

BATTENEV, N.A.; MILOV, A.I.; PONOMAREV, V.D.

Electrolytic production of titanium from the dioxide in mixed
fluoride-chloride melts. Izv.AN Kazakh. SSR: Ser: tekhn. i khim. nauk.
no: 163-69. '63. (MIRA 17:3)

BAYTENOV, N.A.; MILOV, A.I.

Effect of certain factors on the process of the electrolytic
preparation of titanium from its dioxide. Trudy Inst. met. i
obcg. AN Kazakh. SSR 12:58-64 '65.

(MIRA 18:10)

RAYTENOV, N.A.; MILAY, A.I.; DEGETOVA, P.I.

Investigating cathode products and the electrolyte following the
electrolysis of titanium dioxide in fluoride-chloride melts.
Trudy Inst. met. i obog. AN Kazakh. SSR 12:65-70 '65.

(MIRA 18:10)

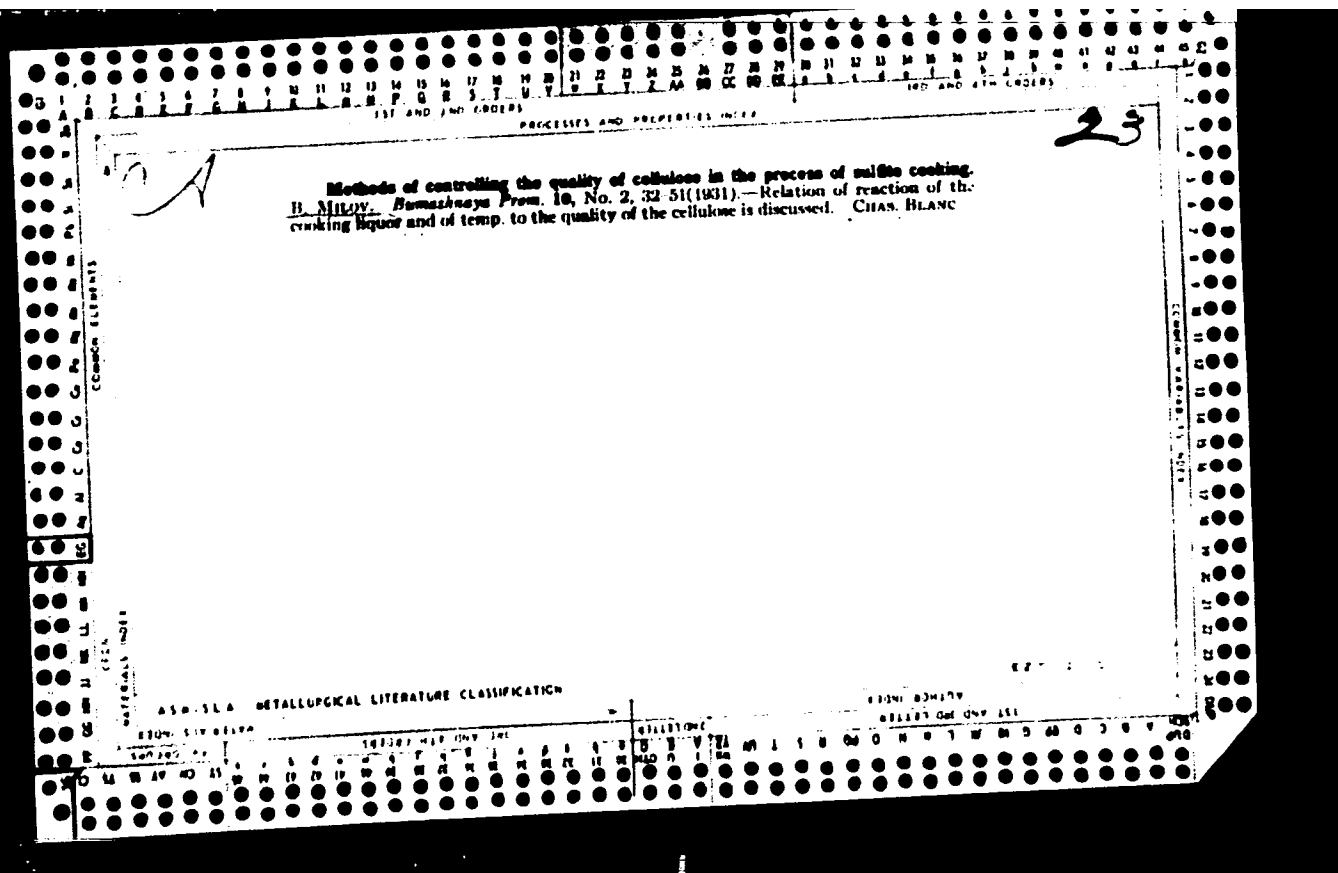
MILOV, A.P.; PECHERSKIY, D.M.; IVANOV, V.S.

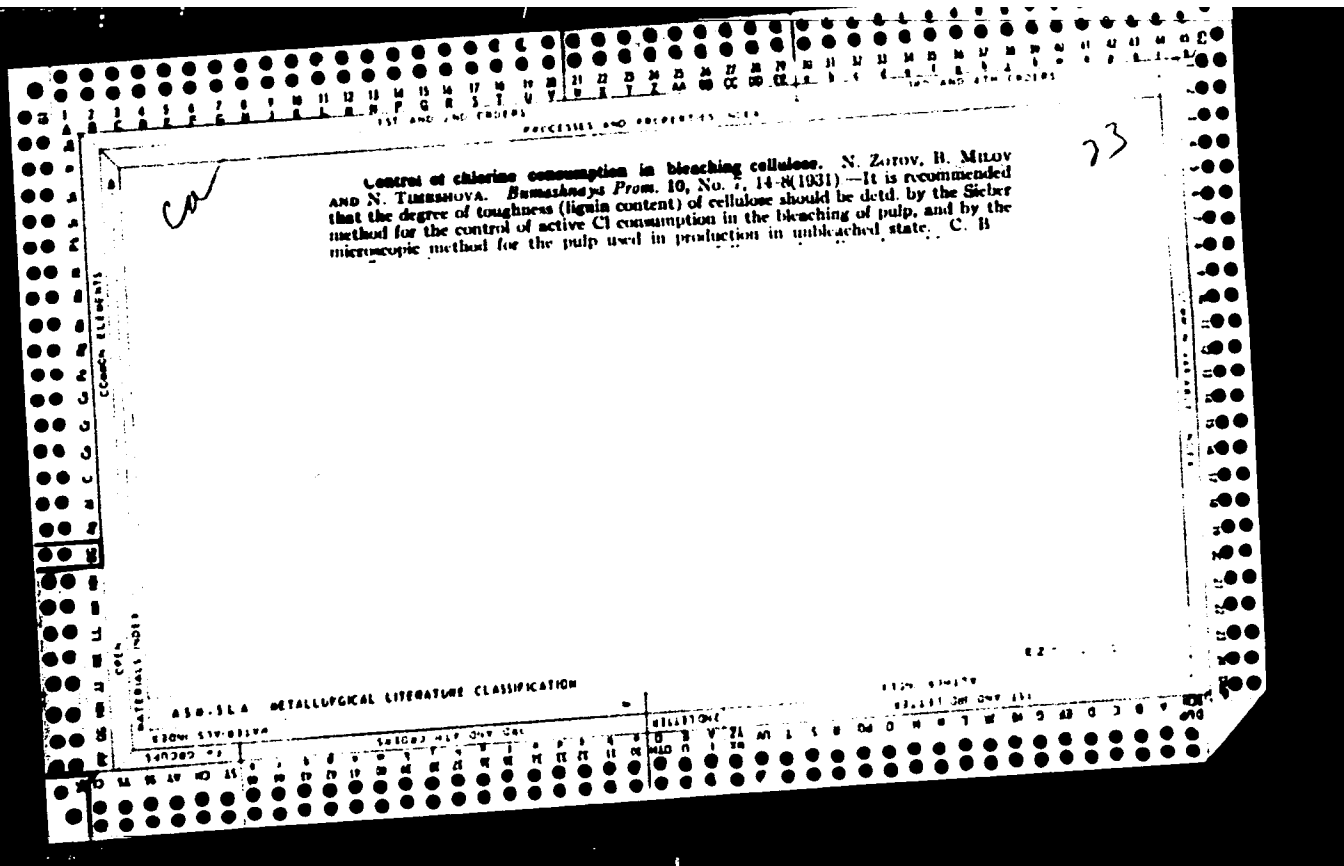
Geological characteristics and magnetic properties of the Velitkenayskiy
granitoid massif. Trudy SVKNII no.9 170-180 '64. (MIRA 18:9)

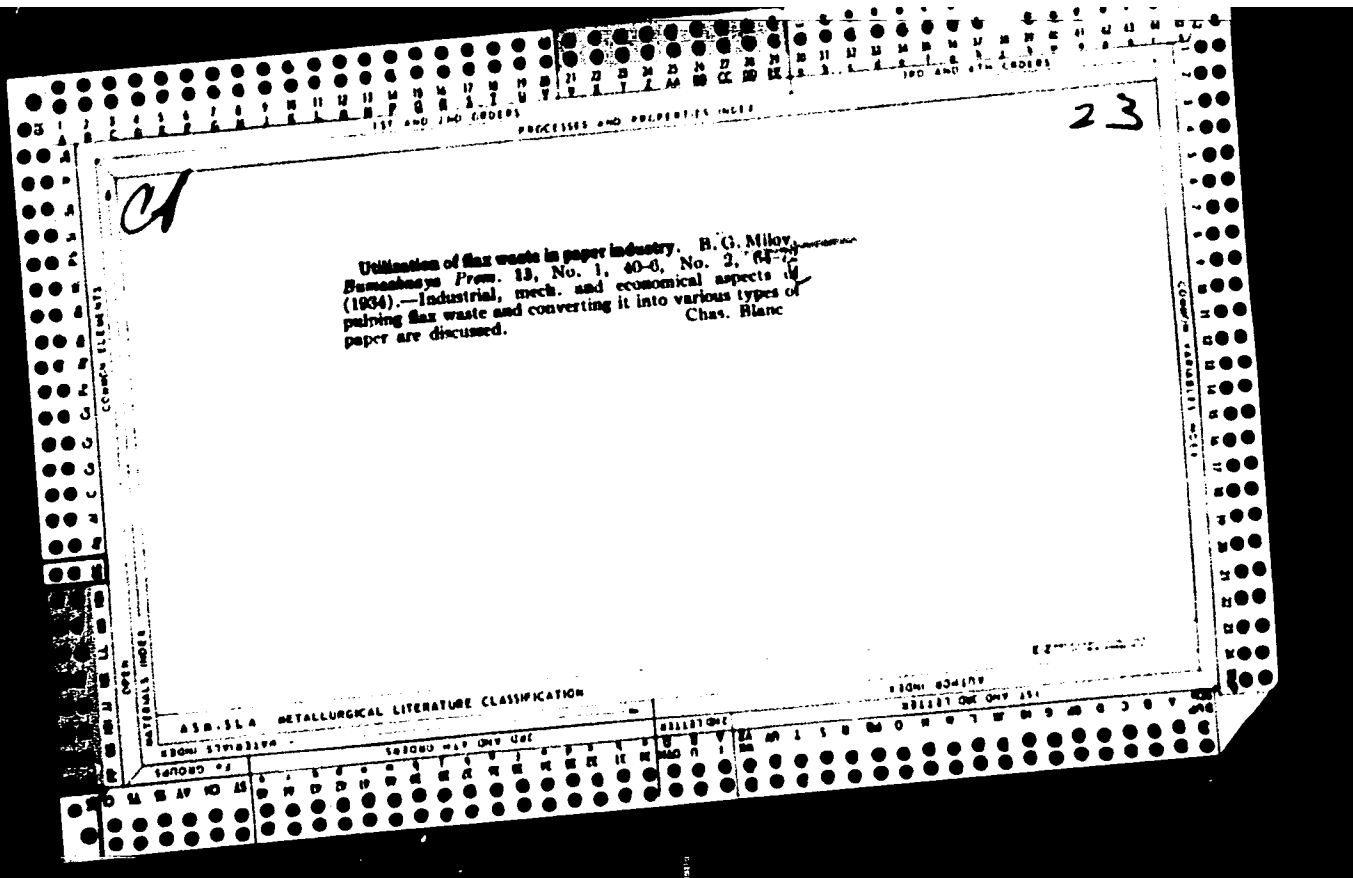
OVCHARENKO, Valentina Semenovna; MILOV, Aleksandr Pavlovich; SHEN, Mikhail Kuz'mich; NOVOZHILOVA, Pobeda Semenovna; OSIPOV, M.I., red.; KOTLYAR, N.S., red.; DORODNOVA, L.A., tekhn.red.

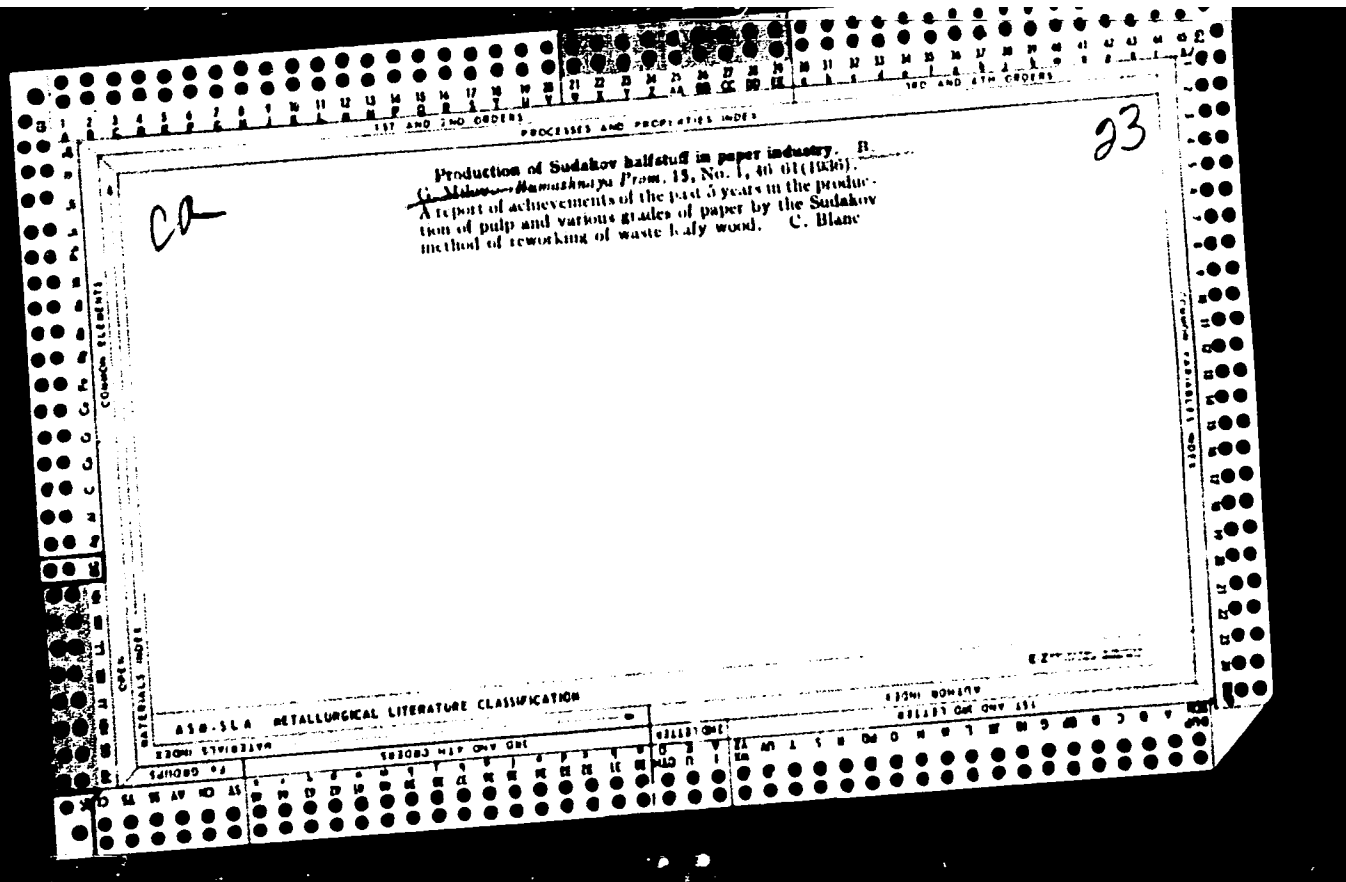
[Training construction workers] Podgotovka rabochikh-stroitelei. Moskva, Vses.uchebno-pedagog.izd-vo Proftekhizdat, 1960. 34 p.
(MIRA 13:11)

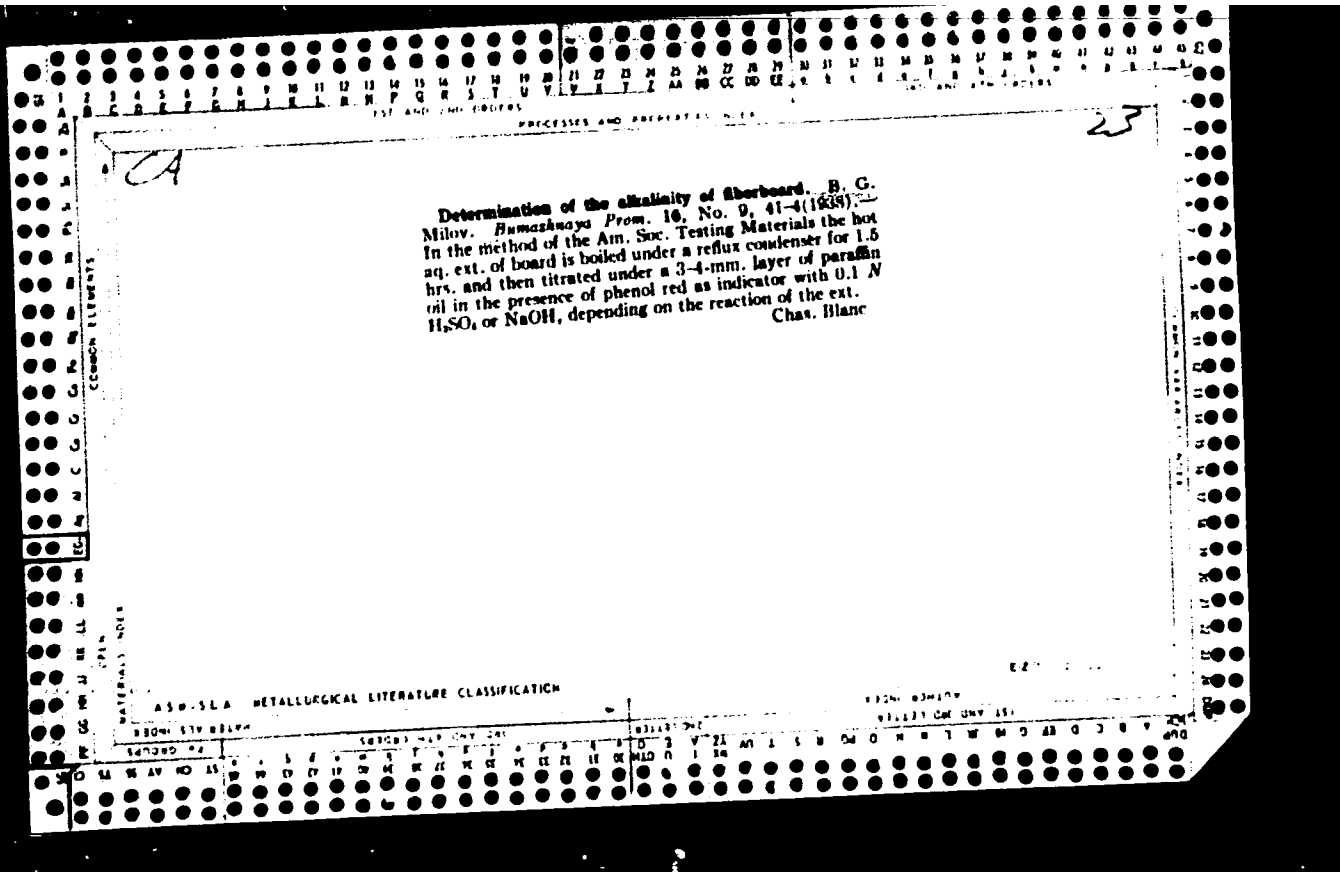
(Building trades--Study and teaching)











PROCESSES AND PROPERTIES INDEX

191 AND 2ND CODES

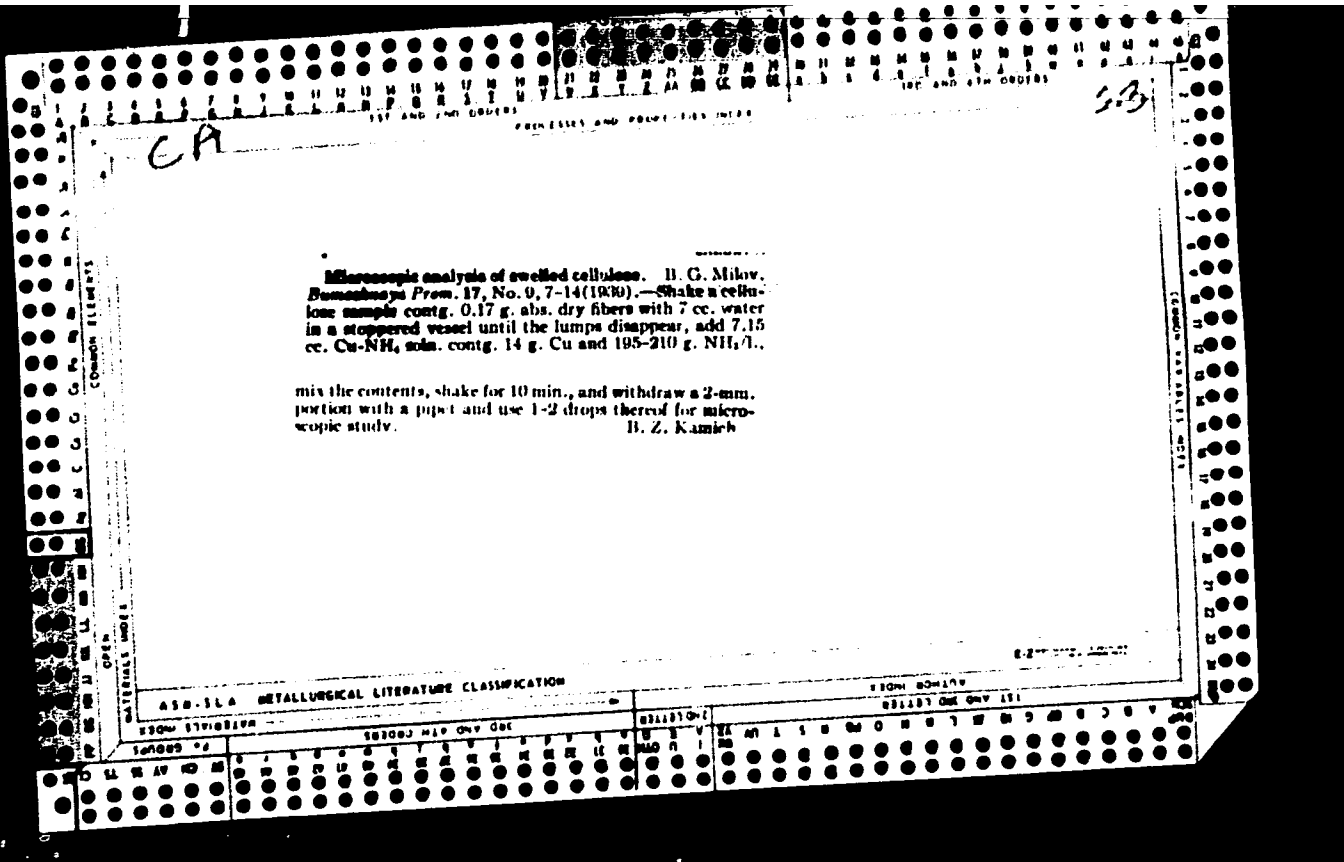
3

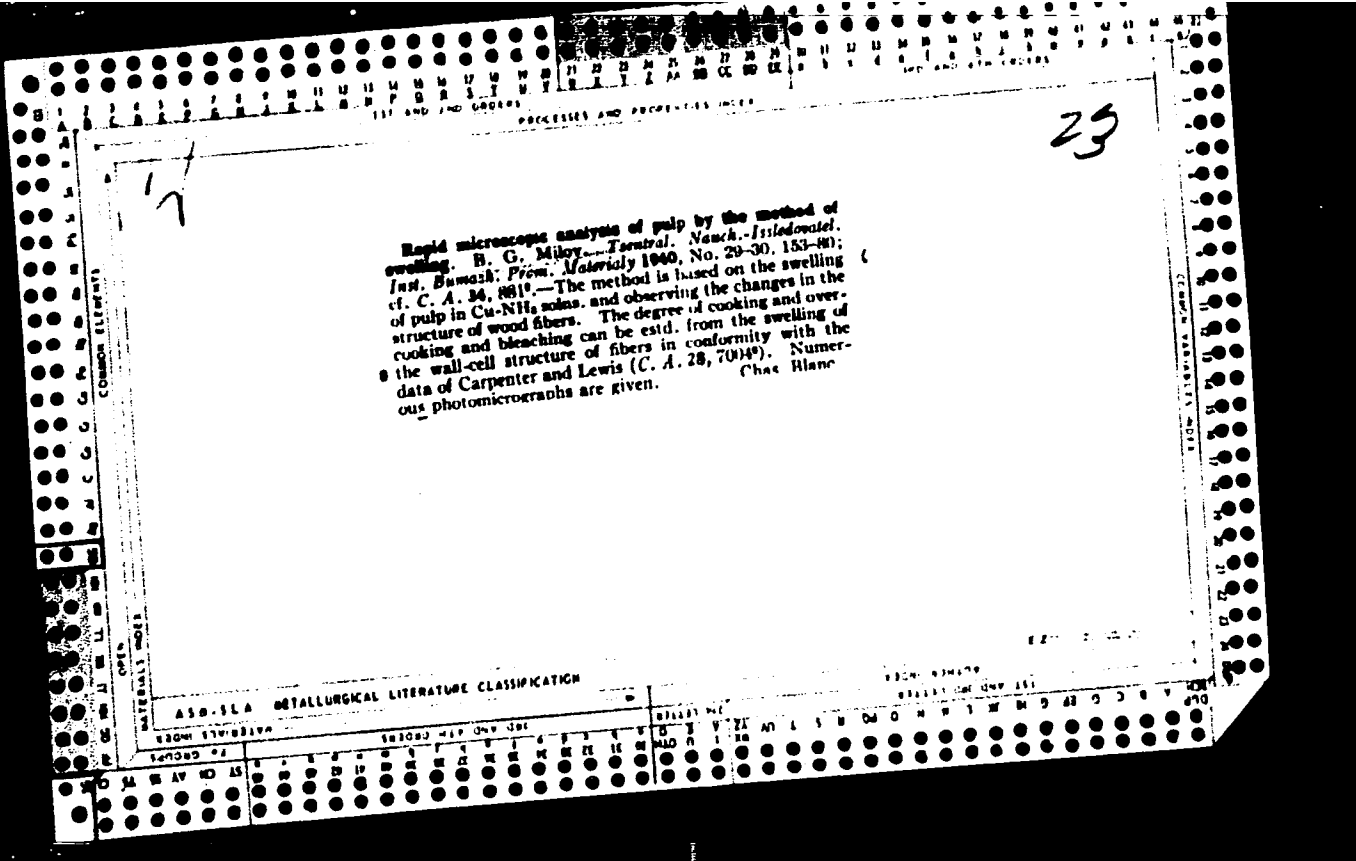
Use of glass electrodes in the electrometric control of the active acidity in sulfite cooking and bleaching. H. I. Mikov. *Southeastern Press*, 17, No. 2, 5-18(1959); cf. C: A. 20, 2315.—A preliminary communication on the lab. control of pulping and bleaching processes based chiefly on the American and Canadian practices. C. H.

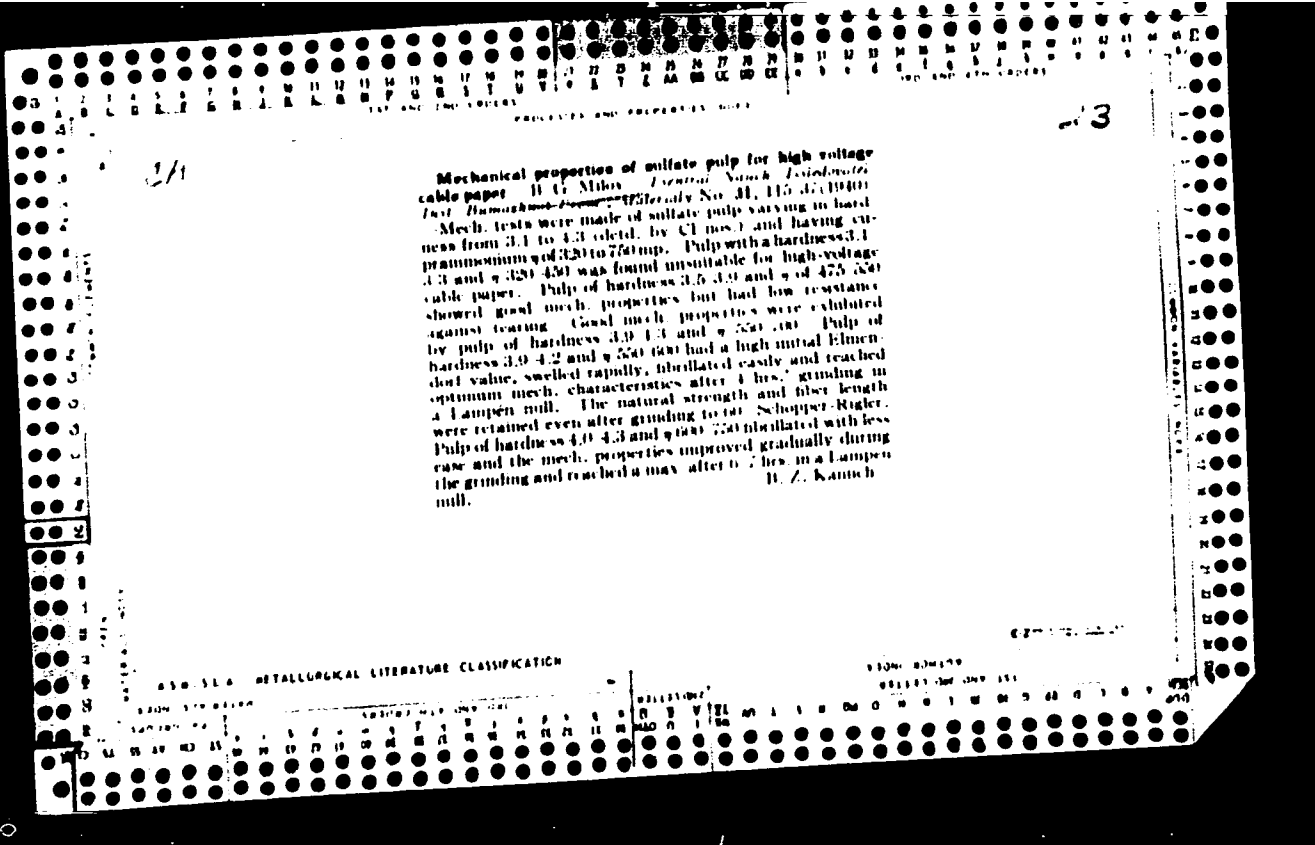
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

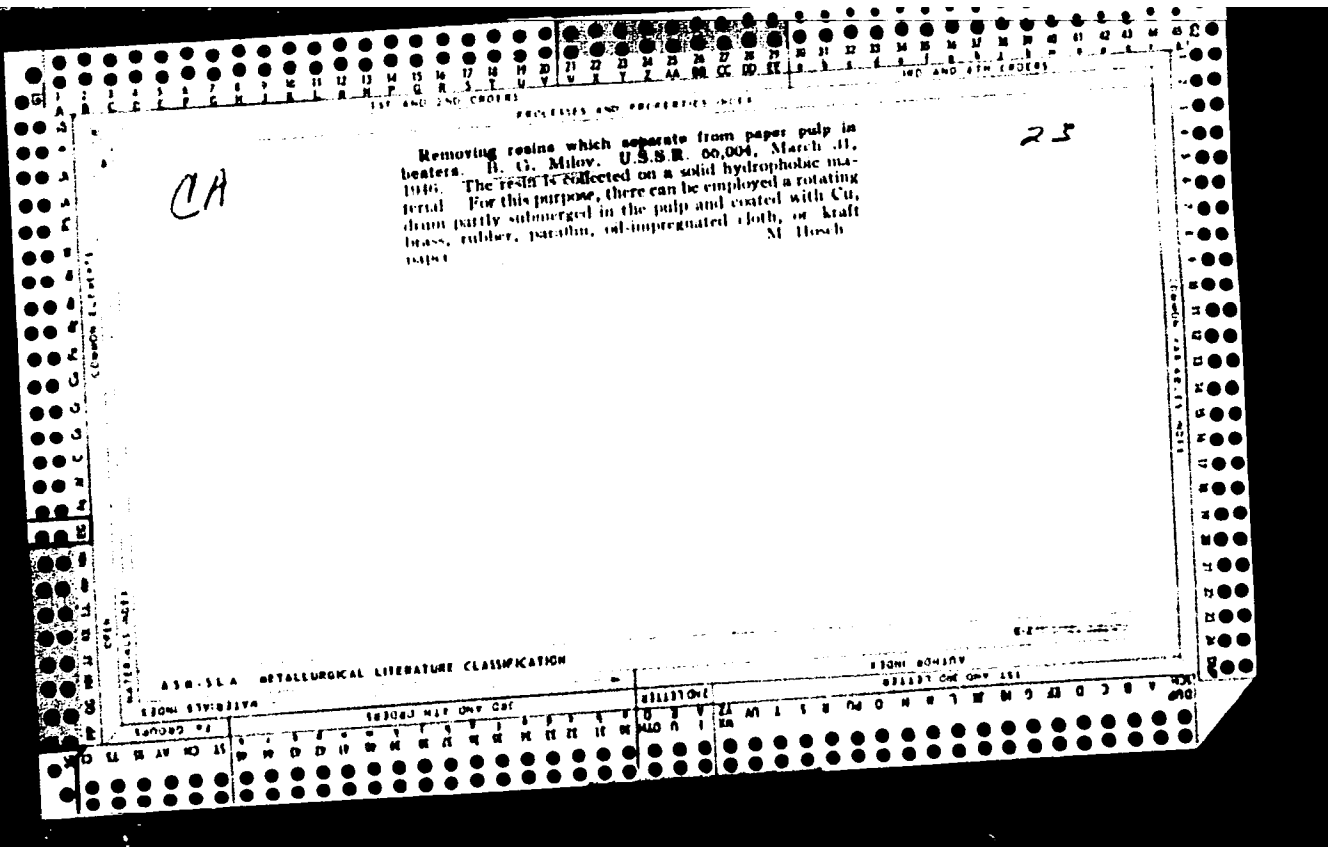
191 AND 2ND CODES

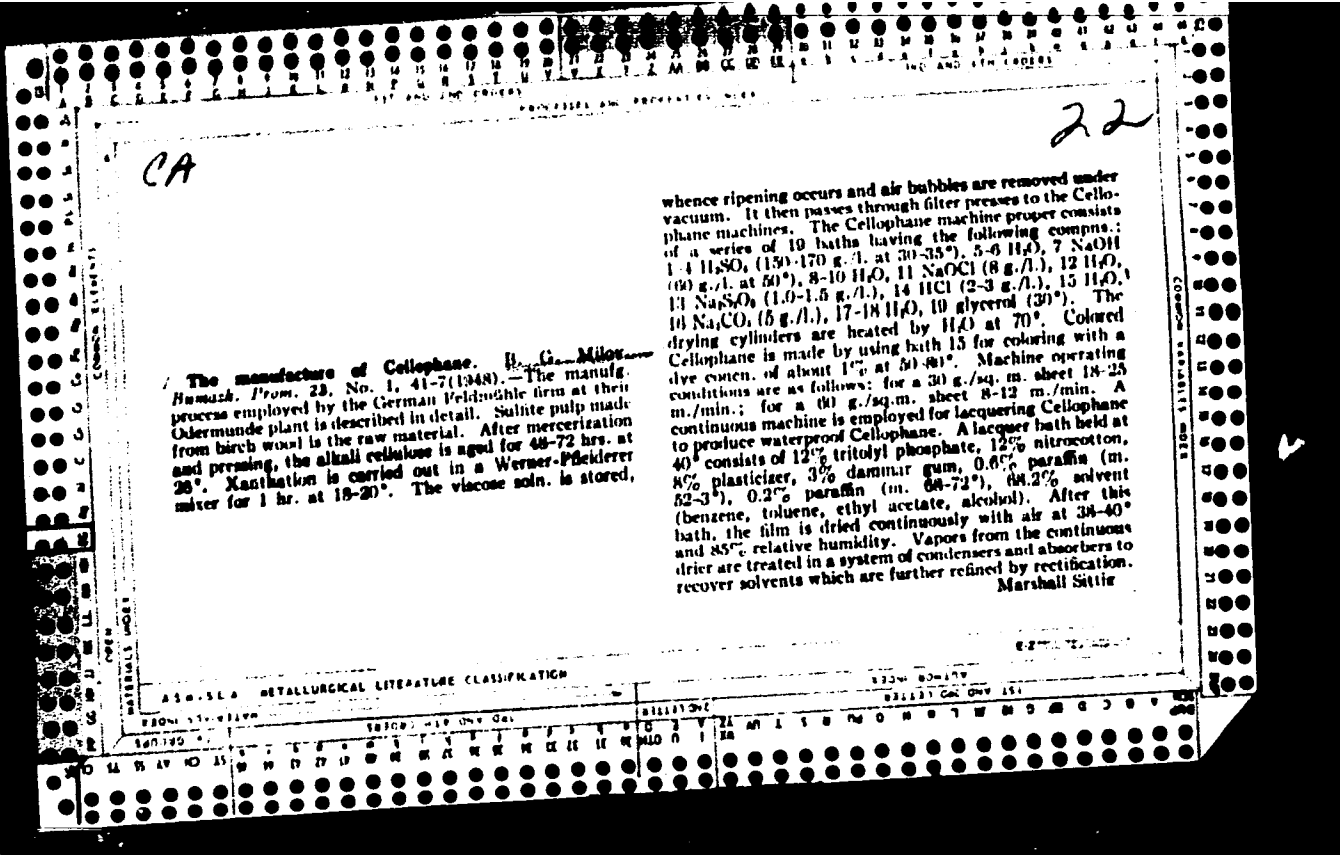
191 AND 2ND CODES











CA

Controlling the process of sulfite cooking. H. G. Milov and C. Ya. Rozanov. *Russk. Prom.* 25, No. 1, 6-19 (1951)—It was assumed that the quality of sulfite pulp, particularly its degree of polymerization, is most closely related to the pH of the liquor, which is a function of the ratio of the concn. of H_2SO_3 and $Ca(SO_3)$. In the change in pH with cooking time, the pH rises from an initial value of 1.7 to 3.5 during the period of wood penetration and initial lignin sulfonation, and then decreases sharply to a value less than 2 during the period of hydrolysis of the sulfonated lignin and the formation of lignosulfonic acid. The quality of the pulp was a function of the pH at the end of the cook. For a cooking temp. of 138-41°, a decrease in final liquor pH was accompanied by a decrease in pulp hardness and viscosity. The effect of final pH on pulp hardness and viscosity was exceedingly marked at 143-8°, the viscosity in particular being quite sensitive to the final pH. A final pH of 0.9 gave a pulp with a viscosity of 300, and a final pH of 0.5 a viscosity of 170 millipoises. Three types of colorimeters used in Soviet sulfite mills are described.

John Lake Keays

MILOV, B.G., doktor tekhn.nauk

Structure and microchemistry of wood cellulose fibers.

[Trudy] NTO bum.i der.prom. no.8:5-26 '59. (MIRA 16:2)

(Cellulose—Analysis)

MILOV, B.G., doktor tekhn. nauk; KITAYEVA, S.Kh.

Reducing dielectric losses in cellulose for capacitor and
high-voltage cable papers. Bum. prom. 34 no.5:4-7 My '59.
(MIRA 12:6)

1. Moskovskiy filial 'Sentral'nogo nauchno-issledovatel'skogo
instituta tsellyuloznoy i bumazhnoy promyshlennosti.
(Cellulose) (Dielectric heating) (Paper)

ZHEREBOV, L.P., prof.; MILOV, B.G., doktor tekhn.nauk; CHETVERIKOV, N.M.,
kand.tekhn.nauk; VOLINA, L.M., starshiy nauchnyy rabotnik

Parameters of continuous cooking of sulfite pulp. Bum. prom. 33
no.5:2-5 My '58. (MIRA 11:6)

1.Moskovskiy filial Tsentral'nogo nauchno-issledovatel'skogo institut
tsellyuloznoy i bumazhnoy promyshlennosti.
(Woodpulp)

MILOV, B.G., doktor tekhn.nauk; DERBENTSEV, F.F., kand.khim.nauk;
BLINOV, Ye.I., insh.

Woodpulp and paper industry of the Hungarian People's Re-
public. Bum.prom. 35 no.3:27-29 Mr '60.

(MIRA 13:6)

(Hungary--Woodpulp industry)
(Hungary--Paper industry)

ZAYTSEVSKAYA, M.M., inzh.; MILOV, B.G., doktor tekhn.nauk

New type of cover paper. Bum.prom. 35 no.4:13 Ap '60.

(MIRA 13:10)

1. Moskovskiy filial Tsentral'nogo nauchno-issledovatel'skogo
instituta tsellyuloznoy i bumazhnoy promyshlennosti.
(Penza--Paper)

MILOV, B.G., doktor tekhn.nauk.; KITAYEVA, S.Kh., starshiy nauchnyy sotrudnik

Ways of improving the technology of the production of woodpulp for
condenser paper. Bum.prom. 36 no.1:9-12 Ja '61. (MIRA 14:3)

L. Moskovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo institut
bumazhnoy promyshlennosti.

(Woodpulp) (Paper)

MILOV, B.G., doktor tekhn.nauk; VITOVTOVA, M.I., nauchnyy sotrudnik;
STRUNNIKOV, N.A., inzh.

Digestion of woodpulp for fine capacitor paper. Bum.prom.
37 no.1:17-19 Ja '62. (MIRA 15:1)

1. Moskovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta tsellyulozno-bumazhnoy promyshlennosti (for Milov,
Vitovtova). 2. Sul'fatno-tsellyuloznyy zavod "Pitkyaranta"
(for Strunnikov).

(Woodpulp)
(Paper products)

MILOV, D.A.

We are increasing the life of rails. Put' i put. khoz. no. 7:10-
11 J1 '58. (MIRA 11:7)

1. Machal'nik distantsii, stantsiya Penza III Kuybyshevskoy dorogi.
(Railroads--Rails)

MILOV, D.A.

Re-examine the promotion system. Put' i put. khoz. no.2:9-10
F '59. (MIRA 12:3)

1. Nachal'nik otдела puti, zdaniya i sooruzheniy otdeleniya dorogi,
st. Penza Kuybyshevskoy dorogi.
(Railroads--Snow protection and removal)

MILOV, G. (Leningrad); KLIMIN, Ye. (Leningrad)

Ways to increase production. Prom.koop. 12 no.12:10 D '58.

(MIRA 12:2)

1. Predsedatel' pravleniya arteli "Kul'tigrushka" (for Milov).

2. Sekretar' partiynoy organizatsii arteli "Kul'tigrushka"
(for Klimin).

(Leningrad--Toy industry)

TAYTS, N.Yu.; TREGUBOV, V.V.; STETSENKO, A.M.; MILOV, I.I.; ZELENSKIY, V.D.

Scale formation during the heating of wheels in heat treating
ring furnaces. Izv.vys.ucheb.zav.; Chern.Met. 8 no.6:159-162

'65.

(MIRA 18:8)

1. Dnepropetrovskiy Metallurgicheskiy Institut.

S/137/62/000/006/050/163
A006/A101

AUTHORS: Yevstyukhin, A. I., Nikishanov, V. V., Milov, I. V.

TITLE: Niobium zone melting by the arc method

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 17, abstract 6G133
(In collection: "Metallurgiya i metalloved. chist.metallov", no. 3, Moscow, Gosatomizdat, 1961, 152 - 162)

TEXT: A unit was designed and tested, intended for zone melting of refractory metals by the electric-arc method. Zone melting was carried out with 5 specimens, 230 mm long, and 15 mm in diameter; the zone width was 20 mm. The speed of the zone motion was 0.5 mm/sec for all the specimens. The number of zone passes was different and equal to 16, 32, 32, 64 and 128 passes respectively. A chemical analysis of the specimens subjected to zone melting at 0.5 mm/sec zone motion speed shows that there is no substantial refining of Nb from Si, Ti, Fe. Pb admixtures were concentrated after refining in the end section. The refining effect increased with a greater number of passes. The coefficient of C distribution in Nb is more than one, i. e. C is concentrated in the initial portion

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Niobium zone melting by the arc method

S/137/62/000/006/050/163
A006/A101

of the ingot and moves opposite to the zone motion. There are 7 references.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/006/017/163
A006/A101

AUTHORS: Yevstyukhin, A. I., Milov, I. V., Nikishanov, V. V.

TITLE: Electron-beam method of metal melting and refining

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 1, abstract 6G7
(In collection: "metallurgiya i metalloved. chist. metallov", no. 3,
Moscow, Gosatomizdat, 1961, 249 - 263)

TEXT: The authors review the principles of developing and designing of units with electron-beam heating, used for melting, zonal refining of refractory metals and welding pure metals. The difficulties are pointed out which are encountered in the way of development of this method.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

S/755/61/000/003/025/027

AUTHORS: Yevstyukhin, A. I., Milov, I. V., Nikishanov, V. V.

TITLE: Electron-beam equipment of the type MIFI-9-4 for the melting and zone refining of metals.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallove-deniye chistykh metallov. no.3. 1961, 264-276.

TEXT: The paper describes the design and construction of a laboratory equipment for the melting and zone refining of metals by means of an electron beam, and substantiates its suitability for a number of scientific investigations and for the smelting of control specimens of pure metals and alloys, all of which are of especial value in nuclear-power production, semiconductor electronics, and the making of heat-resistant and refractory alloys. Fast-electron heating with a deep vacuum (10^{-6} torr) above the melt is conducive to fast and complete evaporation of volatile impurities. The electron-beam is uniquely effective in the remelting of such metals as Mo, W, Zr, V, Be, Cr, Fe, Nb, and Ta. Its power requirements are negligibly small, and the purity achieved is extremely high. Design target: Construction of a powerful lab equipment with a fairly low accelerating potential (up to 10 kv) and great emission current (up to 5 a), which is safe (small emission of γ -radiation)

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Electron-beam equipment of the type ...

S/755/61/000/003/025/027

up to its maximum power. An extremely high vacuum (exceeding that of existing metallurgical furnaces and any hitherto described in literature) was achieved by using a sorption pump with a Ti sorbent. The equipment (photograph and 5 cross-sectional drawings shown) comprises a vacuum melting chamber, the evacuating system, the high-voltage rectifier, the electron-beam power supply, the control desk, and mechanisms for the rotation of the annular crucible for zone melting and for the lowering of the ingot. Each of these components is depicted and described in detail. Three crucibles were designed: One for the smelting of small rod-shaped or oblate muffin-shaped ingots, another for the zone melting of metals, and a third for the smelting of cylindrical ingots. The mechanical details of the crucibles, provisions for the getter, the manipulator, and the reversible 3-phase rotator equipment are shown and explained. The provision of special speed reducers for the slow rotation of the crucible, ranging in 7 steps from 1/31.4 to 1/3,550 rpm, slow linear speeds from 10 to 0.089 mm/min, and gear-train values from 44,000 to 4,400,000, is described and illustrated. The electron gun can be raised and lowered 80-100 mm. The electron-gun displacement mechanism consists of two control handles, placed symmetrically with respect to the axis of the chamber, and the electron-gun lift mechanism. The pass hinges of the handles are rendered airtight by means of bellows. Any one electron-gun position can be locked. The evacuation system comprises a vacuum aggregate VA-2-3 with an oil-vapor diffusion pump

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Electron-beam equipment of the type ...

S/755/61/000/003/025/027

capable of 1,200 liters/sec at 10^{-4} - 10^{-5} torr and a VN-1 backing pump. At 10^{-5} torr the sorption pump (illustrated in cross-section) is engaged. Iodide Ti on a W core serves as the sorbent. The Ti wire is 1.5-mm diam and 400 mm long; it is heated to 1,300-1,350°C to produce a Ti evaporation rate of 7 mg/min. The hardest vacuum attainable is $5 \cdot 10^{-8}$ torr. The electrical equipment consists of a powerful high-voltage rectifier and a heating equipment. The rectifier includes six gas-filled ВГ-237 (VG-237) rectifier tubes, a starting device, and a transformer. The circuitry of the 3-phase star-connected rectifier, yielding a 6-phase pulsation wave, is shown. The 2-stage pre-heat and full-voltage automatic starting procedure is described. The stabilizing resistor network, intended to forestall any arc discharges, is described. There are 8 figures and 14 references (7 Russian-language Soviet, 4 Russian-language translations of English-language originals, 1 French, and 2 English-language).

ASSOCIATION: MIFI (Moscow Engineering Physics Institute).

Card 3/3

S/180/62/000/002/004/018
E025/E535

AUTHORS:

Milov, I.V., Okinshevich, V.V. and Skorov, D.M.
(Moscow)

TITLE:

On the temperature distribution in a rod in
crucibleless zone recrystallization

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Metallurgiya i toplivo, no.2,
1962, 56-62

TEXT:

The case is considered of the recrystallization of a
cylindrical rod with the ends maintained at the fixed temperature
 T_2 while the molten zone is maintained at the constant tempera-
ture T_1 . The molten zone is maintained at the constant tempera-
of power 1 . N. The liquid-solid boundary is assumed flat and
perpendicular to the axis of the rod. It is assumed (1) that the
loss of heat by evaporation in the solid phase is negligible,
(2) the rod is in a vacuum and the heat exchange with the residual
gases is negligible, (3) the heat flow from the walls of the
chamber containing the rod onto the rod is negligible. A relation
is obtained giving the distance from the molten zone as a

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On the temperature distribution ... S/180/62/000/002/004/018
E025/E535

function of the temperature and, by solving this equation, the temperature at any point can be obtained as a function of the coordinate of the point. This equation involves a linear relation between the thermal conductivity and the temperature and its further solution is not considered. The simpler relation found by assuming the thermal conductivity to be constant is considered. The solution is simplified by the consideration that to determine the power of the heat flow it is only necessary to determine the temperature gradient $\partial u/\partial x$ for $x = 0$. The value of N depends on the loss of metal by evaporation in the liquid zone, the loss due to radiation in the liquid zone and the losses due to radiation and thermal conductivity in the solid parts of the rod. The equation for N is obtained and it is shown that the power N which must be supplied to the zone increases in accordance with a parabolic law as the ends of the rod are approached. When the power supplied to the zone is constant the length of the zone decreases from the centre of the rod to its ends also by a parabolic law due to the increased heat losses at the ends of the rod. It is important to maintain the length of the zone stable as the effectiveness of purification depends on this. This can be
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On the temperature distribution ... S/180/62/000/002/004/018
E025/E535

done by programming the variation of cooling of the ends of the rod and, in the case of electron beam heating, by varying the emission current of the cathode as this is simpler than varying the voltage accelerating the electrons. In the case of induction heating the supply current of the inductor can be programmed. A study of the three dimensional problem of the temperature distribution in the rod is made by assuming the law of variation of the heat flow supplied to the rod along the length of the rod. Isothermal surfaces and lines of heat flow are sketched for this case. The condition is derived for the zone to be bounded by planes. The attempt to obtain a point focus for an electron beam in the case of electron ray heating is criticised on the ground that a point source leads to convexity of the zone boundaries and this convexity increases with the melting point of the material. It is stated that in induction heating the boundaries of the zone are concave. There are 5 figures.

SUBMITTED: September 23, 1961

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S/180/62/000/003/013/016
E071/E192

AUTHORS: Yevstyukhin, A.I., Nikishanov, V.V., and Milov, I.V.
(Moscow)

TITLE: Redistribution of carbon and tungsten in niobium
during zone refining

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Metallurgiya i toplivo,
no.3, 1962, 98-101

TEXT: Commercial niobium was zone refined in a 500 amp
arc discharge working closely to its transition into glow
discharge by operating at low helium pressures and imposing a
coaxial constant magnetic field, shifting a 15 mm long molten
zone at a constant velocity of 0.75 mm/min. Into one niobium
ingot with the initial carbon content of 0.03%, 0.005% of C14 and
into another with tungsten content of 0.03%, 0.01% of W182 were ✓
introduced to follow the zone refining. The isotopes were
introduced into a few holes uniformly distributed along the length
of the ingots and plugged with Nb. Uniform diffusion was
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Redistribution of carbon and tungsten... S/180/62/000/003/013/016
E071/E192

achieved by repeated reversal of the molten zone traverse and checked by taking counts along the length and cross-sections. The counts were taken after each of the ten passes. It was found that during the treatment carbon was transferred along the direction of the molten zone pass. The ratio of the concentrations of carbon at the beginning and the end of the ingot was 8:1. The cross-sectional distribution of carbon was uniform. A considerable loss of carbon, apparently as CO or CO₂, was also observed. The relative change in the concentration of tungsten at the beginning and end of the ingot was 4:1 (i.e. W concentrated counter-passwise). Changes in the activity of bottom layers indicated that in layers directly in contact with the crucible walls a considerable degree of purification also takes place, but it is lower than in the upper layer of the ingot. Some loss of tungsten takes place due to volatilization. Changes in the micro-hardness along the length of niobium ingots with and without Cl₄ before and after zone refining were also determined, which gave an indication of the cumulative effect of all contaminants. The maximum hardness was observed at the beginning of ingots,

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Redistribution of carbon and tungsten.. S/180/62/000/003/013/016
E071/E192

indicating that carbon has a smaller influence on the hardness of niobium than other admixtures which concentrate at the beginning of the ingot. It is concluded that the C and W content in commercial grade Nb can be considerably reduced by zone refining. There are 2 figures.

SUBMITTED: September 23, 1961

✓
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Card 3/3

YEVSTYUKHIN, A.I.; NIKISHANOV, V.V.; MILOV, I.V.

Zonal refining of niobium by the electric arc method. Issl. po
zharopr. splav. 9:218-226 '62. (MIRA 16:6)
(Niobium--Electrometallurgy) (Zone melting)

ACCESSION NR: AT4005961

S/2755/63/000/004/0069/0083

AUTHOR: Yevstyukhin, A. I., Nikishanov, V. V., Milov, I. V.

TITLE: Distribution of impurities in zone refined niobium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chisty*
kh metallov, no. 4, 1963, 69-83

TOPIC TAGS: niobium zone refining, niobium zone melting, niobium impurity, impurity
distribution, impurity transfer, impurity accumulation, impurity elimination, niobium
zone melting, zone refined niobium, high impurity niobium

ABSTRACT: Following a brief discussion of the theoretical basis of zone refining, in
which the authors classify the impurities in Nb on the basis of their solubility properties
and point out that W should move in the opposite direction from C, Fe and Pb, they report
experiments in which the distribution of C14, Fe59, W182 and nonradioactive Pb was
determined in bars of commercially pure niobium (230 mm long and weighing 150 g)
after zone recrystallization in an electric arc furnace (500 amps., 24.5 volts). The bars
were smelted in a helium atmosphere in Cu crucibles, with a zone length of 25 mm and a
rate of 0.75 mm/min. (also 30 mm/min. for Pb). The results shown in Figs. 1-4 of the

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ACCESSION NR: AT4005961

Enclosure confirmed the theoretical expectations and revealed good agreement between the radioactive and chemical techniques. Thus, the distribution coefficients of C, Fe and Pb were less than 1.0, while that of W was greater than 1.0; the concentration gradients between the beginning and end of the refined bar were 1:8 for C (best purification in zone 3-4), 1:5 for Fe and Pb, and 3.1-4.65:1 for W (Accumulation of W in the bottom of the bar). Due to the high solubility of Pb in Nb, evaporation plays a significant role here, this being the reason why purification is more effective at 0.75 than at 30 mm/min. Orig. art. has: 7 tables and 8 figures.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Institute of Physics and Engineering)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 04

SUB CODE: MM

NO REF SOV: 013

OTHER: 020

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Card

ACCESSION NR: AT4005968

S/2755/63/000/004/0175/0181

AUTHOR: Milov, I. V.; Skorov, D. M.; Nikishanov, V. V.

TITLE: Mechanical properties of zone refined beryllium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov, no. 4, 1963, 175-181

TOPIC TAGS: beryllium zone refining, beryllium property, beryllium micro-hardness, beryllium ductility, high purity beryllium, zone refined beryllium, beryllium zone melting, beryllium purification, beryllium mechanical property, beryllium

ABSTRACT: Wide application of beryllium as a structural material is limited because of its brittleness at room temperature. There are several techniques currently being tested for the production of plastic beryllium:

- (1) hot working of ingots, aimed at a certain orientation of crystallites;
- (2) alloying, aimed at fixation of the beta phase having a cubic lattice;

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Card

ACCESSION NR: AT4005968

- (3) grain refinement to 25 microns by powder-metallurgy processes;
- (4) purification by distillation, thermal decomposition of halides, and zone recrystallization.

Beryllium ingots were zone refined in a water-cooled copper crucible by the inert gas electric arc method, applying a zone propagation velocity of 0.75 mm/min. A columnar growth of grains was observed directly from the bottom and walls of the cooled crucible toward its axis and bending in the direction of the path of zone propagation. The length of the obtained grains reached 40-45 mm at a cross section of 2x3 mm. X-ray evidence did not disclose a clearly defined crystallographic orientation. Micro-hardness measurements, conducted at surfaces cut at right angles to the ingot axis, revealed that micro-hardness increases along the ingot in the direction of applied zone propagation. On the basis of micro-hardness measurements and crystallographic evidence, it was concluded that the basal plane, with small deviations, is oriented in the ingot at right angles to the direction of grain growth. This conclusion also confirmed the results of X-ray investigations.

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ACCESSION NR: AT4005968

Specimens for compression tests, 7mm in diameter x 9mm long, were prepared from different regions of the zone refined ingots, choosing for the specimens a similar grain orientation. Beryllium plasticity is strongly dependent on preferred grain orientation and grain size. Basal planes (0001) in the test specimens were inclined approximately 50° with respect to their axes. Prepared specimens were compression tested on the recording type testing machine (TsNIITMASH-I) with a capacity of 4000 kg. The stress-strain curves obtained were similar to compression curves of plastic metals. The following mechanical properties were determined by compression testing of specimens taken from different locations along the ingot, and from ingots subjected to different numbers of zone refining passes: ultimate compressive strength, ultimate longitudinal strain, yield strength, longitudinal strain at yield stress. Specimens which have been cut from the zone-travel-starting-end, exhibited the greatest strength and ductility. The zone-travel-starting-end contained beryllium of higher purity, and the impurities migrated in the direction of zone propagation. It was concluded that strength and ductility of beryllium decreased with an increase of impurities content. It was observed that some of the failed test specimens were somewhat twisted around their axis. Difficulties arose in the investigations of deformation and plastic properties of polycrystalline beryllium when directions of grain growth during recrystallisation were curvilinear in the

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ACCESSION NR: AT4005968

ingot. Investigation of the deformation mechanism on specimens exhibiting a normal grain growth was suggested. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Inzhenerno - fizicheskii institut, Moscow (Engineering - Physics Institute)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 00

SUB CODE: *MM, IC*

NO REF SOV: 004

OTHER: 004

Card

4/4

MILOV, I.V.; OKINSHEVICH, V.V.; SKOROV, D.M.

Possibility for an extension of the pressure range measurement
by the LT-2 thermocouple lamp. Zav. lab. 30 no.5:633 '64.
(MIRA 17:5)

1. Moskovskiy inzhenerno-fizicheskiy institut.

MILOV, K., inzh.

Prefabricated monolithic silo floors of grain elevators. Muk.-elev.
prom. 25 no.10:25-26 0 '59. (MIRA 13:3)

1. Kiyevskiy inzhenerno-stroitel'nyy institut.
(Grain elevators)

MEKSH, D. (Dnepropetrovsk); MILOY, H. (Dnepropetrovsk)

Economic effectiveness of the utilization of agricultural machinery
under the new conditions. Vop. ekon. no.2:64-73 F '60.

(MIRA 13:1)

(Dnepropetrovsk Province--Agricultural machinery)

skazol

SOLOMONIK, Veniamin Solomonovich; MILOV, Petr Nikolayevich;
SELIVERSTOVA, A.I., red.; VORONINA, R.K., tekhn. red.

[Collection of questions and problems in mathematics; a manual for applicants to special institutions of secondary education (technical, professional, and general schools)]
Sbornik voprosov i zadach po matematike; posobie dlia postupaiushchikh v srednie spetsial'nye uchebnye zavedeniia (tekhnikumy, uchilishcha, shkoly). Moskva, Vysshaia shkola, # 1961. 221 p. (MIRA 15:10)
(Mathematics--Problems, exercises, etc.)

SOLCHONIK, Veniamin Solomonovich; MILOV, Petr Nikolayevich
[deceased]; SELIVERSTOVA, A.I., red.

[Questions and problems in mathematics; textbook for persons entering secondary special educational institutions (technical schools)] Sbornik voprosov i zadach po matematike; posobie dlia postupaiuchchikh v srednie spetsial'nye uchebnye zavedeniia (tekhnikumy, uchilishcha, shkoly). Izd. 2. Moskva, Vysshaya shkola, 1964. 232 p. (MIRA 17:9)

МИСОВ, ПЕТР ВЛАДИМИРОВИЧ

021.01
.H61

Iran. Moskva, "Znaniye", 1957.
31 P. (Vsesoyuznoye Obshchestvo Po Rasprostraneniya Politicheskikh i
Nauchnykh Znaniy)

avs

L 29936-66 ENT(m)/I/EWP(w)/EWP(t)/ETI IJP(c) MJW/JD

ACC NR: AR6010659

SOURCE CODE: UR/0276/65/000/010/G023/G023

AUTHOR: Milov, S.

35
B

TITLE: Refining AL8U aluminum-magnesium alloy in a vacuum

SOURCE: Ref. zh. Tekhnologiya mashinostroyeniya, Abs. 10G134

REF SOURCE: Tr. Mezhotrasl. n.-i. i proyektnotekhnol. in-ta po avtomatiz. i mekhaniz. mashinost., vyp. 1, 1963, 5-13

TOPIC TAGS: aluminum base alloy, magnesium containing alloy, vacuum refining /AL8U aluminum base alloy

ABSTRACT: A method for refining alloy in a vacuum, using existent shop equipment permits degasifying the melt and teeming it in sand and metal molds. The developed technology of refining decreases the porosity of castings in the AL8U alloy. At the same time, the mechanical properties of the metal improve: the relative elongation up to 14%, and the temporary resistance up to 6%. This method can have wide application for other AL-Mg alloys as well as for all aluminum based alloys. 5 diag., 2 tables, 6 references.

SUB CODE: 11/ SUBM DATE: none

Card 1/1 CC

~~MILOV, Sergey Grigor'yevich; SMER, Yuliya Mikhaylovna; OBRAZTSOV, S.A.,~~
redaktor; TRUBNOVA, L.A., redaktor; AGAPOV, F.F., tekhnicheskiy
redaktor

[Work methods of innovators in sawmilling and woodworking] Metody
truda novatorov lesopilenia i derevoobrabotki. Moskva, Goslesbum-
izdat, 1955. 17 p. (MIRA 8:7)
(Woodworking industries)

MILOV, S.G.; TALALAYEV, Evgeniy Vasil'yevich, kand. biol. nauk; PANASOCHKIN,
L.A., otvetstvennyy za vypusk; GORNIN, M.V., red.

[Safety handbook for workers at reloading and rafting grounds]
Pamiatka po tekhnike bezopasnosti dlia rabochikh na reidakh i
perevalochnykh basakh. Moskva, Goslesbumizdat, 1956. 24 p.

(MIRA 11:10)

1. Russia (1923- U.S.S.R.) Ministerstvo lesnoy promyshlennosti.
TSentral'noye byuro tekhnicheskoy informatsii.
(Lumbering--Safety measures)

KOZHEVNIKOV, Viktor Grigor'yevich; MILOV, Sergey Grigor'yevich;
SELETSKIY, S.I., red.; MIKHAYLOVA, L.G., red.izd-va;
PARAKHINA, N.L., tekhn.red.

[Mechanization of log loading and sorting in lumber mills]
Mekhanizatsia vygruzki i sortirovki breven na lesozavodakh.
Moskva, Goslesbumizdat, 1961. 161 p.
(Sawmills)

(MIRA 15:4)

MILOV, V. M.

Dissertation: "Quantitative and Qualitative Composition of Protein and Its Modification in the Seeds of Peas and Chick-Peas." Cand Biol Sci, All-Union Inst of Plant Husbandry, ALL-Union Academy of Agricultural Sciences imeni Lenin (VASKhNIL), Leningrad, 1953. ~~Abstract~~
(Referativnyy Zhurnal--Khimiya, Moscow, No 4, Feb 54)

SO: SUM 243, 19 Oct 54

USSR/Farm Animals - General Problems.

6-1

Abs Jour : *Ref Zhur - Biol.*, No 10, 1959, 33306

Author : *Milov, V.M.*

Inst :

Title : The Carotene Content of Corn Greens.

Orig Pub : *Zhivotnovodstvo*, 1957, No 3, 31-32

Abstract : The carotene content in various varieties of corn (Vil 29, Harkovets, West-Carpathian, Khar'kov, Dnepropetrovsk, North-Western) fluctuates in leaf blades between 15.1 and 15.6 mg, and in the entire plant between 13.9 and 15.3 mg (per 1 kg of raw mass) when it was harvested during its milky and milky-waxy stages of ripening. The carotene content depends upon soil fertility and soil humidity which prevail during vegetation period.

Card 1/1

- 11 -

L 17096-63

EWP(k)/EWP(q)/EWT(m)/BDS AFETC/ASD Pf-4 JD/HW

ACCESSION NR: AP3004268

S/0128/63/000/007/0033/0035

AUTHORS: Milov, V. N.; Semin, V. I.

63

TITLE: Drawing of thin-section shapes from molten metal

SOURCE: Litaynoye proizvodstvo, no. 7, 1963, 33-35

TOPIC TAGS: thin section, capillary action, molecular attraction, surface tension

ABSTRACT: The process of drawing thin-section shapes from molten metal is based on the principle that surfaces of some solids cannot be wetted by a given liquid. In Fig. 1 (see Enclosure 1) pointer 4 shows an aperture in a mold held in contact with molten aluminum. The material of the mold is nonwetable by aluminum. The shape of the aperture duplicates the desired shape to be drawn. If copper foil (wetable) is introduced into the aperture, aluminum will creep up on the foil. Cooling water from apparatus 5, 6, and 7 causes the crystallization of aluminum within the aperture, as shown by Fig. 2. Here letter a indicates the zone of chilling, b - the zone of crystallization, and c - the zone of liquid aluminum. When the foil is pulled upward at a certain rate, it draws with it an aluminum column of desired cross section. In experimental work the drawing mechanism operated at a speed range of 0.5 to 25 m/hr. Orig. art. has: 12 figures.

Card 1/1

S/0274/64/000/001/A082/A082

ACCESSION NR: AR4023766

SOURCE: RZh. Radiotekhnika i elektrosvyaz', Abs. 1A539

AUTHORS: Kurochkin, S. S.; Krashennnikov, I. S.; Milov, Yu. G.

TITLE: Analyzers with many pickups

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2. Ch. 2. M., Gosatomizdat, 1963, 31-46

TOPIC TAGS: pulse analyzer, multichannel analyzer, nuclear particle angular distribution, statistical analysis, pulse counting rate, analyzer dead time

TRANSLATION: In a large number of experiments many pickups are used simultaneously, and if their signals are recorded channel by channel, the apparatus turns out to be quite complicated. A much more compact installation consists of a recording part of a multichannel

Card 1/2

ACCESSION NR: AR4023766

analyzer used in conjunction with an input coding unit, which connects each pickup with a definite address of the recording part. The transmitter signal is first distinguished from the background by its level, sign, or some other parameter. Such systems can be used, for example, in a statistical analysis of angular distribution of nuclear particles. Coding devices of the sequential and parallel types are considered, along with the problems involved in the construction of systems consisting of many pickups with analyzers. Two types of analyzers are described and circuits are presented for their principal units. It is shown that owing to the considerable dead time (20--30 microseconds) the efficiency of such systems is inadequate in the case of large loads, but when the pulse counting rate is less than one pulse per second, this shortcoming can be neglected. Bibliography, 4 titles. I. B.

DATE ACQ: 03Mar64

SUB CODE: PH, GB

ENCL: 00

Card 2/2

ACC NR: AT6036653

SOURCE CODE: UR/0000/66/000/000/0214/0280

AUTHOR: Mirzoyev, B. M.; Milov, Yu. I.; Virovets, O. A.

ORG: none

TITLE: Effect of an acoustic shock wave on some humoral endocrine functions of the human organism [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); Materialy konferentsii, Moscow, 1966, 279-280

TOPIC TAGS: biologic effect, sonic boom, endocrinology, human physiology, pituitary gland, adrenal gland

ABSTRACT:

The cumulative effect of acoustic shocks (pulsed noise waves) was studied in two series of experiments with 12 and 14 human subjects, respectively. (Acoustic shock or sonic boom was imitated in laboratory conditions.) Subjects were exposed to acoustic shocks with an intensity of 7--7.5 kg/m² (first series) or 9--9.5 kg/m² (second series) with 10--15 min intervals between shocks. Acoustic shocks were administered daily for 5--6 days at the same time of day [total number of shocks not given].

Card 1/3

ACC NR: AT6036653

Physiological functions, including EEG, EKG, blood pressure, etc., were recorded prior to each acoustic shock and 1, 5, and 10 min later. Sugar and corticosteroid levels in the blood were determined, as well as adrenaline, norepinephrine, creatinine, potassium, and sodium levels in the urine, both before and after each experiment.

Experimental results showed no reliable changes in the blood-sugar level after either individual or multiple acoustic shocks. A tendency to increase diuresis was noted on the first day of the first series of experiments; on the 5th day this tendency was reversed. In the second series, diuresis persisted throughout the experiment. More creatinine was excreted on the first day of the first series and less on the fifth day (corresponding to changes in diuresis). In the same subjects sodium excretion increased on the first day. However, in the second group there was only a tendency toward increased sodium excretion on the fifth day. Remaining indices, such as adrenaline and epinephrine levels, did not change significantly, indicating a lack of influence of acoustic shock at the given levels. However, it must be remembered that shifts in diuresis and in sodium and creatinine excretion in the first series (with acoustic shocks of lower intensity) were more pronounced than in the second group.

Card 2/3

ACC NR: AT6036653

Corticosteroid analysis showed no basic change in the first series (acoustic shock of 7--7.5 kg/m²). However, an increased corticosteroid level was observed throughout the second series (shock intensity of 9--9.5 kg/m²). These data indicate that certain levels of acoustic shock can activate the pituitary-adrenal system and render an unfavorable effect on the organism.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

MILOVA, A.; STROS, O.; TEJMAR, J.; ZAHRADKOVA, L.

Stenotic respiration in physical work. *Cesk. fysiolog.* 8 no.3:224 Apr 59.

1. Ustav hygieny, Praha. Predneseno na III. fysiologickych dnech v Brne dne 14. 1. 1959.

(WORK, physiol.
resp. (Cz))

(RESPIRATION, physiol.
eff. of work (Cz))

HAVRANEK; MILOVA, A.; MUSIL, M.; ZAHRADKOVA, L.

Hygiene of communities. Cesk. hyg. 7 no.6:337-340 J1 '62.
(PUBLIC HEALTH)

BALIK, S.; CHALUPSKY, L.; MILOVA, A.

Graphical device for approximate calculation of artificial
room lighting. Cesk. hyg. 9 no.2:105-111 Mr'64

1. Ustav hygieny, Praha, Tesla-Holesovice, n.p., Vyzkum
svetelných zdrojů a osvětlování.

*

SECRET

MILOVA, A.

Prague, Czechoslovakia, 1968, p. 11-12

"The appraisal of the new prototype of 'electronic' medicine
in hospital rooms."

L 13156-66

ACC NR: AF6005664

SOURCE CODE: CZ/0079/65/007/002/0175/0176

AUTHOR: Milova, A.; Balik, S.; Jisova, H.

ORG: Institute of Hygiene, Prague

TITLE: Changes in the adaptation width of the visual analyzer produced by reading landolt panels in subjects of different age [This paper was presented at the Third Interdisciplinary Conference on Experimental and Clinical Study of Higher Nervous Functions held in Marianske Lazne from 19 to 23 October 1964.]

SOURCE: *Activitas nervosa superior*, v. 7, no. 2, 1965, 175-176

TOPIC TAGS: man, vision, human physiology

ABSTRACT: The authors determined that the course of the adaptation curve is influenced even by a short-time visual load. No changes in the adaptation curve after a standard visual load in a standard environment differ in various subjects. In people 20-25 years of age, the differences were permanently positive (between values before and after load), in women of age 30-35 the differences were first negative, and after 5 min positive; in men of the same age differences were negative for 10 min. and then disappeared. Men and women over 40 to 45 showed an opposite trend, that is negative values were found for women, and positive for men. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 06 ✓ SUBM DATE: none
Card 1/1 NW

13
B

L 13155-66

ACC NR: AP6005665

SOURCE CODE: CZ/0079/65/007/002/0177/0177

AUTHOR: Balik, S.; Milova, A.; Tejmar, J.

ORG: Institute of Hygiene, Prague; Laboratory of Work Analyses, Research Institute of Engineering Technology and Economics, Prague

TITLE: Changes in the adaptation curve after a visual load [This paper was presented at the Third Interdisciplinary Conference on Experimental and Clinical Study of Higher Nervous Functions held in Marianske Lazne from 19 to 23 October 1964.]

SOURCE: Activitas nervosa superior, v. 7, no. 2, 1965, 177

TOPIC TAGS: man, vision, human physiology

ABSTRACT: In 5 women aged 20-25 years adaptation curves were measured. A half-hour performance changed significantly the results of adaptometry in the negative sense. When using the cancellation test, the load on the visual analyzor should be considered. The authors thank Engr. Z. Mokry from the Institute of Hygiene for the statistical analysis. Orig. art. has: 1 table. [JPRS]

SUB CODE: 06 / SUEM DATE: none

Card

1/1 HW

BALIK, S.; CHALUPSKY, L.; MILOVA, A.

A proposal and evaluation of a prototype fluorescent lamp for hospital bedrooms. Cesk. hyg. 10 no.2:71-80 Mr '65

Industrial Medicine

CZECHOSLOVAKIA

BALIK, S.; MILOVA, A.; JISOVA, H.; AUBRECHTOVA, M.; Institute of Hygiene, Prague. [Orig. version not given].

"Visual Performance at Fluorescent Illumination of Various Spectral Radiance Distribution."

Prague, Activitas Nervosa Superior, Vol 8, No 2, Jun 66, pp 211-212

Abstract: Fluorescent light closest to the composition of daylight was investigated. Experiments were conducted with 15 women aged 20-40 years. The best vision was obtained with natural daylight, the closest to it white fluorescent light, next was pink fluorescent light, and worst results were found with incandescent lamps. Best results were obtained at an intensity of 100 lux, the poorest, with the weakest intensity tested, 25 lux. 1 Figure, 2 Tables, no references. Submitted at the 4th Conf. of Exper. and Clin. Study of Higher Nerv. Functions at Mar. Lazne, 12-15 Oct. 65. Article is in English.

1/1

USACHEVA, N.T.; MILOVA, G.N.

Differentiated requirements of the brain for individual amino acids.
Vop. pit. 23 no.6:17-21 N-D '64. (MIRA 18:6)

1. Laboratoriya klinicheskoy enzimologii (zav. - prof. A.A.Pokrovskiy)
Instituta pitaniya AMN SSSR, Moskva.

MILOVA, I.S., inzhener.

~~Efficient workers improve production technology.~~ Der. 1 lesokhim.
prom. 3 no.8:26 Ag '54. (MLRA 7:8)

1. Rizhskiy mebel'nyy kombinat No. 1.
(Furniture industry)

MILOVA, I.Ye.

"The Boivin precipitation reaction in the serological diagnosis of typhoid fever."
Biologicheskiye Antiseptiki, pp 206-218, 1950.

Translation-M-343, 21 Apr 1955.

MILOVA, L.M., gornyy inzh.

Two mines - two results. Ugol' Ukr. 3 no.2:40-41 F '59.
(MIRA 12:3)

1. Donetskiy ugol'nyy institut.
(Coal mines and mining--Labor productivity)
(Mine management)

PROGNIMAK, D.Ya.; NEYYENBURG, V.Ye.; MILOVA, L.M.; SHIRYAYEV, R.V.

Technical and economic analysis of coal production in the
hydraulically mined section of "Novo-Grodovka" Mine No.3.
Sbor.DonUGI no.22:20-28 '61. (MIRA 15:6)
(Donets Basin--Hydraulic mining)

PROGNIMAK, D.Ya.; NEYENBURG, V.Ye.; MILOVA, L.M.; TOLKATSER, D.Ya.

Method of analyzing the technical and economic indices of hydraulically mined sections of mines using otherwise conventional mining methods. Sbor.DonUGI no.22:29-39 '61. (MIRA 15:6)
(Donets Basin--Hydraulic mining) (Mining engineering--Costs)

GELLER, Z.I.; MILOVA, N.A.; KOVAL'SKIY, Ye.V.

Evaporation and combustion of highly viscous cracking-
residue droplets. Izv. vys. ucheb. zav.; neft' i gaz 2 no.6:
73-78 '59. (MIRA 12:10)

1. Groznenskiy neftyanoy institut.
(Cracking process)

NIZKOVSKAYA, O.P.; MILOVA, N.M.;—SHIVRINA, A.N.; LOVYAGINA, Ye.V.;
PLATONOVA, Ye.G.

Biology and biochemistry of "chaga," the sterile form of *Poria obliqua*. Trudy Inst. mikrobiol. no. 6:277-285 '59. (MIRA 13:10)

1. Laboratoriya novykh antibiotikov Botanicheskogo instituta AN SSSR.

(PORIA OBLIQUA)

SHIVRINA, A.N.; NIZKOVSKAYA, O.P.; LOVIAGINA, Ye.V.; PLATONOVA, Ye.G.;
MILOVA, M.M.

Chemical composition of pore fungi at different stages of their
development. Bot.shur. 44 no.12:1724-1727 D '59.
(MIRA 13:4)

1. Botanicheskiy institut im. V.L.Komarova Akademii nauk SSSR,
Leningrad.

(Mushrooms--Chemical composition)

NIZOVSKAYA, O.P.; SHIVRINA, A.N.; LOVYAGINA, Ye.V.; PLATONOVA, Ye.G.;
MILOVA, N.M.

Conditions for the formation of the pigment complex of *Inonotus obliquus* in artificial cultures. *Mikrobiologiya* 29 no.3:441-445
My-Je '60. (MIRA 13:7)

1. Botanicheskiy institut im. V.L.Komarova AN SSSR, Leningrad.
(WOOD-STAINING FUNGI)

NIZKOVSKAYA, O.P.; MILOVA, N.M.

Antagonistic characteristics of Basidiomycetes. Mikrobiologiya
32 no.5:771-777 S-0'63 (MIRA 17:2)

1. Botanicheskiy institut AN SSSR.

LINKOVSKIY, Georgiy Borisovich, inzh.; MILOVA, Tamara Petrovna, inzh.

Accuracy of voltage determination dependent on errors in the
measurement of resistance and current intensity. *Izv. vys.*
ucheb. zav.; elektromekh. 5 no.12:1419 '62. (MIRA 16:6)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Electric measurements)

LINKOVSKIY, G.B., inzh.; MILOVA, T.P., inzh.

Calculation of a four-terminal network. Izv. vys. ucheb. zav.;
energ. 6 no.7:106-108 J1 '63. (MIRA 16:8)

1. Institut radiotekhniki i elektroniki AN SSSR.
(Electric networks)

L 13778-65 EWT(m)/EPE(n)-2/T/EWP(t)/EPA(bb)-2/EWP(b) Pu-4 ASD(m)-3/ASD(f)-2
ACCESSION NR: AP4046091 JD/JG S/0126/64/018/003/0389/0395

AUTHOR: Gavrilyuk, M. I.; Milova, V. B.; Konstantinov, V. A. B

TITLE: Investigation of the effect of recrystallization annealing on the structure and properties of tantalum and its alloys

SOURCE: Fizika metallov i metallovedeniya, v. 18, no. 3, 1964, 389-395

TOPIC TAGS: tantalum, tantalum tungsten alloy, tantalum recrystallization, tantalum tungsten alloy recrystallization, tantalum tungsten alloy property, tantalum property

ABSTRACT: Study of the effect of annealing temperature on the hardness, microstructure, impurity content, and lattice parameters of arc-cast and electron-beam-melted tantalum and of tantalum alloys with 10% W has shown that in both cases the dependence of hardness upon the annealing temperature follows the same pattern (see Fig. 1 of the Enclosure). In the 1200-2300C range, both tantalum and its alloy have a single-phase structure. The recrystallization tempera-

Card 1/4

L 13778-65

ACCESSION NR: AP4046091

tures of arc-cast tantalum and tantalum alloy were found to be 1200—1300C and 1500C, respectively, and those of electron-beam-melted tantalum and tantalum alloy (higher purity), 1000—1100C and 1300C, respectively. These results indicate that the recrystallization temperature depends to a great extent on the impurity content. During the recrystallization of tantalum and its alloys, and of other refractory metals, intercrystalline adsorption of impurities occurs. The minimum content of impurities within the grains is observed with annealing at temperatures exceeding the recrystallization temperature of the metal by 100—200C. A further increase in temperature leads to a reversed migration of impurities into the grains. The increase in hardness, and the accompanying decrease in ductility and increase in the tantalum lattice parameter after annealing at 1800C, are explained by the reverse migration of impurities and the contamination occurring during heat treatment. The fact that different refractory metals show different behavior during recrystallization can be explained by the different solubilities of interstitial elements in those metals. Orig. art. has: 3 figures and 3 tables.

Card 2/4

L 13778-65

ACCESSION NR: AP4046091

ASSOCIATION: none

SUBMITTED: 14Aug63

ENCL: 01

SUB CODE: MM

NO REF SOV: 006

OTHER: 005

ATD PRESS: 3131

Card 3/4

I. 13778-65

ACCESSION NR: AP4046091

ENCLOSURE: 01 -

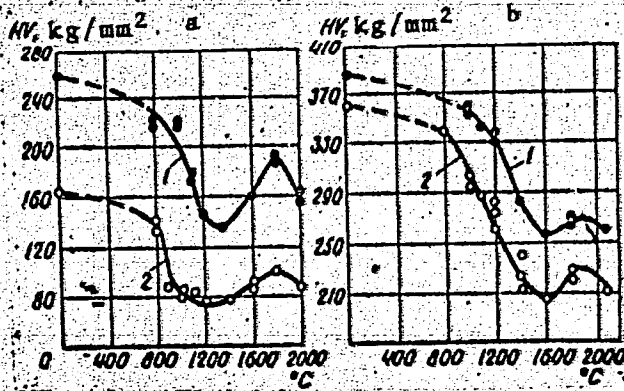


Fig. 1. Dependence of hardness of arc-cast (1) and electron-beam-melted (2) tantalum (a) and tantalum-tungsten alloy (b) upon annealing temperature

Card 4/4

L 36867-66 EWT(m)/EWP(k)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6023618

SOURCE CODE: UR/0136/66/000/007/0083/0085

AUTHOR: Zaboronok, G. F.; Milova, V. B.; Polyakova, M. D.;
Simonishvili, T. V.

ORG: none

TITLE: Effect of ultrasonic vibration on the structure of electron-
beam melted molybdenumSOURCE: Tsvetnyye metally, no. 7, 1966, 83-85TOPIC TAGS: molybdenum, molybdenum melting, electron beam melting,
ultrasound application, ultrasound effect, molybdenum property,
*CRYSTALLIZATION*ABSTRACT: The effect of subsonic and ultrasonic vibrations on the
crystallization of molybdenum, electron-beam melted in a $5 \cdot 10^{-4}$ mm Hg
vacuum, has been investigated. Subsonic vibrations at a frequency of
1000 cycle/min reduced the grain size from 3—5 mm to 2—3 mm. Ultra-
sonic vibrations with a frequency of 2—18 kilocycle substantially
reduced the grain size in the transverse direction but had very little
effect on the grain size in the longitudinal direction, leaving the
columnar structure unchanged. The Brinell hardness of molybdenum
melted with ultrasound amounted to 153—156 kg/mm², i.e., was of the
same order as that of molybdenum melted without ultrasound. Preforged

Card 1/3

UDC: 669.28:620.18

L 36867-66

ACC NR: AP6023618

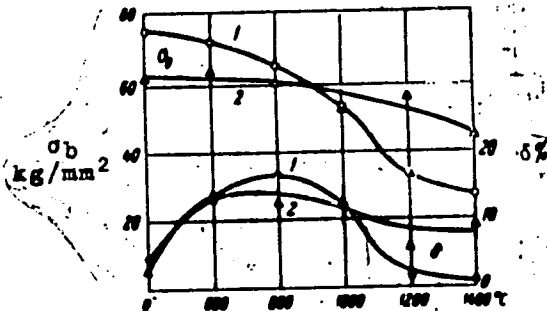


Fig. 1. Effect of annealing temperature on strength (σ_b) and elongation (δ) of molybdenum electron-beam melted without (1) or with (2) ultrasound

ingots were rolled into sheets 1 mm thick. The respective tensile strength and elongation of cold-rolled sheets melted with ultrasound were 75.0 kg/mm² and 4.8% compared to 62.1 kg/mm² and 2.8% for conventionally electron-beam melted metal. Vacuum annealing at 600—1400C for 1 hr greatly affected the strength and ductility of conventionally melted metal, but affected much less those of metal melted with the application of ultrasound (see Fig. 1). Further research should include the application of 1) ultrasonic generators and transducers which would ensure the maximum amplitude in crystallization zone, 2) ultra-

Card 2/3

L 36867-66

ACC NR: AP6023618

sonic waves in the direction perpendicular to the ingot axis, 3) ultrasonic waves propagating in two mutually perpendicular directions, and 4) ultrasound combined with modifiers. Orig. art. has: 5 figures and 1 table. [ND]

SUB CODE: 13, 11/ SUBM DATE: none/ ATD PRESS: 5040

Card 3/3

ACC NR: AP7002439

(A)

SOURCE CODE: UR/0219/66/000/012/0049/0050

AUTHOR: Zaboronok, G. F.; Milova, V. B.; Polyakova, M. D.; Simonishvili, T. V.

ORG: none

TITLE: Some properties of unalloyed polycrystalline molybdenum

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1966, 49-50

TOPIC TAGS: molybdenum, polycrystal, arc furnace, tensile strength, plasticity, annealing, embrittlement

ABSTRACT: The material was remelted without deoxidation in a JEVN-03 electron-beam furnace, and cast into ingots 25 mm in diameter and up to 300 mm high. The following melting conditions were used: the feed rate of the rod was 10-20 mm/min, the melting rate was 23.7-47.4 g/min, and the pressure was $2 \cdot 10^{-4}$ - $7 \cdot 10^{-5}$ mm Hg. Impurity contents are given for the original and remelted molybdenum. After remelting the O_2 content decreased from $6 \cdot 10^{-3}$ wt % to $4 \cdot 10^{-4}$ wt %. The ingots were hot worked into rods and billets, cold worked, and recrystallized by annealing in a vacuum for 10 hr at 1000°C. Results are given on the hardness, microhardness, electrical resistivity, elastic modulus, and other elastic properties determined by the resonance method. The ultimate tensile strength and ductility are given as functions of annealing temperature. Annealing was done at a residual pressure which did not exceed $1 \cdot 10^{-4}$ mm Hg.

UDC: 669.28:620.17

Card 1/2

ACC NR: AP7002439

At a deformation rate of 3 mm/min, the ultimate strength decreased as a function of annealing temperature, the greatest decrease occurring at 1000-1200°C. The relative elongation went through a maximum (16.4%) after annealing at 800°C. Orig. art. has: 1 figure, 2 tables.

SUB CODE: 11/ SUBM DATE: none

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