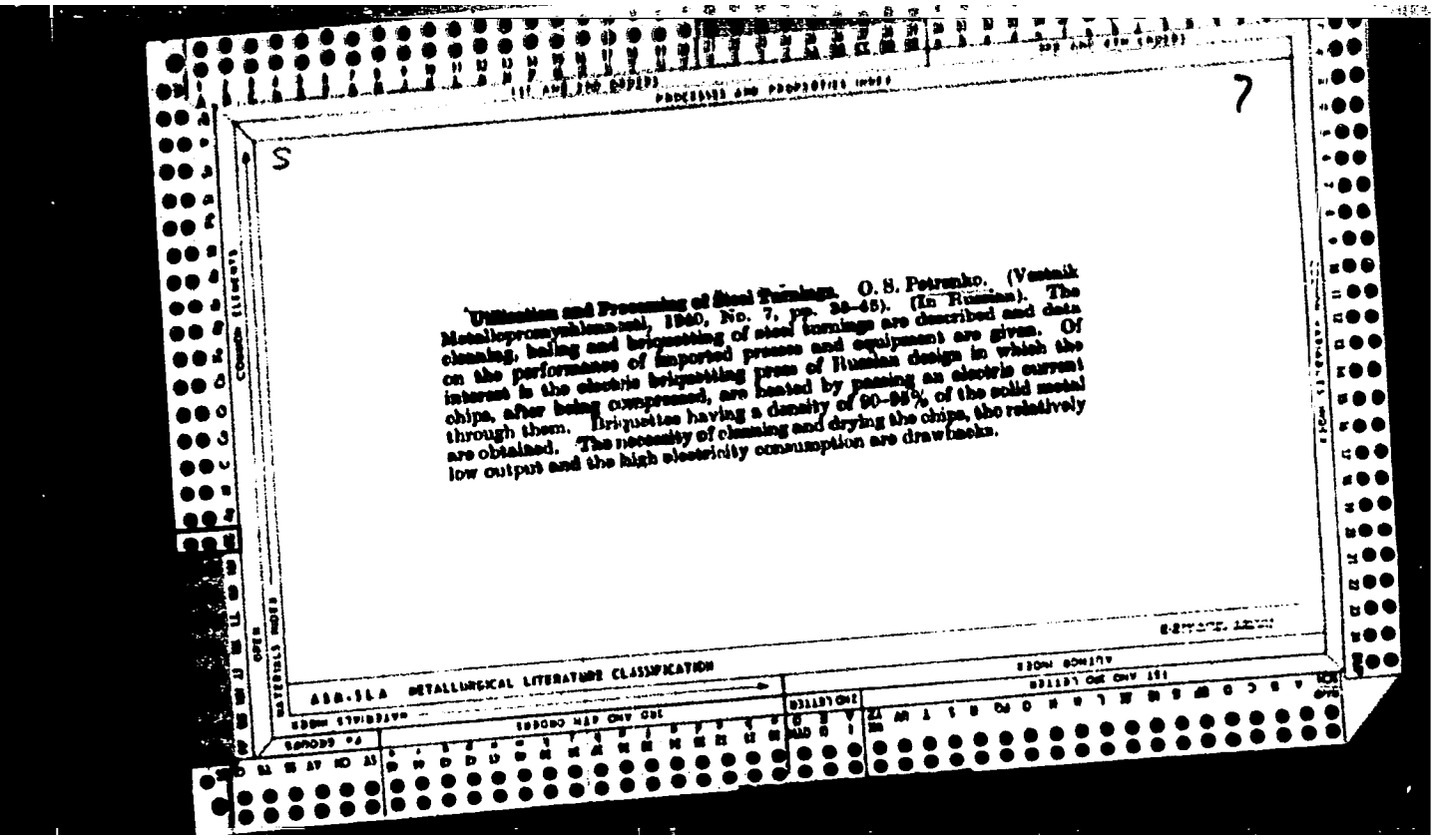
SOV/137-59-5-9264

The Use of a Complex Ferroalloy - the "18" Silico-Chromium - for Smelting Chrome-Containing Steel Grades in Open Hearth Furnaces

steel with respect to its quality. The smelting time was reduced by ~ 10 minutes, the economy of ferroalloys amounted on the average to 5 rubles per 1 ton of steel.

A.D.

Card 2/2



S

7

Utilization and Processing of Steel Turnings. O.S. Petrenko. (Vestnik Metalloprom'yshlennosti, 1960, No. 7, pp. 38-45). (In Russian). The cleaning, baling and briquetting of steel turnings are described and data on the performance of imported presses and equipment are given. Of interest is the electric briquetting press of Russian design in which the chips, after being compressed, are heated by passing an electric current through them. Briquettes having a density of 90-95% of the solid metal are obtained. The necessity of cleaning and drying the chips, the relatively low output and the high electricity consumption are drawbacks.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PETRENKO, P.

At one of the 27 plants. NTO no.8:9 Ag '59. (MIRA 12:11)

1. Predsedatel' soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva zavoda "Krasnyy proletariy," Moskva.
(Moscow--Machine-tool industry)

BRUKH, V.R.; PETRENKO, [illegible]; PUCHKOVSKIY, [illegible]; SHUMNEYA, A.I.

Shape of the outflow of loose materials. Mekh. mashch. trud. KGRI no.23:36-39 '67 (MIRA 17:8)

MALAKHOV, G.M., prof., doktor tekhn. nauk; VASHCHENKO, V.S., KHIVRENKO, A.F.; VERESA, F.I.; BELEN'KIY, Ye.V.; SHMALIY, V.Ya.; PETRENKO, P.D.; BEZUKH, V.R.; SHULIN, N.I.; RODIONOVA, N.P., ved. red.

[Technical progress at the "Gigant" Mine in the Krivoy Rog Basin] Tekhnicheskii progress na shakhte "Gigant" v Krivorozhskom basseine. Moskva, Nedra, 1964. 119 p. (MIRA 18:3)

1. Glavnyy inzhener i nachal'nik shakhty "Gigant" v Krivorozhskom Basseyne (for Vashchenko).

MALAKHOV, G.M., prof.; BEZUKH, V.R., gornyy inzh.; PETRENKO, P.D., gornyy inzh.

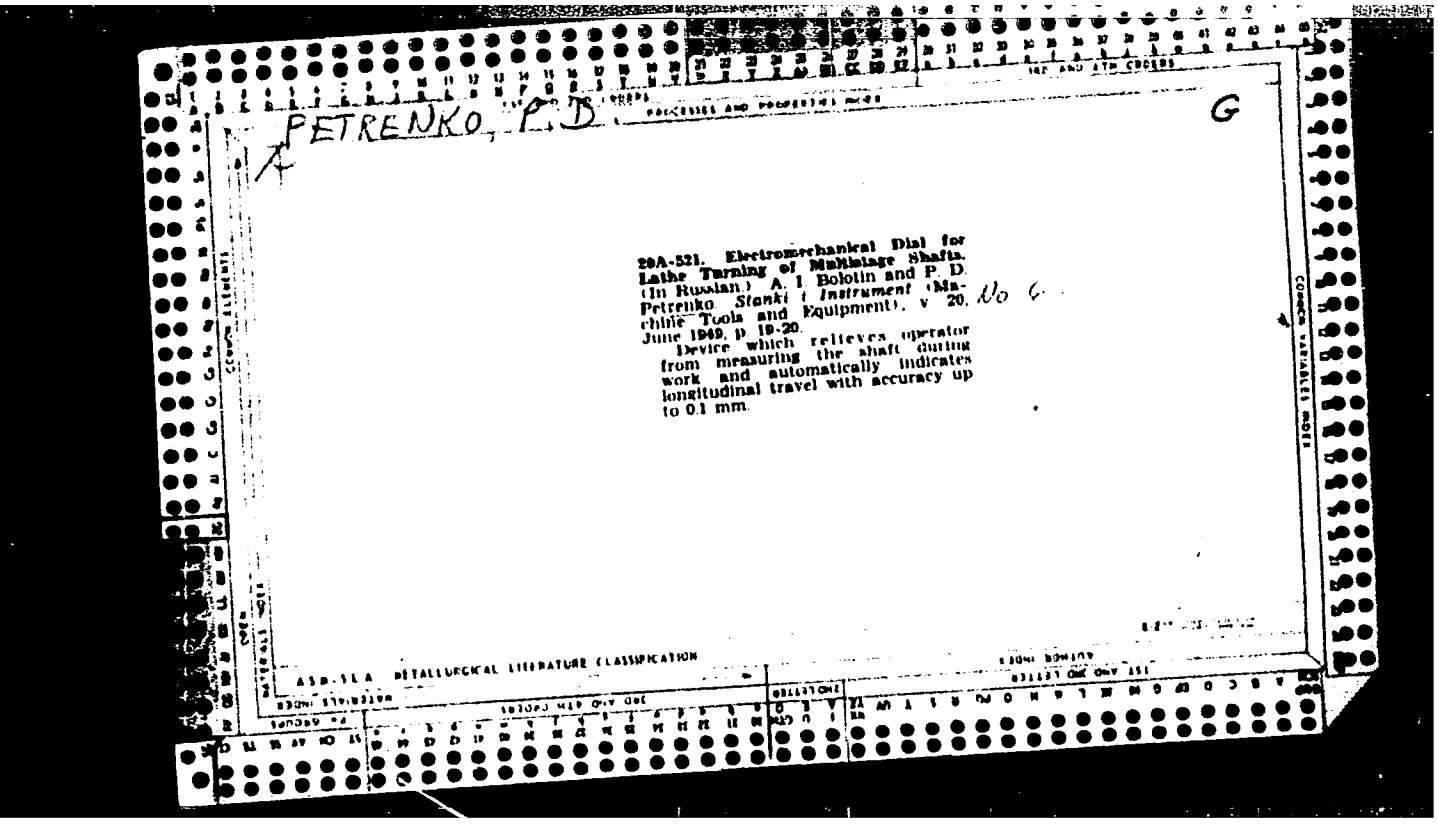
Ore recovery under conditions of great rock pressure. Gor. zhur. no.1:33-36 Ja '62. (MIRA 15:7)

1. Krivorozhskiy gornorudnyy institut.
(Krivoy Rog Basin--Iron mines and mining)
(Rock pressure)

MALAKHOV, G.M., prof.; PETRENKO, P.D., inzh.

Increasing the intensity of ore drawing is a way to increase the efficiency of the mass caving system of mining. Izv.vys.ucheb.zav.; gor.zhur. 5 no.9:20-26 '62. (MIRA 15:11)

1. Krivorozhskiy gornorudnyy institut. Rekomendovana kafedroy razrabotki mestorozhdeniy poleznykh iskopayemykh.
(Krivoy Rog Basin--Mining engineering)



PETRENKO, P. D.

G

29A-521. Electromechanical Dial for Lathe Turning of Multistage Shafts. (In Russian.) A. I. Bolotin and P. D. Petrenko. *Stanki i Instrument* (Machine Tools and Equipment), v. 20, No. 6, June 1949, p. 19-20.

Device which relieves operator from measuring the shaft during work and automatically indicates longitudinal travel with accuracy up to 0.1 mm.

PETRENKO, P.V.; EL'KIN, I.L.; KAZAKOV, S.S.; VOZHIK, D.L.; DENISOV, V.V.; PUCHKOV, V.I.; BOGUTSKIY, N.V.; SAVEL'YEV, I.P.; KOLENTSEV, M.T.; MERKULOV, N.Ya.; VERKLOV, V.A.; OVSYANNIKOV, P.A.; SOSNOV, V.D., otv. red.; CHIZHOVA, V.V., otv.red.; ZHUKOVA, A.P., red.; LEVINA, T.I., red.; PRONINA, N.D., tekhn. red.; OVSEYENKO, V.G., tekhn. red.

[Practice of using cutterloaders]Opyt ispol'zovaniia ochistnykh kombainov; sbornik statei. Moskva, 1962. 102 p. (MIRA 16:2)

1. TSentral'nyy institut tekhnicheskoy informatsii ugol'noy promyshlennosti.

(Coal mining machinery)

Kuz'menko, P.P.; Petrenko, P.V.

Certain anomalies in the properties of iron-aluminum alloys and their nature. Ukr.fiz.zhur. 4 no.4:497-503 Jl-Ag '59.
(MIRA 13:4)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Iron-aluminum alloys)

PETRENKO, P.V.; KUZ'MENKO, P.P.

Some anomalies of the electric resistance of iron-aluminum alloys with higher iron content [with summary in English]. Ukr. fiz. zhur. 3 no.6:820-828 N-D '58. (MIRA 12:6)

1.Kiyevskiy gosudarstvennyy universitet.
(Iron-aluminum alloys--Electric properties)

PETRENKO, P.V.; KUZ'MENKO, P.P.

Use of an electrical resistance method for analyzing the ordered arrangement in Fe-Al alloys over a wide range of concentrations. Nauk povid. KDU no.1:34-35 '56. (MIRA 11:4)
(Iron-aluminum alloys)

SOV/137-57-6-11107

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 6, p 246 (USSR)

AUTHOR: Petrenko, P.V.

TITLE: Apparatus for Quenching Powders at High Temperatures (Vysoko-temperaturnyye zakalochnyye ustanovki dlya poroshkov)

PERIODICAL: Nauk. povidomlennya Kyyivs'k. un-tu, 1956, Nr 1, pp 55-56

ABSTRACT: A description of the construction of two laboratory vacuum apparatus for quenching metal and alloy powders from temperatures $\leq 1200^{\circ}C$ in vacuum oil and mercury.

A.F.

Card 1/1

PETRENKO, P.V.

High-temperature tempering devices for powders. Nauk povid. KDU no.1:55-56 '56. (MIRA 11:4)
(Tempering)

PETRENKO, P.V.; KUZ'MENKO, P.

Preparation of quartz monochromatic plates used in metallography. Nauk povid. KDU no.1:56 '56. (MIRA 11:4)
(Quartz--Optical properties)
(Metallography)

ture. The temperature curves were plotted by heating to 1200° and cooling at a rate of 2° per minute to room temperature. Hysteresis of ρ, with a maximum value for the alloy having 25% aluminum, was noticed in the temperature range from 100 to 360°. The relative variation in ρ differs for various alloys, and has a small value for the

Card 1/2

USSR/Transformation in Solid Bodies.

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11772 E-6

25% alloy, a minimum value for the 35% alloy (9500 x 10^{-5} ohms for room temperature and 10,500 x 10^{-5} ohms at 1200°). The course of variation of ρ with the temperature for 16, 20, 30, 35, and 40% alloys is anomalous, the growth of ρ slows down sharply at high temperatures, and in the case of 30 and 35% alloys, starting with 650 and 550°, ρ decreases. For the alloy with 25% aluminum one observes two maxima at 525 and 650°, and two minima at 580 and 840°. The electric resistivity of the hardened alloys is greater than that of the equilibrium alloys. The energy of activation is of ordering, calculated from the isothermal curves, amounts to 24,000 calories for the 25% alloy and 13,500 calories for the 30% alloy. Thus, the behavior of the curves cannot be explained by the influence of ordering and temperature alone. To explain the resultant curves the authors introduce the concept of the transition of the cus-
tion electrons to the d-band

PETRENKO, R.

This furniture is good. Isn't it? Znan. ta pratsia no.8:30 Ag '60.
(MIRA 13:9)
(Uzhgorod--Furniture industry)

PETRENKO, R. A.
I. A. TREFILEV, Gornui Zhur. 15, No. 8, 8-13, 1932

L 43041-66 EWT(d)/FBD/EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(k) IJP(c) WG/WH

ACC NR: AP6029519 SOURCE CODE: UR/0432/66/000/004/0040/0042

AUTHOR: Bayborodin, Yu. V. (Candidate of technical sciences); Kravchenko, V. I.; Kabanov, E. N.; Karpenko, A. S.; Kozin, A. V.; Petrenko, R. A.; Shaposhnikov, B. V.

ORG: none

TITLE: A Q factor modulator for a ruby laser

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 4, 1966, 40-42

TOPIC TAGS: solid state laser, laser modulation, laser pulsation

ABSTRACT: A Q factor modulator that increases the output pulse power of a ruby laser by 10^3 is described. The modulator is made up of an optical head and an electronic unit. The optical head consists of a rotating prism with total internal reflection that acts as one of the mirrors of the laser optical resonator; it is driven at angular speeds up to 26×10^3 rpm by a dc motor. The electronic unit consists of a square wave generator, a comparator circuit, two time delay networks, a trigger circuit, a dc motor, and a power supply. The modulator operates in the following manner: at a given angular position of the prism with respect to the laser beam, light from a lamp is focused through a lens and illuminates a photosensitive diode. The output pulse of the photodiode is amplified and fed to the comparator. When the rotational speeds of the motor and the prism are equal, the comparator initiates a pulse that lights the laser pumping lamp and thus triggers the laser. At the same time, the

UDC: 621.378.325

Card 1/2

L 43041-66

ACC NR: AP6029519 O

motor is stopped and the laser is not triggered again until the motor builds up its speed until it is equal to that of the prism. The motor has an automatic disconnect relay which stops it in 5 to 7 seconds if a faulty condition occurs in the circuit. As a result of work with the modulator, optimum parameters for the optical resonator, rotation speed of the reflector, and pumping power have been determined in order to obtain maximum output pulse power. Orig. art. has: 2 figures. [IV]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001 ATD PRESS 5067

Card 2/2

L 41[illegible] EWT(m)/EWP(1)/EWP(e)/EWP(t)/ETI IJP(c) BM/AT/GW/RM

ACC NR: AP6019635 (A,N) SOURCE CODE: UR/0048/66/030/002/0371/0377

AUTHOR: Afanas'yev, N.G. Startsev, V.I.; Smolov, Ye.M.; Kuplennikov, E.L.; Stepula, Ye.V.; Petrenko, V.V.; Pursov, G.L.

ORG: none

TITLE: Investigation of elastic scattering of 70 MeV electrons on C-12 and Be-9 and the mean square radii of those nuclei /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 January to 2 February 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 371-377

TOPIC TAGS: electron scattering, elastic scattering, form factor, nuclear radius, beryllium, carbon

ABSTRACT: The authors have measured the elastic scattering cross sections of C^{12} and Be^{9} for 70 MeV electrons at different scattering angles between 30 and 150° in order to evaluate the root-mean square radii of the nuclei. The 70 MeV electron energy was chosen for the measurements because at that energy the momentum transfers are high enough to permit determining the momentum transfer dependence of the form factor, and yet low enough to allow of neglecting higher powers than the second (of the momentum transfer) in the expression for the form factor. The electron beam was produced by a pulsed accelerator. The primary beam intensity was measured with a secondary emission monitor which was calibrated with a Faraday cup. The electrons that were

1/2

L 41309-66

ACC NR: AP6019635

2

elastically scattered at a given angle from the graphite[15], polyethylene[15] or beryllium foil target were focused with a magnetic field onto a Cerenkov counter which recorded them. The scattering angle at which scattered electrons were recorded could be changed without breaking the vacuum. In addition to the measurements with the Cerenkov counter measurements were realized with photographic recording of the scattered electrons. Although some of the corrections involved in the different techniques are different (the corrections are discussed at some length), the cross sections measured by the two different recording methods were in excellent agreement. The values obtained from the momentum transfer dependence of the form factor for the rms radii of Be^9 and C^{12} were 2.26 ± 0.1 and 2.35 ± 0.01 fermi, respectively. Orig. art. has: 12 formulas, 5 figures, and 3 tables.

SUB CODE: 20 SUBM DATE: 00 ORIG. REF: 004 OTH REF: 002

Card 2/2 hs

3/035/61/000/003/003/003
A001/A101

3.1550

AUTHORS: Kuz'menko, K.N.; Pluzhnikov, V.Kh. and Petrenko, R.M.

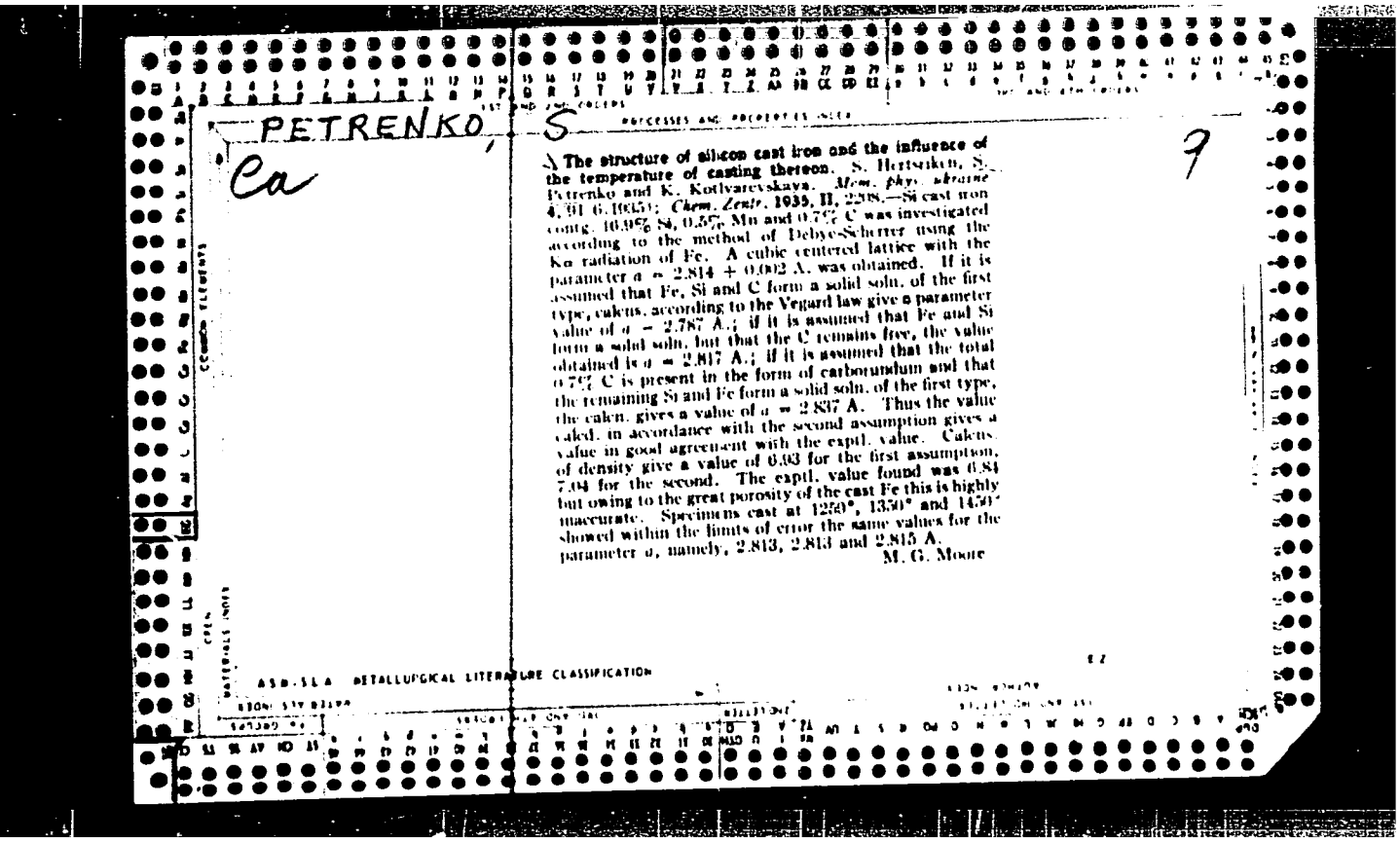
TITLE: Photographic observations of the comet Arend-Roland

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 3, 1961, 18, abstract 3A199 ("Tsirkulyar Astron. observ. Khar'kovsk. un-t", 1959, no. 20, 3)

TEXT: The observations were conducted during April-May 1957 by means of a Zeiss astrograph (D = 16 cm, F = 75 cm). The results of observations [α, δ (1950.0)] and the list of the fundamental stars are presented.

[Abstracter's note: Complete translation]

Card 1/1



PETRENKO, S

Ca

9

The structure of silicon cast iron and the influence of the temperature of casting thereon. S. Hertsriken, S. Petrenko and K. Kotlyarevskaya. *Mem. phys. ukraine* 4, 91 6.1935); *Chem. Zentr.* 1935, II, 2508.—Si cast iron contg. 10.9% Si, 0.5% Mn and 0.7% C was investigated according to the method of Debye-Scherrer using the $K\alpha$ radiation of Fe. A cubic centered lattice with the parameter $a = 2.814 + 0.002$ A. was obtained. If it is assumed that Fe, Si and C form a solid soln. of the first type, calcns. according to the Vegard law give a parameter value of $a = 2.787$ A.; if it is assumed that Fe and Si form a solid soln. but that the C remains free, the value obtained is $a = 2.817$ A.; if it is assumed that the total 0.7% C is present in the form of carborundum and that the remaining Si and Fe form a solid soln. of the first type, the calcn. gives a value of $a = 2.837$ A. Thus the value calcd. in accordance with the second assumption gives a value in good agreement with the exptl. value. Calcns. of density give a value of 6.93 for the first assumption, 7.04 for the second. The exptl. value found was 6.84 but owing to the great porosity of the cast Fe this is highly inaccurate. Specimens cast at 1250°, 1350° and 1450° showed within the limits of error the same values for the parameter a, namely, 2.813, 2.813 and 2.815 A.

M. G. Moore

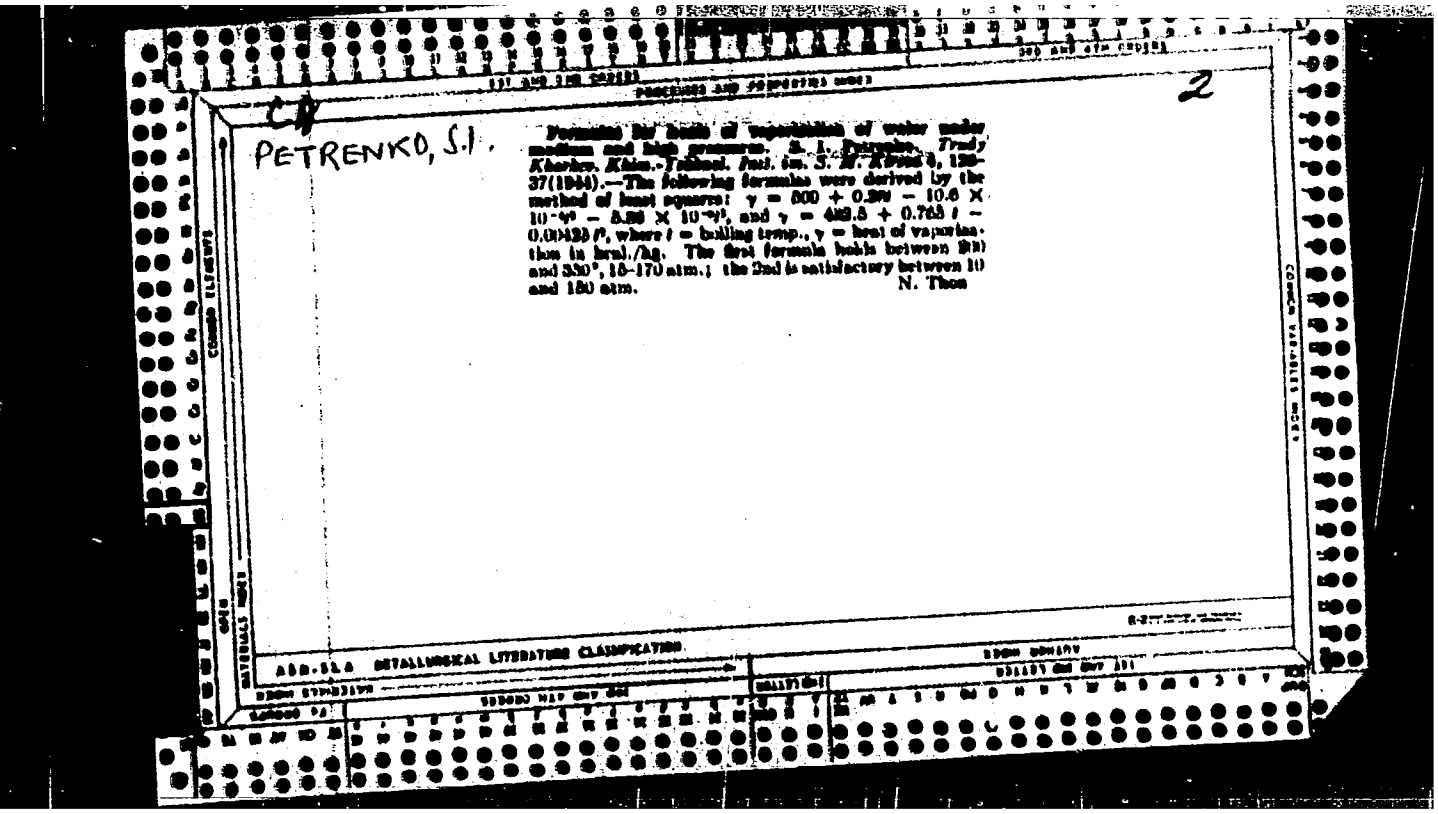
BEINKH, D.P., kand. ist. nauk; VALYULIS, I.A.; GOTSKIY, M.V., kapitan dal'nego plavaniya [deceased]; D'YACHUK, I.L., kapitan dal'nego plavaniya; KAMYKOV, F.A., kapitan dal'nego plavaniya; KREMS, A.K., kapitan dal'nego plavaniya; KOLOTOV, N.A., dots.; PETRENKO, S.A.; RASKATOV, A.S.; FISHER, Ye.L.; DVORNAYK, B.M., otv. red.; LEVITSKIY, V.L., red.; LYUTIKOV, V.K.; MALAKHOV, N.N., red.; POL', P.A., red.; RASKATOV, A.S., red.; CHICHVARKHIN, V.S., red.; RADOSTIN, V.A., red.; LAVRENOVA, N.B., tekhn. red.

[History of Far Eastern Steamship Lines]Istoriia dal'nevostochnogo parokhodstva; ocherki. Moskva, Izd-vo "Morskoi transport," 1962. 263 p. (MIRA15:11)
(Soviet Far East—Merchant marine)

PETRENKO, S.I.

The post office workers are improving the quality of their work.
Vest.sviazi 25 no.2:15-17 F '65. (MIRA 18:6)

1. Nachal'nik Rizhskogo pochtamta.



PETRENKO, S.I.

Formulas for heats of vaporization of water under medium and high pressures. S. I. Petrenko. *Trudy Khar'kov. Khim.-Tekhnol. Inst. im. S. M. Kirova* 8, 129–37(1948).—The following formulas were derived by the method of least squares: $\gamma = 500 + 0.2\theta - 10.6 \times 10^{-4}\theta^2 - 5.88 \times 10^{-7}\theta^3$, and $\gamma = 482.5 + 0.76t - 0.0043t^2$, where t = boiling temp., γ = heat of vaporization in kcal./kg. The first formula holds between 210 and 330°, 18–170 atm.; the 2nd is satisfactory between 10 and 180 atm.

N. Thon

2

ASD-SSA METALLURGICAL LITERATURE CLASSIFICATION

PETRENKO, S.I., kand.tekhn.nauk,dots; STASIKIV, Ya., inzh.

Calculation of the heat ray absorbing surface of a boiler.
Izv. vys. ucheb. zav.; energ. 4 no.2:75-78 F '61. (MIRA 14:3)

1. L'vovskiy politekhnicheskiy institut. Predstavlena kafedroy termodinamiki i teplotekhniki.
(Boilers)

PETRENKO, S. I.

SOV/143-58-10-20/24

AUTHORS: Arkhangel'skiy, A.I., Antonovich, A.V., Bogatyrev, M.A., Gubenko, I.F., Gubenko, T.P., Zamora, Ye.F., Karnaukhov, I.N., Lukin, Y.I., Lukin, N.I., Maksimovich, G.Kh., Moser, V.P., Petrenko, S.I., Paternyy, Ya.A., Privalova, I.A., Sinitskiy, Yu.I., Stanikov, Ya.E., Shchepankevich, B.F., Chudnan, Z.S., Yagello, I.M., Brilinskiy, B.M., and others

TITLE: G.Ye. Krushel'. Deceased

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Energetika, 1958, Nr 10, p 147 (USSR)

ABSTRACT: This is an obituary of Doctor of Technical Sciences, Professor Georgiy Yevgen'yevich Krushel' of the Lvovskiy politekhnicheskiy institute (Lvov Polytechnic Institute). Krushel' was born in 1912 as the son of an engineer. He died on July 20, 1958 because of an accident. He graduated in 1931 from the "Proftekhshkola". While working in the industry, G. Ye. Krushel' studied at the Kharkovskiy mekhaniko-mashinostroitel'nyy institut (Khar'kov Institute of

Card 1/3

extensively prize covers for the feed pumps of high-power boiler-turbine units. Besides research work, Krushel' devoted his attention to the training of engineers in his field. The Soviet Union lost one of its foremost scientists. There is 1 photograph.

Card 3/3

PETRENKO, S.I., dotsent, kand. tekhn. nauk

Basis for the calculation and distribution of temperature gradients along the elements of heating surfaces of boilers. Izv. vys. ucheb. zav.; energ. 2 no.2:87-94 F '59. (MIRA 12:7)

1. L'vovskiy politekhnicheskiy institut. Predstavlena kafedroy termodinamiki i teplotekhniki.

(Boilers)

24(8) SOV/143-59-2-11/19

AUTHOR: Petrenko, S.I., Docent, Candidate of Technical Sciences

TITLE: The Principles of Calculating and Distributing Temperature Drops on the Elements of Boiler Heater Surfaces (Osnovy rascheta i raspredeleniya teplovykh perepadov po elementam poverkhnostey nagreva kotla)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1959, Nr 2, pp 87-94 (USSR)

ABSTRACT: Under operational conditions, a boiler must produce steam at a constant pressure and superheating temperature within a wide range of steam consumption. For this reason, the author investigated the influence of the steam pressure, the temperatures of superheated steam feed water and stoking, on the distribution of temperature drops of the radiation and convective heat exchange on the surfaces of the heater elements, under the condition of maintaining a constant temperature of the superheated steam. According to an analysis performed by the author [Ref 1] concerning the

Card 1/5

interaction of the function of the economizer-evaporation section and the superheater. the temperature of the superheated steam may be determined by the formula:

$$tn = t_H + \frac{\Delta i_H}{Cpm} h \frac{Z_n}{Z_и} Z_H , \qquad (1)$$

whereby: t_H - temperature of the saturated steam; Cpm - average heat capacity according to weight; $\Delta i_H=(i" - i_{n.B})_H$ - the temperature of generating 1 kg dry saturated steam under nominal operating conditions; $h=(i" - i_{n.B}) : (i" - i_{n.B})_H$ - relative heat consumption for 1 kg steam under non-nominal conditions; $Z_n=\sum Q_n : \sum Q_{n.H}$ - relative, useful temperature drop of the vapor side in the superheater elements; $Z_и=\sum Q_и : \sum Q_{и.H}$ - the same as before but in the economizer-evaporation section; $Z_H=\sum Q_{n.H} : \sum Q_{и.H} =$

The Principles of Calculating and Distributing Temperature Drops on the Elements of Boiler Heater Surfaces

$(\Delta i_n : \Delta i_u)_H$ - ratio of the superheating heat to the heat of generating steam under nominal operating conditions of the boiler. For explaining the influence of the radiation heat on the superheating temperature of steam, the author calculated the performance characteristic and the temperature of the superheated steam for the boiler TP-80. Figure 1 shows the graphical representation of the calculation results. The author also calculated the temperature drops of the radiation and the convective heat exchange for 1 kg of steam in the economizer-evaporation section and the superheater for steam pressures ranging from 40 to 200 atmospheres. Figures 2-6 show the graphical representations of these calculations. The author arrived at the following conclusions: 1) With increasing pressure and superheating temperature, there should be an increase in the consumption of radiation heat for superheating steam,

The Principles of Calculating and Distributing Temperature Drops on the Elements of Boiler Heater Surfaces

while the heat consumption for the steam generation should be decreased. 2) In the pressure ranges of 40 to 200 atm, the radiation heat exchange amounts to ~ 60 + 65% and the convective heat exchange to ~ 36 + 40%. 3) Reducing the temperature of the feed water with a reduction of the load has a favorable influence on the stability of the steam temperature. 4) Changing the stoking temperature has an influence on the temperature drop in the economizer-evaporation section, whereby its increase causes an increase of the temperature drop in the convective part of the boiler. 5) Boilers operating at steam pressure higher than 100 atm should have radiation-convective steam superheaters. 6) When designing boilers, the conditions for maintaining a constant temperature of the superheated steam must be taken into consideration.

Card 4/5

PETRENKO, S. I.

112-3-5241

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 3, p. 24 (USSR)

AUTHOR: Petrenko, S. I.

TITLE: Heat Absorbing Ability and Circulation Rate in a Boiler (Akkumuliruyushchaya sposobnost' i skorost' tsirkulyatsii v kotle)

PERIODICAL: Dokl. L'vovsk. politekhn. in-ta, 1955, Nr 2, pp. 182-184

ABSTRACT: Bibliographic entry.

ASSOCIATION: D'vov Polytechnical Institute (L'vovsk. politekhn. in-t)

Card 1/1

112-3-5237

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 3, p. 24 (USSR)

AUTHOR: Petrenko, S.I., and Stasikiv, Ya.T.

TITLE: Furnace Operating Temperature With Various Fuels and Boiler Loads (Temperaturnyy rezhim topki pri razlichnykh toplivakh i nagruzkakh kotla)

PERIODICAL: Nauch. zap. L'vovsk. politekhn. in-ta, 1955, Nr 32, pp. 54-64

ABSTRACT: A change in boiler load causes a change in the operating temperature of the furnace and other boiler gas ducts, depending upon the fuel used and the magnitude of load change. An analytical investigation of this relationship is presented for the furnace of boiler type ДКВ, which has a steam capacity of 6500 kg/hour, with parameters of 13 atmospheres, absolute, and 350°. The fuels studied were Don long-flame coal, brown coal from the Moscow

Card 1/2

Furnace Operating Temperature With Various Fuels and Boiler Loads (Cont.)

region, lump peat and fuel oil; the fuel expenditure was varied from 30 to 150% of normal. The radiation heating surface in the furnace was determined for all fuels on the basis of obtaining a terminal heating temperature of 1,000° with a rated load. The following are given as functions of fuel expenditure on the basis of computations:
a) furnace temperature; b) difference between combustion temperature and furnace temperature; c) thermal load of radiation heating surface; d) specific steam capacity of radiation heating surface.
A.A.D.

ASSOCIATION: L'vov Polytechnical Institute (L'vovsk. politekhn. in-t.)

Card 2/2

PETRENKO, S.I., kand.tekhn.nauk, dots.

Operating thermal characteristics and arrangement of boiler heating surfaces. Izv.vys.ucheb.zav.; energ. no.6:66-74 Je '58. (MIRA 11:9)

1.L'vovskiy politekhnicheskiy institut.
(Boilers)

PETRENKO, S I

112-2-2757

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 2, p. 20 (USSR)

AUTHOR: Petrenko, S.I., Bogatyrev, N.A.

TITLE: The Effect of Pressure on Heat Exchange in the Furnace Fire Box (K voprosu o vliyanii davleniya na teploobmen v topochnykh kamerakh)

PERIODICAL: Nauch. zap. L'vovsk. politekhn. in-ta, 1955, Nr 32, pp. 145-162

ABSTRACT: The process of heat exchange is intensified in the fire boxes of steam boilers and in furnaces under elevated pressure. The effect of the pressure of the medium on the rate of heat exchange has not been sufficiently studied. Taking as the point of departure the avialable sources (VTI, TSKTI, ENIN), an attempt has been made to establish by

Card 1/2

PETRENKO, S. I.

112-3-5242

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 3, p.24 (USSR)

AUTHOR: Petrenko, S.I.

TITLE: Steam Superneater Non-Stationary Operating Conditions (Rabota paroperegrevatelya pri nestatsionarnom rezhime)

PERIODICAL: Dokl. L'vovsk. politekhn. in-ta, 1955, 1, Nr 2, pp. 178-181

ABSTRACT: Bibliographic entry

ASSOCIATION: L'vov Polytechnical Institute (L'vovsk. politekhn. in-t.)

Card 1/1

PETRENKO, S.I.

112-3-5239

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 3, p. 24 (USSR)

AUTHOR: Petrenko, S.I.

TITLE: Rate of Change of Boiler Operating Conditions (Skorost' izmeneniya rezhima raboty kotla)

PERIODICAL: Nauch. zap. L'vovsk. politekhn. in-ta, 1955, Nr 32, pp. 3-9

ABSTRACT: An interruption in the continuous operation of a boiler, caused by a change in load or fuel feed, results in an inequality in the operation of the moving forces of circulation and the forces of resistance. This inequality must be compensated for by a change in energy supply, mainly in the boiler system, i.e., by a change in the amount of heat accumulated in the boiler structure and other boiler components. The rate of pressure increase and decrease in the boiler may not exceed certain limits if proper circulation in the boiler is to be obtained. The circulation rate and the ability to accumulate heat are closely interrelated. Formulae are derived for the practical determination of the maximum

Card 1/2

PETRENKO, S.I.

112-3-5240

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 3, p. 24 (USSR)

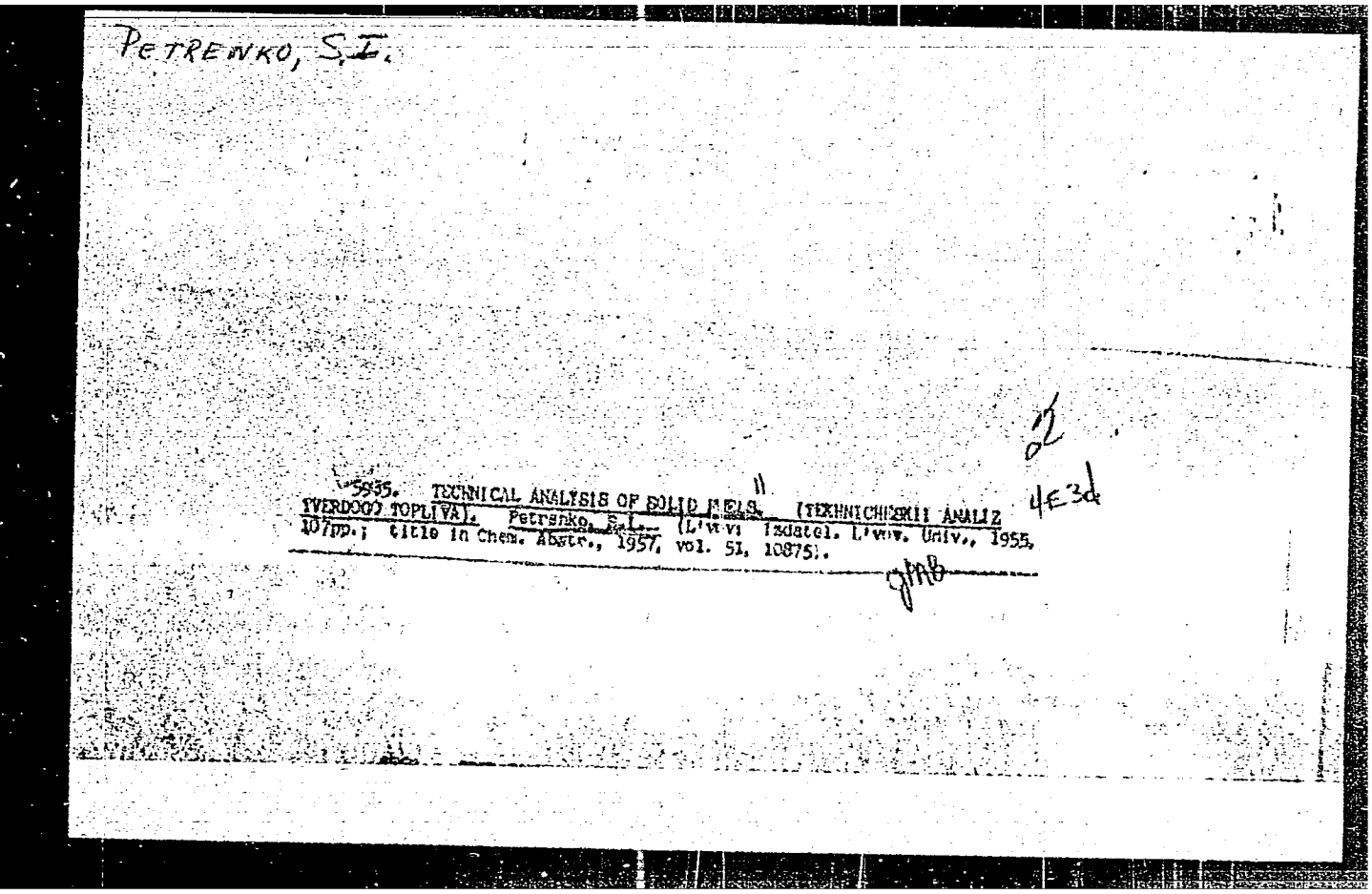
AUTHOR: Petrenko, S.I.

TITLE: The Capability of Water and Saturated Steam to Accumulate Heat (Akkumuliruyushchaya sposobnost' vody i nasyshchennogo para)

PERIODICAL: Nauch. zap. L'vovsk. politekhn. in-ta, 1955, Nr 32, pp. 91-104

ABSTRACT: Any disturbances of steady-state operating conditions of steam boilers caused by disparities between steam and fuel consumption are reflected in a change of pressure and, consequently, in the boiling point of water and in a change in the temperature conditions of the steam-water flow. The latter, in turn, causes a redistribution of the heat accumulated by the water, steam, gas, and boiler sections, in conformity with the new steady-state operating conditions. Special problems are discussed as to the effect of heat accumulated by the boiling water and saturated steam on intermittent boiler operation. Presented are formulae

Card 1/2



PETRENKO, S.I.

5935. TECHNICAL ANALYSIS OF SOLID FUELS. (TEKHNICHESKII ANALIZ TVERDOGO TOPLIVA). Petrenko, S.I. (L'vov. Izdatel. L'vov. Univ., 1955, 107pp.; title in Chem. Abstr., 1957, vol. 51, 10875).

ANDRIYEVSKIY, A.I.; ANTANOVICH, A.V.;BOGATYREV, N.A.;GLUSHCHENKO, I.P.; GUBENKO, T.P.; ZAMORA, Ye.F.; KARANDEYEV, K.B.; LUKIN, V.I.;LUKIN, N.I.; MAKSIMOVICH, N.G.; MOZER, V.F.; PETRENKO, S.I.; PAPERNYY, Ye.A.; PRIVALOVA, K.A.; SITNITSKIY, Yu.I.; STASIKOV, Ya.T.; SHCHERPANKEVICH, B.P.; CHUCHMAN, T.S.; YAGELLO, I.M.; BRILINSKIY, B.M. i dr.

G.E. Krushel'; obituary. Izv.vys.ucheb.zav.; energ. no.10:147 O '58. (MIRA 11:12)
(Krushel', Georgii Evgen'evich, 1912-1958)

SHVETS, Ivan Trofimovich, prof.; KONDAK, Mikhail Andrianovich, prof.; KIRAKOVSKIY, Nikolay Feliksovich, dotsent; NEDUZHIY, Ivan Afanas'yevich, dotsent; SHEVTSOV, Dmitriy Semenovich, dotsent; SHELUD'KO, Ivan Mikhaylovich, dotsent; PETRENKO, S.I., dotsent, kand.tekhn.nauk, retsenzent; SERDYUKOV, P.T., inzh., red.; ONISHCHENKO, N.P., inzh., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn.red.

[Heat engineering] Obshchaia teplotekhnika. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 459 p. (MIRA 14:3)

(Heat engineering)

PETRENKO, S.I.; YAGELLO, I.M.

Memorandum to the firemen of industrial steam boilers. Prom. energ. 15 no.9:61 S '60. (MIRA 13:10)
(Boilers)

GONCHARENKO, D.I., kand.tekhn.nauk; DROZDOV, V.I., inzh.; NOVIKOV, Yu.A., inzh.; BRODSKIY, V.Sh., inzh.; PETRENKO, S.Ya.; BARANOV, Yu.I.

Scraper-plow extraction of very thin and outbreak-prone coal seams. Ugol' 40 no.9:38-40 S '65. (MIRA 18:10)

1. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Goncharenko, Drozdov, Novikov, Brodskiy). 2. Upravlyayushchiy trestom Proletarskugol' (for Petrenko). 3. Glavnyy inzh. shakhty "Mushketovskaya-Vertikal'naya" tresta Proletarskugol' (for Baranov).

PETRENKO, S.Ya., inzh.; SAVENKO, Yu.F., inzh.

Make more use of plow-scraper mining of coal. Bezop.truda v prom. 9 no.4:14-15 Ap '65. (MIRA 18:5)

OSTRIKOV, M.S.; DIBROV, G.D.; PETRENKO, T.P.

Deforming effect of the osmotically dehydrating liquid media. Koll. zhur. 27 no.1:82-86 Ja-F '65. (MIRA 18:3)

1. Rostovskiy-na-Donu gosudarstvennyy universitet i Rostovskiy inzhenerno-stroitel'nyy institut.