L 8945-66   EWT(m)/EWA(d)/EWP(j)/T/EWP(t)/EWP(b)/EWA(c)   RPL   JD/JW/WB/RM

ACC NR: AP5026518   SOURCE CODE: UR/0286/65/000/019/0049/0049

AUTHORS: Gershenovich, A. I.; Stefanovich, V. V.; Kil'rud, S. S.; Khodkina, V. Ye.;
Shmygul', V. G.; Vydrova, Ye. A.

ORG: none

TITLE: Method for obtaining surface-active quaternary ammonium compounds. Class
23, No. 175163 /announced by Organization of State Committee for Chemical Industry
at the Gosplan SSSR (Organizatsiya gosudarstvennogo komiteta khimicheskoy
promyshlennosti pri gosplane SSSR) /

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 49

TOPIC TAGS: surface active agent, ammonium compound, polymer, polymerization

ABSTRACT: This Author Certificate presents a method for obtaining surface-active
quaternary ammonium compounds by chloromethylating aromatic hydrocarbons, followed
by condensation of the chloromethylated product with pyridue or its homologues or
with tertiary aliphatic amines. To simplify the process, chloromethylation is
carried out in a hydrochloric acid medium and the condensation in an aqueous medium.

SUB CODE: 07/   SUBM DATE: 08Sep64

                                        UDC: 661.185—322.3

Card 1/1

SAVKEVICH, I.A., inzh; MIL'SHENKO, R.S., inzh.; ZHELVAKOV, A.A., inzh.

High frequency moisture meter. Ogneupory 18 no.9:396-400 '53.
(MIRA 11:10)

1.Semilukskiy shamotnyy zavod.
(Refractory materials--Testing)

137-58-6-13808

.Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 372 (USSR)

AUTHOR: Mil'shenko, R.S.

TITLE: High-frequency Apparatus for Rapid Determination of Moist-
             ure of Green Brick (Vysokochastotnyy pribor dlya bystrogo
             opredeleniya vlazhnosti syrtsa)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii. M-vo chernoy
             metallurgii SSSR, 1957, Vol 12, pp 288-290. Diskuss. pp
             299-347

ABSTRACT: A high-frequency moisture meter (HFM) was tested and in-
             troduced into production at the Semiluki refractory-brick plant
             for determining the moisture of green brick, semi-dry-pressed
             after drying, which usually fluctuates between 1 and 5%. The
             operating principle of the HFM is based on the variation in the
             dielectric constant of a condenser-type probe depending on the
             moisture of the green brick being tested. The arrangement of
             HFM consists of two sonic-frequency generators, an amplifier,
             a power-supply block consisting of a transformer and a keno-
             tron, a dynamic indicator, and the condenser-type probe be-
Card 1/2   tween the plates of which the green brick to be tested for

137-58-6-13808

High-frequency Apparatus for Rapid Determination of Moisture (cont.)

· moisture is clamped. The dimensions of the condenser-type probe are 120 x 200 x 300 mm, the weight 6.83 kg; the weight of the apparatus aside from the condenser is 9 kg. The apparatus works on a 220-v A-C current. The nondestructive determination of moisture on green brick by means of the HFM requires 30 sec. The precision of the determination of the moisture content depends on its absolute value. 70% of results fall into a range of deviation of ±2% for moistures of the green brick up to 1.1%; 91% of results fall into a range of ±0.5% for moistures up to 5.7%. The preservation of whole green brick through nondestructive control determination of moisture in dried products saves the plant 200,000 rubles a year.

S.G.

1. Refractory materials--Moisture content   2. Refractory materials--Test results
3. Moisture meters--Design   4. Moisture meters--Equipment   5. Moisture meters
--Operation

Card 2/2

MILSHENKO, R. S.

1642. High-alumina refractories made from slags resulting from the production of metallic chromium. V. A. Bron, I. A. Savkevich, and R. S. Mil'shenko (Ogneupory, 22 49, 1957). In Russian. The slag contains 78° Al_2O_3 and 14-12% Cr_2O_3. P C E. 1,850°; R.u.L. for products without a clay bond is 1650°

urnace roofs, etc. (4 figs., 10 tables)

RM RG

WL

1. Ural Dept., Inst. Refractory Materials. (For Bron)

2. Semiluks Refractory Materials Plant. (for Savxevich, Mil'shenko)

MIL'SHENKO, R.S

Refractories high in Al₂O₃ from slags from the production of chromium metal. V. A. Bron, T. A. Savkevich, and R. S. Mil'shenko. *Ogneupory* 22, 49-55(1957).—The highly aluminous slag produced in the thermite process in which Cr ores are reduced to the metal are the raw material for a new type of refractory. They contain corundum (α-Al₂O₃) 30-5, Na₂O.11Al₂O₃ ("β-corundum") 60-70, and glass and metal droplets 2-5%. The alkali content is relatively high (2-4%). The optical properties of the β-corundum are $\omega = 1.682$ and $\epsilon = 1.666$, but these may be increased to $\omega = 1.710-1.718$ and $\epsilon = 1.690 - 1.695$ by addn. of Cr₂O₃. The α-Al₂O₃ is usually rose-colored with a distinct pleochroism, $\omega = 1.80 - 1.97$ and $\epsilon = 1.78 - 1.950$. An attempt was made to bind the crushed and assorted slag material with a refractory kaolin and lignosulfite brine. These binders, however, decrease the very high refractoriness of the pure slag material. A brick was produced contg. Al₂O₃ > 75%, Cr₂O₃ 10-12%, and a kaolin binder 5-10%. The refractoriness of the new material is 1850-1900°, deformation under load begins at 1500-1600°, it has a remarkably high heat conductance and d. (3.80), the coeff. of thermal expansion is 7.0×10^{-4}, and the thermal shock resistivity is excellent (more than 100 cycles).   W. Eitel

AUTHORS: Zhikharevich, S.A., Getman, I.A., Kozyreva, L.A.,   :3· :2-4 C/ 7
                Savkevich, I.A., Mil'shenko, R.S., Konetskiy, N.V.

TITLE: The Production Technology of Highly Aluminous Dense Products When
                Using the Dispersed Concentrate of the Aktash Occurrence
                (Tekhnologiya proizvodstva vysokoglinozemistykh plotnykh izdeliy
                s primeneniyem aktashskogo diasporovogo kontsentrata)

PERIODICAL: Ogneupory, 1958,   .   Nr 4, pp. 175-179 (USSR)

ABSTRACT: Experiments showed that this dispersed concentrate is not easily
                caked together at high temperatures even if previously finely
                crushed. Further, the result of petrographic investigations car-
                ried out by N.V. Gul'ko is given. An illustration shows the prop-
                erties of samples from 100% dispersed concentrate of the Aktashsk
                occurrence at a pressure of 200 kg/cm^2 and a burning temperature
                of up to 1700°. If the dispersed concentrate is burned twice its
                quality is improved but the working process is rendered more com-
                plicated. Experiments were therefore carried out in which previ-
                ously burned and finely ground dispersed concentrate is used as a
Card 1/3   dust-like component of the fire-clay mass (dispersed fire clay).

The Production Technology of Highly Aluminous Dense   13:-5£ 4-0/'7
Products When Using the Dispersed Concentrate of the
Aktash   Occurrence

        The properties of dispersed fire clay and of such made of technical
alumina and clay are given in table 1. The characteristic of the
masses and the properties of the crude samples may be seen from
table 2, and those of samples burnt at 1520° from table 3. Further-
more, an industrial quantity of blast furnace bricks of the type
D-2 was made. The granulation of the fire clay is shown in table 4
and the characteristic of the mass and the raw products are shown
in table 5. Conclusions: 1.) By a joint application of the dis-
persed concentrate and technical alumina it is possible to obtain
highly aluminous dense products. 2.) The dispersed aluminous pro-
ducts with a porosity of less than 12% have a good structure, they
are of low permeability for smelts and gases, and have a volume
stability at 1500-1550°. It is recommended to intensify the search
for dispersed ores on the condition that costs are considerably re-
duced. There are 1 figure, 5 tables, and 5 references, 4 of which
are Soviet.

Card 2/3

The Production Technology of Highly Aluminous Dense   131-58-4-10/17
Products When Using the Dispersed Concentrate of the
Aktash   Occurrence

ASSOCIATION: Khar'kovskiy institut ogneuporov (Khar'kov Institute for
                Refractories)
                Voronezhskiy Sovnarkhoz (Voronezh Economic Council)
                Semilukskiy ogneupornyy zavod (Semiluki Plant for Refractories)

Card 3/3

15(2)

AUTHORS: Mil'shenko, R. S., Petrova, M. D.   SOV/131-59-3-14/18

TITLE: Application of the Sound Method to the Classification of Chamotte
             Products (Primeneniye zvukovogo metoda dlya pasportizatsii shamot-
             nykh izdeliy)

PERIODICAL: Ogneupory, 1959, Nr 3, pp 141-142 (USSR)

ABSTRACT: The Semiluki plant of refractories carried out experiments together
             with the Vsesoyuznyy institut ogneuporov (All-Union Institute of
             Refractories) using the sound method determination of the coefficient
             of elasticity for the control of the quality of chamotte products.
             The dependence between the apparent porosity, the pressure-rupture
             resistance and the frequency of eigen oscillations of the products
             was determined. For this purpose the device IChMK was used which
             was produced by the Leningradskiy elektrotekhnicheskiy institut im.
             Ul'yanova (Lenina) (Leningrad Electrotechnical Institute imeni
             Ul'yanov (Lenin)). This device permits the testing of whole bricks
             without destroying them. Thus, a considerable amount of bricks was
             saved without any destruction. Usually the bricks had to be crushed
             for the control tests of the individual parts. This control method
Card 1/2   is to be applied also to other refractories.

SOV/131-59-3-14/18

Application of the Sound Method to the Classification of Chamotte Products

ASSOCIATION: Semilukskiy ogneupornyy zavod
                (Semiluki Plant of Refractories)

Card 2/2

15 (2)

AUTHORS: Mil'shenko, R. S., Khosid, G. M.

S/131/60/000/02/...
B015/B008

TITLE: Production of Ladle- and Regenerator Bricks From Raw Material
                of the Arkalyk Deposit

PERIODICAL: Ogneupory, 1960, Nr 2, pp 53-57 (USSR)

ABSTRACT: The authors describe the two variants used for the experiments:
                one with high alumina content and a basic one. The chemical
                composition and refractoriness of the raw materials are men-
                tioned in table 1, and the chemical composition of the clay
                in table 2. The production of the chamotte with high alumina
                content for the experimental batches as well as the later
                investigations of the raw masses are described next. For com-
                parison purposes, the masses A3 and A14 were produced with a
                high chamotte content, the grain of which can be seen from
                table 3. The composition and properties of the samples of
                these batches are mentioned in table 4. The production of
                bricks from the variant with high alumina content is described
                next. The products complied with GOST 5341-50 and ?????
Card 1/3   standards for ladle bricks with high alumina content. The

Production of Ladle- and Regenerator Bricks From   S/131/60/000/0?/ ?? ??
Raw Material of the Arkalyk Deposit   B015/B008

               characteristic of the experimental ladle bricks is mentioned
in table 5. The properties of the regenerator bricks with high
alumina content, which surpassed those of the specifications
of the ChMTU 5235-55, are mentioned in table 6. Chamotte ladle
bricks from the basic Arkalyk variant were pressed experi-
mentally on the press of type SM-143. A weight by volume of up
to 2.28-2.30 g/cm^3 was obtained (Diagram). It is stated in con-
clusion that ladle bricks having a much greater stability than
the customary chamotte ladle bricks, can be manufactured from
the Arkalyk variant with high alumina content without clay
additives. The regenerator bricks from chamotte of the variant
with high alumina content and Latnaya clay can be successfully
used in regenerators. They are less soiled by the deposits of
smelting dust than chromium magnesite bricks. Chamotte ladle
bricks with the same stability as the customary ladle bricks
of the Borovichskiy kombinat (Borovichi Kombinat) can be manu-
factured from the basic Arkalyk variant without clay addi-
tives. By increasing the amount of pressure applied, the
Card 2/3   stability of the brick can still be increased. There are

Production of Ladle- and Regenerator Bricks From   S/131/60/000/02/002/014
Raw Material of the Arkalyk Deposit   B015/B008

        1 figure, 6 tables, and 2 Soviet references.

ASSOCIATION: Semilukskiy ogneupornyy zavod (Semiluki Works for Refractories)
                Vsesoyuznyy institut ogneuporov (All-Union Institute of Re-
                fractories)

Card 3/3

STAVORKO, A.P.; MIL'SHENKO, R.S.

Production of blocks having a high alumina content for blast fur-
nace wells. Ogneupory 26 no. 2:53-58 '61.   (MIRA 14:2)

1. Semilukskiy ogneupornyy zavod.
      (Blast furnaces)   (Refractory materials)

89980

IS-2200   1275 1142

S/131/61/000/004/001/003
B105/B202

AUTHORS: Voronin, N. I., Krasotkina, N. I., Stavorko, A. P.,
Mil'shenko, R. S.

TITLE: Experimental industrial batches of carborundum
refractories with silicon nitride binders

PERIODICAL: Ogneupory, no. 4, 1961, 157-163

TEXT: The authors study carborundum refractories with silicon nitride
binders. The production method has been developed at the Vsesoyuznyy
institut ogneuporov (VIO) (All-Union Institute of Refractory Materials)
and tested under industrial conditions at the Semilukskiy zavod (Semiluki
Works) in cooperation with the VIO. A test batch of these products was
produced with the masses being burnt at 1500°C. This batch was
designed for firing with anthracite coal of a particle size of from
2 to 8 mm. The following parameters have to be taken into account when
producing the industrial batches: effect of the amount of sulfite
alcohol slops and the humidity of the mass on the quality of the blanks;
effect of various modes of introducing the blanks into the furnace on

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S/131/61/000/004/001/003
B105/B202

Experimental industrial batches ...

the properties of the products; effect of the duration of burning on
the properties of the products. The mass consisted of black carborundum
nos. 24, 30, 120, 150, crystalline silicon KP-1 (KR-1) with grains of
a size up to 0.06 mm. At a pressure of 5-6 atm products with
dimensions of 240×50×50 mm were rammed from the masses containing
80-70% SiC and 20-30% Si. The composition of the masses and the
properties of the blanks after ramming are given in Table 1. The good
blanks were dried on air during five to seven days. Subsequently, they
were burnt in the tunnel furnace in ceramic and carborundum casings
and in the muffle furnace. Porosity of the products after burning was
11-14%. Compressive strength and properties of the burnt products are
given in Tables 4 and 5, respectively. The free silicon content in the
products impairs their strength as was observed in earlier investigations.
Table 6 shows the indices of the test batch as well as of the carborundum
products with silicon binders of the Semiluki Works. The chemical
analysis was made by K. S. Kolobova. A. N. Alekseyeva studied the ground
sections and the immersion. The chemical analysis and the study of the
microstructure showed that with low burning rate only 2.7% of silicon
remains in free state, its major part, however, is transformed into

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S/131/61/000/004/001/003
B105/B202

Experimental industrial batches ...

silicon nitride and silicon carbide. Conclusions: The production
technique of carborundum refractories with silicon nitride binders which
has been developed by the VIO and in the Semiluki Works warrants higher
qualities than that with the ordinary silicon binders. Final conclusions
concerning the quality of carborundum refractories with silicon nitride
binders can be drawn only after checking their working stability. The
editors add that the homogeneity of the products from different muffles
and the change of the properties of the products with free silicon at
high temperatures must be studied in the oxidation medium. A method of
eliminating free silicon must be developed. There are 3 figures, 7 tables,
and 1 Soviet-bloc reference.

ASSOCIATION: Vsesoyuznyy institut ogneuporov (All-Union Institute of
                Refractory Materials) Voronin, N. I., Krasotkina, N. I.;
                Semilukskiy ogneupornyy zavod (Semiluki Works of
                Refractory Materials) Stavorko, A. P., Mil'shenko, R. S.

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B105/B202

Experimental industrial batches ...

Legend to Table 1: A) composition; 1) carborundum, %; 2) silicon 0.06 mm,
%; 3) sulfite alcohol slops; 4) humidity of the rammed mass; B) character-
istic values of the blank; 5) volume weight, g/cm^3; 6) amount of waste,
%; 7) cause of waste; a) transverse cracks; b) longitudinal cracks;
c) various

Таблица 1

А Состав масс и свойства сырца

№ масс	A) Состав масс					B) Характеристика сырца		
	карборунд, %		кремний 0.06 мм	с. с. б.		влажность массы при трамбовании, %	объемный вес g/см³	количество брака %	причина брака
	№ 24, 30	№ 120, 150		плотность g/см³	сухой остаток %				
1	56	24	20	1,29*	—	1,5	2,7	50	Поперечные трещины (а)
2	56	24	20	1,28	6,2	3,3	2,7	40	Продольные трещины (b)
3	56	24	20	1,28	5,1	3,5	2,7	30	» »
4	56	24	20	1,28	5,1	2,0—1,5	2,7	10	» »
5	56	24	20	1,27	4,0	2,0—1,5		>1	Разные (с)
6	49	21	30	1,27	4,5	2,0—1,5	2,6—2,5	2—5	»

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Experimental industrial batches ...

Legend to Table 4: compressive strength $\sigma_{c\varkappa}$ in kg/cm^2 after burning in the tunnel furnace with 18 lorries per shift; 1) no. of the mass; 2) mean value;

Таблица 4

Предел прочности изделий при сжатии кг/см², после обжига в туннельной печи с проталкиванием 18 вагонеток в смену и дополнительной выдержкой на 47-й позиции

(1) № массы: $\sigma_{c\varkappa}$, кг/см²			
1	2	3	средний (2)
1290	1404	785	1159
1184	1140	1231	1183
1212	1334	1461	1336
1280	1170	730	1060
1400	—	940	1170
892	890	1440	1074

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Experimental industrial batches ...

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Legend to Table 5: properties after burning in the tunnel furnace with
16 lorries per shift: 1) water absorption, %; 2) volume weight,
g/cm^3; 3) porosity, %; 4) compressive strength of specimens taken from
various points of the product; 5) mean value; 6) Si content in .the
mass;

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B105/B202

Experimental industrial batches ...

Таблица 5

Свойства изделий после обжига в туннельной печи при проталкивании
16 вагонеток в смену на позициях 40—51

Водопогло- щение % 1	Объемный вес в/см³ 2	Пористость % 3	Предел прочности при сжатии образцов из разных мест изделия, кг/см² 4				
			№ 1	№ 2	№ 3	№ 4	средняя
Содержание Si в массе 20%							
—	—	—	880	—	1616	1812	1436
			1530	1310	1096	—	1312
4,3	2,64	11,4	840	1640	—	1480	1320
—	—	—	1750	1823	1824	1623	1756
4,3	2,70	11,5	1250	1610	1883	2380	1780
—	—	—	1520	1314	1461	980	1319
Содержание Si в массе 30%							
—	—	—	804	1540	1670	1133	1287
—	—	—	—	1250	830	1530	1180

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Experimental industrial batches ...

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Legend to Table 6: initial composition of the masses and indices of the
products of the test batch: 1) composition of the masses, %; 2) method
of intruction into the furnace; 3) number of lorries per shift;
a) good products; 4) number of pieces; 5) total weight, kg; 6) volume
weight, g/cm^3; 7) porosity, %; 8) compressive strength kg/cm^2;
9) temperature at the beginning of destruction; b) experimental results;
c) flat; d) standing; e) industrial products;

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Experimental industrial batches ...

S/131/61/000/004/001/003
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Исходный состав масс и показатели изделий опытной партии

Таблица 6

Состав масс %		2 Садка	3 Число вагонеток, проталкиваемых в 1 секу	(A) Годные изделия					
				4	5	6.	7	8	9.
SiC	Si			штук	общий вес кг	объемный вес, г/см³	пористость %	σсж кг/см²	температура начала разрушения, °C
(b) Опытные изделия									
80	20	На плашку	16*	1589	2782	2,68—2,74	8—10	1300—1800	>1800
80	20	» »	18**	590	1032	2,68—2,70	10—13	1000—1300	>1800
80	20	» »	18	1160	1960	2,67—2,50	11—14	800—1000	>1800
80	20***	На торец	18	450	756	—	—	800	—
70	30	На плашку	16*	174	28?	2,68—2,70	10—13	1000—1300	—
70	70	» »	18	423	710	2,68—2,70	10—13	500—800	—
(e) Промышленные изделия									
100	—	—	18	—	—	2,35—2,50	18—24	300—700	1530

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MIL'SHENKO, R.S.; KARAS', G.Ye.

Modern methods of testing refractories and their quality control.
Ogneupory 27 no.2:94-95 '62.   (MIRA 15:3)

1. Semilukskiy ogneupornyy zavod.
                              (Refractory materials--Testing)
                      (Refractories industry--Quality control)

MIL'SHENKO, R.S.; KARAS', G.Ye.

Rapid complexometric method of separate determination of
Fe_2O_3 and Al_2O_3 in refractory materials. Ogneupory 28 no.12:
570 '63.   (MIRA 16:12)

1. Semilukskiy ogneupornyy zavod.

KAZAKEVICH, S.S.; KHOSID, G.M.; MIKHAYLOVA, L.I.; KONETSKIY, N.V.; MIL'SHENKO, K.S.
        TIMOFEYEV, A.F.; KARAS', G.Yo.

Burned fireclay blocks for large capacity blast furnace stacks.
Trudy Inst. ognoup. no.34:3-27 '63.   (MIRA 17:10)

1. Vsesoyuznyy institut ognouporov (for Mikhaylova). 2. Semilukskiy
ognoupornyy zavod (for Karas').

MIL'SHENKO, R.S.; KARAS', G.Ye.

Work carried on by the Central Factory Laboratory. Ogneupory 29 no.2: 92-94 '64.

(MIRA 17:1)

1. Semilukskiy ogneupornyy zavod.

MIL'SHENKO, R.S.; KARAS', G.Ye.

Use of high-alumina and ordinary grog burned in rotary kilns.
Ogneupory 30 no.1:5-8 '65.   (MIRA 18:3)

1. Semilukskiy ogneupornyy zavod.

ju784
/61/003/011/021/056
/E104

15.2640

AUTHORS: Gubkin, A. N., and Mil'shina, Ye. A.

TITLE: The role of residual polarization in the electret effect

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3376-3382

TEXT: The conclusions drawn from the phenomenological theory as to the
important role played by residual polarization in the electret effect are
shown to agree with experimental data. First, the principal characteristics
of the phenomenological theory of electrets (A. N. Gubkin, ZhTF, XXVII, 9,
1954, 1957) are discussed. According to this theory, the electret effect
is due to residual polarization. The residual polarization was investigated
by the depolarization technique. Fig. 2 gives a qualitative account of
experimental results, and quantitative data are compiled in Tables 1 and
2. Experimental results obtained for electrets composed of $CaTiO_3$ and
CBT (80.3% $SrTiO_3$ and 19.7% $Bi_2O_3 \cdot 2TiO_2$) are presented in Figs. 3 and 4.
Two groups of phenomena are observable in unbounded electrets containing
absorption charges and residual charges. To annihilate the latter, the
Card 1/6

jC?84
s/ s'/61/003/011/021/056
b'2;/B104

The role of residual polarization ...

sample has to be heated above the polarizati n temperature. In all the
materials tested (for exceptions see Tables ! and 2), the absorbed charges
(σ_{ab}) and the residual polarization (P) can b' increased by raising the
temperature and prolonging the pulse duratin. The temperature-independent
relaxation time of absorbed charges is 1 - : min. The relaxation time
of residual polarization is 2 - 4 hr at 200°C and increases sharply as
the temperature drops. If the absorbed charg- are not due to high-
voltage polarization, the observed residua. polarization cannot be
explained as being due to the usual types of linear polarization with long
relaxation times. A residual polarization f 10^{-7} coulomb/cm^2, which is
similar to that of inorganic electrets, is c served in wax electrets. The
stable charge of electrets was calculated from the experimental values of
P and τ_M to be σ = 10^{-10} coulomb/cm^2 for inorganic electrets and

σ = 10^{-8} coulombs/cm^2 for wax electrets. According to theoretical
calculations and experimental results, the conclusions drawn from the
phenomenological theory as to the role of residual polarization in the
electret effect are consistent with experimental results. Ferroelectrics
Card 2/?

The role of residual polarization ... $/181/61/003/011/021/056$
B125/B104

with a thermodynamically stable residual polarization need not have
electret properties since $\sim$ and   tend to infinity. There are 4 figures,
2 tables, and 5 references: 4 Soviet and 1 non-Soviet. The reference to
the English-language publications reads as follows: B. Gross. J. Chem.
Phys., 17, 10, 866, 1949.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR Moskvá
              (Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: June 12, 1961

Fig. 2. Order of experiment and data.

Fig. 3. Experimental results for $CaTiO_3$ electrets. Legend: (1)
$coulomb/cm^2$; (2) t time, hr .

Fig. 4. Experimental results for CBT electrets. Legend: For designation
         see Fig.

Card 3/6 3

BARU, A.M.; MIL'SHTEYN, A.Ya.

Concentration of ascorbic acid in lungs and other tissues of white rats in experimental silicosis. Ukr. biokhim. zhur. 32 no.5:734-741 '60.   (MIRA 14:1)

1. Biokhimicheskaya laboratoriya Donetskogo instituta fiziologii truda, g. Stalino.
   (LUNGS—DUST DISEASES) (ASCORBIC ACID)

SHANGIN, N.I.; MIL'SHTEYN, B.L. (Omsk)

Omsk, a garden city. Fel'd. i akush. 26 no.8:41-46 Ag '61.
(MIRA 14:10)
(OMSK—CIVIC IMPROVEMENT)

S/165/60/000/005/001/003
A104/A129

AUTHOR: Mil'shteyn, D.M.

TITLE: Tectonic development of South-East Turkmenia

PERIODICAL:' Akademiya nauk Turkmenskoy SSR. Izvestiya. Seriya fiziko-tekhni-
           cheskikh, khimicheskikh i geologicheskikh nauk, no. 5, 1960, 3 - 8

TEXT: The tectonic development of South-East Turkmenia since the Paleozoic
era is described on the basis of available geophysical and geological material.
It is assumed that the inversion of the sub-Paleozoic geosyncline occurred at the
end of the Caledonian and the early stages of Hercyan cycles. This opinion is
confirmed by: analysis of geomagnetic anomalies, deep seismic sounding of Ted-
zhen and·Karabekaul areas carried out by K.Ye. Fomenko, seismic data provided by
Yu.I. Sytin and N.K. Bulin, and the discovery of upper Paleozoic sedimentary
rocks in the Bukharo-Khivinskaya stage by V.Ye. Khain. Anomalies of the geomag-
netic field show a predominant northwest - southeast trend of base structures.
The base of the pre-Jurassic cover reveals a lower crystalline, and upper weakly
metamorphized, stratum. No data were obtained on the presence (or absence) of
Triassic deposits. Downcast slides of the Jurassic period are closely connected

Card 1/6

Tectonic development of South-East Turkmenia

S/165/60/000/005/001/003
A104/A129

to the Alpine tectogenesis. Intensive sinking of the geosyncline and the south-
ern region of the stage accounts for the considerable width of Jurassic and Cre-
taceous deposits, i.e., 4.5 - 5.5 km at Kugitang, 5 - 6 km in the Karabil'-Kelif-
skaya Depression and 3 - 4 km in the Mary area. Further sinking occurred during
Paleocene and Eocene periods which acquired a marine character; continental de-
posits are occasionally found in Oligocene. Intensive tectonic movement contin-
ued in Miocene and Pliocene, particularly in the geosynclinal area. A rise of
moderate intensity took place during the Quaternary period. According to seismic
prospecting and drilling results rocks up to the cover of lower Cretaceous depos-
its were subjected to neogenic erosion (Repetek structures). Final movements of
the Alpine cycle formed the mountainous structures of Kopet-Dag and Paropamiz.
An important part was played by the zones of breaks which acted as boundaries of
tectonic elements, the Repetek zone being one of the most important. The basic
structures of the pre-Jurassic base are shown in Figure 1. Here the Repetek zone
divides the Bukharo-Khivinskaya stage from the Central Turkmenian zone of raised
base surface mentioned by Yu.N. Godin (Ref. 3: Rol' razvedochnoy geofiziki v ot-
krytii novykh neftyanykh i gazovykh mestorozhdeniy v Turkmenistane, "Izvestiya
TSSR, seriya fiziko-tekhnicheskikh, khimicheskikh i geologicheskikh nauk", no. 1,
1960), which borders on to the complicated East Turkmenian transient between stage

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Tectonic development of South-East Turkmenia

S/165/60/000/005/001/003
A104/A129

and folding zones. Yu.N. Godin designated it as the East Turkmenian outer zone,
whereas L.N. Smirnov (Ref. 6: Murgabskaya vpadina - perspectivnyy neftegazonos-
nyy basseyn, "Geologiya nefti", no. 10, 1957) calls it "Murgabskaya vpadina".
In most cases these outer systems formed 6 - 7 km deep strata of pre-Jurassic
bases. Complicated tectonics were discovered in the area between the Murgab and
Tedzhen Rivers. Seismic prospecting from north to south along the Murgab River
revealed three major elements: 1) a depression in the base filled with strong
Mesokainozoic deposits; 2) the width of Neogene exceeds 1 km near Sandykachy
stantsiya; 3) the stratification of sedimentary formations of the Saryyazinska-
ya Depression corresponds latitudinally to Karabil'-Kelifskaya Depression. It is
observed that the Saryyazinskaya Depression has weaker Neogene deposits whereas
Paleogene and Mezozoic deposits appear stronger. Conclusions: Pre-Jurassic
movements have formed the greater part of the South-East Turkmenian territory as
a stage resting on a base composed of a lower (lower and medium Paleozoic) and
upper stratum with varied degrees of dislocation and metamorphosis. The southern
region of the stage was subject to intensive oscillation during the Alpine period
which resulted in Mesokainozoic strata and the formation of complicated outer
systems. The deposit cover reveals two structural stages divided by Jurassic-Pa-
leogene and Neogene-Anthropogene unconformities. The latter consists chiefly of

Card 3/6

Tectonic development of South-East Turkmenia

S/165/60/000/005/001/003
A104/A129

continental phases, show hardly any dislocations and are stratified on the eroded surface of the Jurassic-Paleogene complex, revealing a Jurassic and Cretaceous-Paleogene structural stage. The formation of structures of the former complex were completed during the Neogene period, before upper Neogene-Anthropogene depositions. In some cases plutonic formations are to a certain extent reflected in the upper structure stage, e.g., upheavals of the present relief, all great rivers being attributed to zones of base breaks, zones of deep neogenic erosion situated near or above buried upheavals, etc. Zones of break played an important part in the formation of the present tectonic relief; they occurred in the pre-Jurassic base and zones of intensive tectonic activity conformed to them at later dates. There is 1 figure and 8 Soviet-bloc references.

ASSOCIATION: Upravleniye geologii i okhrany nedr pri Sovete Ministrov Turkmen-skoy SSR (Administration of Geology and Protection of Mineral Resources of the Council of Ministers of Turkmenskaya SSR)

SUBMITTED: March 1, 1960

Card 4/6

MILSHTEYN, D. M., Cand. Geol-Mineral. Sci.. (diss) "Basic Features of Tectonics of Southeastern Turkmenistan," Ashkhabad, 1961, 22 pp (Acad. of Sci. Turkm. SSR, Dept. of Phys-Tech. Geol. and Chem. Sci. Turkmen State Univ.) 250 copies (KL Supp 12-61, 259).

AMURSKIY, G.I.; MIL'SHTEYN, D.M.; SMIRNOV, L.N.; KOLPAKOVA, N.N.,
        red. izd-va; FLUTKOVA, S.G., tekhn. red.

[Recent structure and basic characteristics of the teotonic
development of southeastern Turkmenistan]Sovremennaia struk-
tura i osnovnye cherty tektonicheskogo razvitiia IUgo-
Vostochnogo Turkestana. Ashkhabad, Izd-vo Akad. nauk Turk-
menskoi SSR, 1961. 67 p.   (MIRA 16:1)
        (Turkmenistan—Geology, Structural)

MIL'SHTEYN, D.M.

Using seismic prospecting for studying the subsurface structure of the southeastern Turkmenistan. Geol. nefti i gaza vol. 4, no.4:16-20 Ap '61.   (MIRA 14:5)

1. Vostochnaya geofizicheskaya ekspeditsiya Upravleniya geologii i okhrany nedr Turkmenskoy SSR.
          (Turkmenistan--Seismic prospecting)
                    (Turkmenistan--Geology, Structural)

MIL'SHTEYN, D.M.; SMIRNOV, L.N.

Tectonic basis for the seismic zoning of the territory of the
Turkmen S.S.R. Izv. AN Turk. SSR. Ser. fiz.-tekh., khim. i
geol. nauk no.6:14-22 '64.   (MIRA 18:4)

1. Otdel razvedochnoy geofiziki i seysmologii AN Turkmenskoy SSR.

L 47108-66   EWT(1)/FCC   GW
ACC NR: AR6019884   SOURCE CODE: UR/0169/66/000/002/G001/G002
AUTHOR: Mil'shteyn, D. M.; Avagimov, A. A.; Dubrovskiy, V. G.; Lykov, V. I.;
Pavlenkin, A. D.; Solokhov, V. V.; Shikhanovich, E. L.

55
54B

TITLE: The formulation of new trends of research on the structure of
the Earth's crust and upper mantle in Turkmenistan by geophysical
methods

SOURCE: Ref. zh. Geofizika, Abs. 2G6

REF SOURCE: Sb. Geol. rezul'taty prikl. geofiz. Geofiz. issled.
stroyeniya zemn. kory. M., Nedra, 1965, 33-44

TOPIC TAGS: Earth crust, upper mantle, electromagnetic field,
magnetotelluric probing, seismologic testing

ABSTRACT: Information on the structure of the Earth can be obtained
by a magnetotelluric probing method of observation and interpretation
of the recordings of various types of elastic waves, generated during
natural earthquakes, and by studying the variations with different
periods of the natural electromagnetic field of the Earth. This
method is based on the study of the ratio of variations in the elec-
tric and magnetic components of the Earth's electromagnetic field.

Card 1/2   UDC: 550.311:551.14(575.4)

L 47108-66
ACC NR: AR6019884

Magnetotelluric probing stations provide the possibility of studying variations of the electromagnetic field during a period of 10 seconds, to 24 hours. For improved seismological testing, it was very important to design equipment with an intermediate magnetic recording. An increased resolution of the recordings of the seismograph made it possible to use new inputs to determine the type and analysis of composite waves. Seismological observations and subsurface magnetotelluric probing in Turkmenistan proved the possibility of using both methods for studying sedimentary layers as well as the structure of the Earth's crust and the upper mantle down to depths of approximately 200--250 km. [Translation of abstract]   [FM]

SUB CODE: 18, 20/

hs

Card 2/2

ACC NR: AT6028368   (N)

SOURCE CODE: UR/0000/65/000/000/0033/0044

AUTHOR: Mil'shteyn, D. M.; Avagimov, A. A.; Dubrovskiy, V. G.; Lykov, V. I.;
Pavlenkin, A. D.; Solokhov, V. V.; Shikhanovich, E. L.

ORG: none

TITLE: New trends in studying the structure of the crust and upper mantle by
geophysical methods in Turkmenistan

SOURCE: International Geological Congress. 22d, New Delhi, 1964. Geologicheskiye
rezul'taty prikladnoy geofiziki (Geological results of applied geophysics); doklady
sovetskikh geologov, problema 2. Moscow, Izd-vo Nedra, 1965, 33-44

TOPIC TAGS: Earth crust, upper mantle, magnetotelluric survey, seismologic
investigation, seismic wave, fault / TURKISTAN

ABSTRACT: The present paper summarizes the results of geophysical investigations
of the Earth's crust and mantle performed since 1961 in the Epihercynian Kara-Kum
platform and the folded Alpine region of Kopet-Dag. Magnetotelluric surveys and
seismological investigations were conducted along a 110-km submeridional profile
extending between Ashkhabad and Bakhardok. Several interfaces were investigated
in the area near Ashkhabad. A geological cross section along the profile showing the
structure of the Earth's crust and the upper mantle down to 85 km has been prepared

Card 1/2

ACC NR: AT6028368

from the geophysical data. The region lying between the Epihercynian platform and the geosyncline has been analyzed. The presence of lateral inhomogeneities in the mantle is noted. The presence of deep-seated faults is discussed, and their location and extent are determined. Orig. art. has: 1 figure.

SUB CODE: 08/ SUBM DATE: 06Jan65/ ORIG REF: 026/ OTH REF: 002

Card 2/2

3/182/61/000/006/007/007
D038/D112

AUTHORS: Levertov, V.M., Mil'shteyn, D.S.

TITLE: Practical application of the follow-up system with an elec-
              tric contact height finder

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 6, 1961, 46-47

TEXT: A device for the visual control of the position of the moving cross
beam on presses has been in use at the Odesskiy zavod pressov (Odessa Press
Plant) since 1958. The follow-up device comprises transmitting and receiver
systems. The transmitting system includes a rack rigidly connected with the
cross beam, gears, and a БД,404 A (BD404A) 110 v selsyn. The forward motion
of the cross beam and of the rack is transmitted by the gears to the trans-
mitting selsyn. The module is 0.5-1. The receiver system (Fig. 1) consists
of a receiver selsyn (1), gears (2 and 3), and a scale indicator with an
electric contact device (5). The rotation of the receiver selsyn is trans-
mitted through the gears to an axle (4) and to the indicator hand (7). A
БС404A (BS404A) 110 v receiver is used. The scale indicator (8) is cali-
brated for the cross beam displacement and has an electric contact device
taken from an electric-contact pressure gage. It has two independent con-

Card 1/4

Practical application of the follow-up ...

S/182/61/000/006/007/007
D038/D112

tacts (9). The motion of the cross beam is transmitted to the indicator hand through the follow-up system by a flag indicator (6). The receiving and transmitting selsyns are connected like an electric shaft (Fig. 2); tension of 110 v is taken from branches of a secondary winding of a T transformer (ТБС [ТВS] 380/127 v transformer). The system works as follows (Fig. 2): when the cross beam is in the bottom position, the height-finder contacts (1-3 ЗКВ ков) are closed. Current is directed to the 1РП (1RP) relay which blocks itself by its contacts (3-5) and switches the cross beam drive on the other pair (1-11). The cross beam rises. The rotation of the transmitter is transmitted to the receiver selsyn. The indicator hand moves until the closing of the run end contacts (ЗКВ ков). Contacts (1-7) switch on the 2РП (2RP) relay whose normally closed contacts (1-5) open the circuit of the relay 1RP. The 2RP relay blocks itself through the circuit (1-9-7-2). The work contacts (1-13) of the 2RP relay switch on the downward cross beam drive. The cycle ends when the cross beam reaches the bottom position, and the contacts (1-3) switch on the 1RP relay again. Relays of РП-0 (RP-0) or МКУ-48 (MKU-48)-type are recommended for these systems. The system is well-suited for remote control of presses. The indicator scale divisions are 1 mm. The contact system resetting is simple, as the operator can reset contacts on the control panel. There are 2 figures.

Card 2/4

Practical application of the follow-up ...
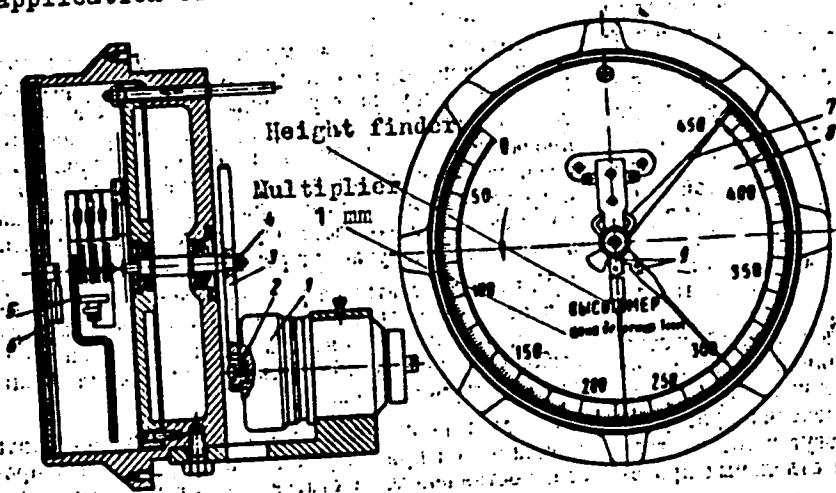
S/182/61/000/006/007/007
D038/D112

Pиc. 1.

Fig. 1

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Practical application of the follow-up ...
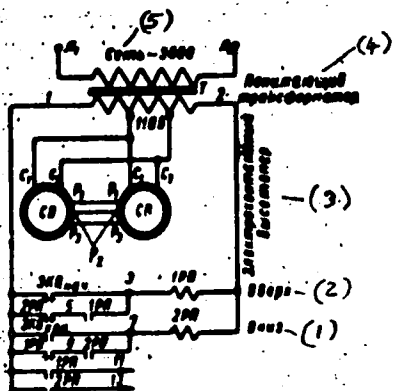
S/182/61/000/006/007/007
D038/D112

Рис. 2.

Fig. 2. 1 - down; 2 - up; 3 - height
finder; 4 - step-down transformer; 5 -
network.

Card 4/4

AYZENSHTAT, S.Yu., inzh.; BARKAN, V.M., inzh.; KURTSMAN, M.D., inzh.;
POZNYAKOV, N.V., inzh.; CHERNYAVSKIY, I.S., inzh.;
SHTEYNBERG, A.S., inzh.; MIL'SHTEYN, D.S., inzh., red.;
KASHTANOV, F., red.; STEPANOVA, N., tekhn. red.

[Concealed electrical wiring in 1-464A-series large-panel
apartment houses] Montazh skrytoi smeniaemoi elektroprovodki v
krupnopanel'nykh zhilykh domakh serii 1-464A. Pod red. D.S.
Mil'shteina. Minsk, Gos.izd-vo BSSR, Red. proizvodstvennoi lit-
ry, 1962. 75 p.   (MIRA 15:6)

1. Elektromontazh no.18, turst.
                        (Electric wiring, Interior)

AUTHOR: Nayguz, N. I. and Mil'shteyn, D. S.

TITLE: Hydraulic press for hot pressing hard alloys and refractory (high-melting) materials

PERIODICAL: Poroshkovaya metallurgiya, no. 3, 1962, 89–96

TEXT: This describes a hydraulic press produced in 1960 by the Odesskiy zavod pressov (Odessa Press Factory), permitting parts of various shapes to be obtained by sintering and pressing powder components at a temperature of up to 2800°C and under a specific pressure of 200 kg/cm^2. It consists of an individual hydraulic (oil) drive, a servosystem for control of cross-head displacement, an electric plant for voltage regulation and automatic control of press operation, auxiliary equipment for cooling, waste water and oil removal, and a special electric-resistance heating unit intended to raise the temperature of the parts to be pressed heating unit intended to raise the temperature of the parts to be pressed to 2800°C. The pressing unit has the following basic charateristics: 1) Pressing force (maximum), 40 tons; 2) Cross-head stroke, 450 mm; 3) Maximum diameter of parts to be pressed, 130 mm; 4) Cross-head traveling rate, 0.3 mm/sec; 5) Power of electric-heating unit, 240 KVA; 6) Maximum intensity of heating current, 4200 A; 7) Working pressure on the press-form, 200 kg/cm^2; 8) Over-all size of press, 2700 × 2800 × 3835 mm; total weight (including electric installation), 11 tons. There are 3 figures.

Card 1/2

S/226/62/000/003/013/014
I007/1207

Hydraulic press for hot...

ASSOCIATION: Odesskiy zavod pressov (Odessa Institute for Pressuring)

SUBMITTED: October 28, 1961

Card 2/2

MIL'SHTYN, G.

Reduce the outlay for repairs. Sov.sviaz. 2 no.12:22 D '52.(MIRA 7:8)

1. Glavnyy bukhgalter Vinnitskogo upravleniya svyazi.
   (Telecommunication)

USSR/Medicine -- Stimulation and   Jan/Feb 1948
                    Stimuli

    Medicine - Nerves, Optic

"Temporary Threshold Differentiation during Elec-
trical Irritation of the Optical Analyzer," G. I.
Mil'shteyn, Chair of Physiol, Mil Med Acad iment
S. M. Kirov, 8 pp

"Fiziol Zhur SSSR" Vol XXXIV, No 1

Many scientists have studied the phenomenon of sense
perception, especially where the skin was subjected
to two irritations applied close to one another at
brief intervals. In 1946 Bronshteyn observed that
if irritations were applied on surfaces, bearing

                                                    41T91

USSR/Medicine - Stimulation and   Jan/Feb 1948
                    Stimuli (Contd)

some functional relation to one another, then a re-
action will be obtained similar to one which would
be obtained if there were no spacing between the
two points of irritation. Author applies this phe-
nomenon to the optical analyzer, to see whether it
also holds true. Submitted, 10 Jun 1946.

41T91

MIL'SHTEYN, G. I.

USSR/Medicine - Physiology, Experimental - Mar/Apr 49

Medicine - Nervous System, Effects of Drugs on

"Action of Various Factors on the Temporary Differential Incapacity of the Visual and Tactile Analyzer," A. I. Bronshteyn, G. I. Mil'shteyn, Chair of Physiol, Mil Acad imeni S. M. Kirov, 12 pp

"Fiziol Zhur SSSR" Vol XXXV, No 2

Investigates effects of various factors on temporal differential thresholds (minimum time - 45/49T77

USSR/Medicine - Physiology, Experimental (Contd)   Mar/Apr 49

intervals in which two separate irritations are sensed and differentiated) of visual and tactile analyzers. Caffeine, benzedrine, any pain stimulant, and strychnine always produce a decrease in absolute value of temporary differential thresholds. Luminal, hypoxemic mixture, and a period in darkness increase them. Mixtures containing CO_2 and alcohol have different effects. Submitted 20 May 47.

45/49T77

PA 45/167/77

MIL'SHTEYN, G. I.

MIL'SHTEYN, G.I.

Effect of decreased partail oxygen pressure on the higher nervous
function in man. Zh. vysshei nerv. deiat. 2 no. 3:353-357 May-June
1952.   (CLML 23:3)

MIL'SHTEIN, G.I.

Determination of types and their role in modifications of the hiher nervous function in man following exposure to lowered partial pressure of oxygen.

Zhurnal Vysshei Nervnoi Deyatel 'Nosti IM. I/P. Pavlova. Vol 3, No5, p 726, 1953.

MIL'SHTEYN, G.I.

USSR/Medicine - Anatomy

Card 1/1   : Pub. 22 - 21/44

Authors   : Mil'shtein, G. I.

Title   : About some relationship between the functional movements of a visual
               analyzer (eye) and the binocular vision

Periodical : Dok. AN SSSR 98/6, 965-967, October 21, 1954

Abstract   : Experiments, which were intended to establish a relation between the
               so-called functional movements of an eye and the binocular vision, are
               described. The experiments were conducted on forty (40) patients
               hospitalized for eye diseases. Four Russian references (1946-1949).
               Diagrams; graph.

Institution : .....

Presented by: Academician L. A. Orbeli, June 5, 1954

Translation M - 478, 31 May 55

USSR / Human and Animal Physiology. Nervous System.   T-10

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3771

Author   : Bronshteyn, A. I.; Milshteyn, G. I.
Inst   : Not given
Title   : Pertaining to Functional Mobility of Analysors

Orig Pub : Uspekhi sovrem. biol., 1957, 44, No 1, 55-67

Abstract : A review is made of publications pertaining to the
            functional mobility of the visual, tactile and taste
            analysors. The following considerations served as
            criteria of the visual analysor: the critical frequency
            of the merging of glimpses or the disappearance of
            phosphene; mastering of the rhythm of the glimpses on
            the EEG; the minimum distinction interval of two consecu-
            tive stimuli, and also the temporal differentiating
            threshold, i.e., the minimum interval in which two stimuli
            on different parts of the reception field being perceived

Card 1/2

MIL'SHTEYN, G.I., PANOV, S.V.

Restraint table for monkeys. Lab.delo no.6:55-57 N-D '58

(PHYSIOLOGICAL APPARATUS)
(MONKEYS AS LABORATORY ANIMALS)

(MIRA 11:12)

MIL'SHTEYN, G.I. (Moskva)

Experience with complex electrophysiological investigations of
the effect of a physical load on the functional state of the
central nervous system. Zhur. vys. nerv. deiat 10 no. 4:505-
511 Jl-Ag '60.
(MIRA 14:2)
(EXERCISE) (ELECTROENCEPHALOGRAPHY) (ELECTROCARDIOGRAPHY)

ACCESSION NR: AP4002549

s/0247/63/013/006/1105/1107

AUTHOR: Mil'shteyn, G. I.; Panov, S. V.

TITLE: Simplified model of an automatic device for investigating defensive conditioned motor reflexes

SOURCE: Zhurnal vytsshey nervnoy deyatel'nosti, v. 13, no. 6, 1963, 1105-1107

TOPIC TAGS: conditioned motor reflex, defensive motor reflex, piezoelectric pickup, conditioned reflex, motor reflex, psychomotor test

ABSTRACT: A simplified model of the complex automatic device developed by D. M. Belov, S. S. Krylov, and Ye. A. Snegirev to investigate defensive conditioned motor reflexes of cats and dogs is described. The simplified model consists of four basic units. The first (see Enclosure 1) is a screened chamber divided in two by a partition. Each half has a removable floor made of aluminum pipes which are supplied with AC current of the required voltage. Under the floors are piezoelectric pickups for registering animal movements.

Card 1/4 2

ACCESSION NR: AP4002549

A bell, a buzzer, and two light signals of different intensities are
attached to the ceiling of the chamber. The second unit (see
Enclosure 2) is a portable automatic control unit. The third unit
records the types of stimuli and the reactions of the animals. The
fourth unit supplies the device with either of two types of AC current.
Orig. art. has: 3 figures, 2 enclosures.

ASSOCIATION: None

SUBMITTED: 15Mar63   DATE ACQ: 07Jan64

SUB CODE: AM   NO REF SOV: 000

ENCL: 02

OTHER: 000

Card 2/4 2

MIL'SHTEYN, G.I.; LARICHEVA, K.A. (Moskva)

Effect of lysergic acid.diethylamide on some aspects of the behavior of mice and rats. Farm. i toks. 26 no.6:753-756 N-D '63

(MIRA 18:2)

MIL'SHTEYN, G.I.; URMANCHEYEVA, T.G.; FUFACHEVA, A.A.

Effect of lysergic acid diethylamide on the electric activity
of the cerebral cortex and some subcortical formations in
monkeys. Fiziol. zhur. 49 no.2:173-180   F'64   (MIRA 17:3)

1. Laboratoriya fiziologii i patologii vysshey nervnoy deya-
tel'nosti Instituta eksperimental'noy patologii i terapii AMN
SSSR, Sukhumi.

L 25415-65   EWT(l)/EWT(m)/EWA(b)   Pa-4   JK/RM

ACCESSION NR: AP5005994   S/0246/64/064/008/1172/1176   23
                                                                               B

AUTHOR: Ivanova, R. A. (Moscow); Mil'shteyn, G. I. (Moscow); Smirnova, L. B.
(Moscow); Fanchenko, N. D. (Moscow)

TITLE: Effect of nicotinic acid on experimental psychoses caused by lysergic acid
diethylamide

SOURCE: Zhurnal nevropatologii i psikhiatrii, v. 64, no. 8, 1964, 1172-1176

TOPIC TAGS: psychotherapy, organic nitrogen compound, psychoneurotic disorder

Abstract: The successful use of nicotinic acid (usually in large doses) in
treating various psychic disorders is not often indicated in the literature.
This deficiency led to study of the effect nicotinic acid has on several
physiological and biochemical indices characterizing experimental lysergic
psychosis in animals. The study was performed on 20 adult dogs. The animals
were administered lysergic acid (LSD) intramuscularly in a dose of 0.1-0.2 mg/kg
of bodyweight; nicotinic acid was also given intramuscularly in a dose of
5 mg/kg, or intravenously in a 3 mg/kg dose against a background of intense
suppression of higher nervous activity, manifested as complete disruption
of an earlier developed behavioral habit (running through a maze). It was
found that administration of the LSD led to disappearance of conditioned

Card 1/2   6

L 25415-65

ACCESSION NR: AP5005994   0

reflexes both to light and sound. Unconditioned response to current followed
by an auditory signal was curtailed. Nicotinic acid was administered 25
minutes after LSD was given. In another 30 minutes unstable conditioned
reflexes to sound and responses to current appeared. In 60 minutes more,
the dog reacted to sound and current reinforced by light without error and
in all trials. In 2½ hours, the original relationships were restored. .
It was thus found that nicotinic acid is an effective therapeutic agent with
respect to the leading symptoms of experimental psychosis induced by LSD.
Orig. art. has 4 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 05Apr63   ENCL: 00   SUB CODE: LS, PH

NO REF SOV: 006   OTHER: 010   JPRS

Card 2/2

27310
S/199/61/002/004/006/007
B112/B108

$16.8000 \ (1031, \ 1121, 1344)$ $\mathcal{L}$ 2406, 2606

AUTHORS: Mil'shteyn, G. N., and Sholokhovich, F. A.

TITLE: Almost-recurrent motions that are uniformly stable according to Poisson in a linear dynamic system

PERIODICAL: Sibirskiy matematicheskiy zhurnal, v. 2, no. 4, 1961, 567 - 573

TEXT: According to M. V. Bebutov (Byulleten' MGU, matem., II, vyp. 5 (1941), 3 - 51) a motion $f(p,t)$ is called "almost-recurrent" if a relatively compact set of numbers $\tau(p, \varepsilon)$ exists for any $\varepsilon > 0$, such that $\rho(p, f(p,\tau)) \leq \varepsilon$ holds for every point p if τ is contained in $\tau(p,\varepsilon)$. Bebutov calls a motion "uniformly stable according to Poisson" if a number $t_0 (t_0 > T$ or $t_0 < - T)$ exists for any two numbers $\varepsilon > 0$ and $T > 0$, such that $\rho(f(p,t + t_0), f(p,t)) \leq \varepsilon$ holds for every t. The authors studied the "independence" of such motions within a linear dynamic system. They call a recurrent motion in a given dynamic system "independent" if a recurrent motion which is not almost-periodic exists in this system. The authors

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Almost-recurrent motions that are ...

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S/199/61/002/004/006/007
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demonstrate that every almost-recurrent motion is stable according to
Poisson, however, not vice versa. They also show. that recurrent motions
exist which are not uniformly stable according to Poisson. The problem
whether every motion which is uniformly stable according to Poisson is
recurrent, could not be solved. Two theorems on almost-recurrent motions
are given: 1) A motion is almost-recurrent if there exists at least one
point p_o of the motion for which a number $L(\varepsilon)$ exists for each $\varepsilon > 0$.

$L(\varepsilon)$ determines a relatively compact set of numbers $\tau(\varepsilon)$ such that
$\rho(p_o, f(p_o, \tau)) \leq \varepsilon$ holds if τ is contained in $\tau(\varepsilon)$. 2) If a motion is
almost-recurrent, the set of numbers $L(p, \varepsilon)$ is finite for any limited
trajectory arc if $\varepsilon > 0$ and if p belongs to the arc. There are 3 Soviet
references.

SUBMITTED: March 25, 1960

Card 2/2

ACCESSION NR: AP4033355

S/0103/64/025/003/0321/0329

AUTHOR: Mil'shteyn, G. N. (Sverdlovsk)

TITLE: Use of successive approximations in solving an optimum problem

SOURCE: Avtomatika i telemekhanika, v. 25, no. 3, 1964, 321-329

TOPIC TAGS: automatic control, optimum automatic control, automatic control theory

ABSTRACT: The problem of minimization of this functional $I = \int_{t_0}^{t} f_0(x, u)\,dt$, is considered, where $x(t) = (x_1(t), \ldots, x_n(t))$ is a vector function; $u(t) = (u_1(t), \ldots, u_r(t))$ is the controlling vector; and $f_0(x, u) = f_0(x_1, \ldots, x_n, u_1, \ldots, u_r)$ is a positive definite function of its arguments. Phase coordinates $x_i(t)$ are described by this set of differential equations: $dx/dt = f(x, u)$, $x(t_0) = x$, where

$$f(x, u) = (f_1(x_1, \ldots, x_n, u_1, \ldots, u_2), \ldots, f_n(x_1, \ldots, x_n, u_1, \ldots, u_r)),$$

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ACCESSION NR: AP4033355

each function $f_i(x, u)$ being a continuously differentiable function of its arguments. The control region is specified as a closed set U which belongs with an r-dimensional space. With the above conditions, such control functions are found which transfer the initial point x to the origin of coordinates and simultaneously minimize the initial functional. The Lyapunov functions and the dynamic programing theory are used in solving the above problem. Letov's problem of the analytical construction of controllers (Avt. i telemekh., v. 21, no. 4, 1960, and v. 22, no. 4, 1961) is considered as an illustrating example. Orig. art. has: 45 formulas.

ASSOCIATION: none

SUBMITTED: 21Jan63   DATE ACQ: 15May64   ENCL: 00

SUB CODE: DP, IE   NO REF SOV: 008   OTHER: 001

Card 2/2

MIL'SHTEYN, G.N.

Boundary value problem for a system of two differential
equations. Dif. urav. 1 no. 12:1628-1639 D '65.   (MIRA 18:12)

1. Ural'skiy gosudarstvennyy universitet imeni Gor'kogo.
Submitted April 22, 1965.

L 48956-65   EWT(d)/EWP(r)/T/EWP(k)/EWP(h)/EWP(1)   Pf-4   IJP(c)   /q

ACCESSION NR: AP5011904   UR/0103/65/026/004/0621/0628   /8'

                                                                            B

AUTHOR: Mil'shteyn, G. N.(Sverdlovsk)

TITLE: Optimum realization of trajectories

SOURCE: Avtomatika i telemekhanika, v. 26, no. 4, 1965, 621-628

TOPIC TAGS: optimum trajectory, linear control system, optimum control, modulus limited control, functional minimization

ABSTRACT: A linear control system describable by the matrix equation

$$\frac{dx}{dt} = A(t)x + B(t)u. \qquad (1.1)$$

has been investigated. Here $A(t) = \{a_{ij}(t)\}$, $B(t) = \{b_{ij}(t)\}$ are matrices of order $n \times n$ and $n \times r$, respectively, with functions $a_{ij}(t)$, $b_{ij}(t)$ continuous over the interval $\Delta = [t_0, t_0 + T]$; $x(t) = (x^1(t), \ldots, x^n(t))$ is an n-dimensional vector function; $u(t) = (u^1(t), \ldots, u^r(t))$ - an r-dimensional control vector. The control region U is represented by an r-dimensional unit cube, i.e., at each instant of time the coordinates of the control vector satisfy the inequalities

$$|u^k(t)| \leq 1 \quad (k = 1, \ldots, r). \qquad (1.2)$$

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L 48956-65

ACCESSION NR: AP5011904

(see L. S. Pontryagin, V. G. Boltyanskiy, R. V. Gamkrelidze, Ye. F. Mishchenko, Matematicheskaya teoriya optimal'nykh protsessov, Fizmatgiz, 1961). As a class of allowed controls one chooses the set of measureable vector functions defined over the Δ interval and which for each $t \in [t_0, t_0 + T]$ satisfy the condition (1.2). Let the smooth line $x^i = f^i(t)$ be specified for $t_0 \leq t \leq t_0 + T$ (or in vector form $x = f(t)$) and the initial conditions for the control system (1.1)

$$x(t_0) = x_0. \qquad (1.3)$$

be given for the instant $t = t_0$. The author used the method of successive approximations to find such an allowed control for which the solution of the differential Equations (1.1) with the initial conditons (1.3) has the least mean square deviation from the given trajectory $x = f(t)$ over the segment Δ. This is equivalent to the problem of minimizing the functional

$$J(u) = \int_{t_0}^{t_0+T} \sum_{i=1}^{n} [x^i - f^i(t)]^2 dt = \int_{t_0}^{t_0+T} (x - f(t), x - f(t)) dt. \qquad (1.4)$$

over all allowed controls. A similar problem with integral constants was solved earlier by R. Bellman et al. "The author thanks Ye. A. Barbashin for discussion

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I. 48956-65

ACCESSION NR: AP5011904

of the article." Orig. art. has: 38 formulas.

ASSOCIATION: None

SUBMITTED: 23Nov63   ENCL: 00   SUB CODE: MO

NO REF SOV: 011   OTHER: 002

Card 3/3

40109

16.8000
24.4100

S/040/62/026/004/003/013
D409/D301

AUTHOR: Mil'styen, G.N. (Sverdlovsk)

TITLE: On approximate realization of processes by means of transient curves

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 4, 1962
            623 - 630

TEXT: A method is proposed for the realization of both the transient process and the given trajectory. The method is based on Yc. A. Barbashin's results. The substance of the proposed method is as follows: It is assumed that a family of transient curves is given which determines a field of directions which depends on the input functions. Thereupon these functions are determined from the condition minimizing (at each moment of time) the square deviation between the corresponding vectors of the above-mentioned two fields of directions. The system of differential equations is written in matrix form:

$$dx/dt = A(t)x + Bu \qquad (1.2)$$

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D409/D301

On approximate realization of ...

where $A(t)$ is a square matrix, and B a rectangular matrix. It is assumed that an n-parametric family of curves

$$f(x_0, \tau, t) \qquad (1.3)$$

is given in phase space. These curves are called transient curves. Under very general conditions the curves (1.3) can be regarded as the solution of the system of differential equations

$$df/dt = F(f, t) \qquad (t_0 \leqslant t < \infty). \qquad (1.5)$$

It is natural to select such a family of curves f, which approach asymtotically the trajectory $\psi(t)$, when $t \rightarrow \infty$. The input function u is determined from the system of linear equations

$$\sum_{i=1}^{m} (b_k, b_i) u_i(x(\tau), \tau) = (r(\tau), \tau) b_k). \qquad (1.7)$$

The case is considered in which the family of transient curves $f(x_0, t_0, t)$ is given in the form of the solutions of the linear

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On approximate realization of ...

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system of differential equations

$$df/dt = Cf - C\psi + d\psi/dt \qquad (2.1)$$

where C is a square matrix. If the vector system $b_1, \ldots, b_m$ is ortho-normalized, then the input functions are determined in the form

$$u_i(x, t) = (C(x - \psi) + d\psi/dt - Ax, b_i) \quad (i = 1, \ldots, m)(2.2)$$

A change of variables $z = x - \psi(t)$ is effected. Thereby a new system of equations is obtained. The fundamental matrix $F(t)$ of the solutions of the homogeneous system of equations

$$dz/dt = (A + D(C - A))z = Hz \quad (H = A + D(C-A)) \qquad (2.7)$$

depends on the matrix C; the latter should be chosen so that the deviation $z(t)$ be small. System (2.7) may be regarded as an automatic control system; if $\psi(t) \equiv 0$, then (2.7) is equivalent to

$$\frac{dx}{dt} = Ax + \sum_{i=1}^{m} ((C - A)x, b_i)b_i. \qquad (2.8)$$

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On approximate realization of ...   S/040/62/026/004/003/013
                                           D409/D301

In the following, it is assumed that the matrices A and C are con-
stants. A formula is obtained which shows that a decrease in the
deviation $//z(t)//$ is related to a reduction in the number of ele-
ments of the fundamental matrix $F(t)$. This is effected by minimiz-
ing the expression for the matrix elements. Further, it is assumed
that system (1.2) is under the effect of constant disturbances.
Neither the behaviour of the trajectory $\psi(t)$, nor the constant dis-
turbances, affect the choice of the matrix C, which is related to
the system (1.2) exclusively, and can be made in advance. There are
2 figures.

SUBMITTED: March 26, 1962

Card 4/4

ACCESSION NR: AP4027598

AUTHOR: Mil'shteyn, G. N. (Sverdlovsk)

TITLE: Reduction of a class of optimal control problems to an elementary variational problem

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 2, 1964, 375-380

TOPIC TAGS: optimal control, variational problem, minimization of functional, minimal value, trajectory, Bellman equation, optimal problem

ABSTRACT: The author studies the problem of minimizing the functional

$$ J = \int_{t_0}^{t_1} f_0(x)\, dt \qquad (1) $$

Here $x = (x_1(t),\ldots,x_n(t))$ is a n-dimensional vector whose variation in time is subject to a system of differential equations written in vector form

$$ dx/dt = f(x, u) \qquad (2) $$

The control u is an r-dimensional vector whose values at each moment of time belong

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ACCESSION NR: AP4027598

to a certain set U from r-dimensional Euclidean space. The set U is determined by the inequality $\rho(u_1,\ldots,u_r) \le m$, where $\rho(u_1,\ldots,u_r)$ is a continuously differentiable function. The function $f_0(x)$ in (1) is assumed to be everywhere positive with the exclusion of the point $x = 0$. The control $u(t)$ must be chosen such that the trajectory of the system (2), leaving from the point x_0 at the initial moment of time, passes through a given point x_1 at some moment of time $t_1 > 0$, and such that the functional (1) attains the minimal value among all such controls u. The scheme of the majority of problems of optimal control is constructed so that the second point is generally fixed, while the first takes an arbitrary position. In this paper the first point (for definiteness, the origin) is fixed, and the second is chosen arbitrarily. The author makes extensive use of techniques of R. Bellman. As an example he studies the problem where the system of equations (2) has the form

$$dx/dt = Ax + Bu \qquad (3)$$

where A and B are n-dimensional matrices with constant coefficients, B is a non-singular matrix and u is an n-dimensional controlling vector. The region of con-

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ACCESSION NR: AP4027598

trol satisfies, at each moment of time, the condition

$$dx/dt = f(x) + B(x) u \qquad (4)$$

where B(x) is an n-dimensional non-singular matrix whose coefficients depend on the phase coordinates. "The author is grateful to Ye. A. Barbashin for his discussion of the results of this article." Orig. art. has: 38 formulas.

ASSOCIATION: none

SUBMITTED: 15Nov63   DATE ACQ: 28Apr64   ENCL: 00

SUB CODE: MM   NO REF SOV: 005   OTHER: 003

Card 3/3

L 43137-   T(d)   IJP(c)   SOURCE CODE: UR/0376/65/001/012/1628/1639

ACC NR: 6016171

AUTHOR: Mil'shteyn, G. N.

ORG: Ural State University im. A. M. Gor'kiy (Ural'skiy gosudarstvennyy universitet)

TITLE: The boundary problem for a system of two differential equations

SOURCE: Differentsial'ayye uravneniya, v. 1, no. 12, 1965, 1628-1639

TOPIC TAGS: boundary value problem, linear differential equation, first order differential equation, second order differential equation, linear automatic control system, PARTIAL DERIVATIVE, SUCCESSIVE APPROXIMATION

ABSTRACT: The system of two first-order differential equations

$$\frac{dX}{dt} = P(t, X, Y), \frac{dY}{dt} = Q(t, X, Y) \qquad (1)$$

with the solutions satisfying the boundary conditions

$$X(a) = X_0, X(b) = X_1 \qquad (2)$$

is discussed under the assumption that the right-hand sides of Eq. (1) are specified and

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L 43137-66

ACC NR: AP6014171

continuous together with their first-order partial derivatives with respect to X and Y in the strip S defined as

$$S: a \leqslant t \leqslant b, \quad -\infty < X < +\infty, \quad -\infty < Y < +\infty.$$

The partial derivatives are also bounded in a given manner. The results are presented in the form of theorems and lemmas. They cover the operation of specific control systems, the illustrative example of the linear second-order equation where

$$x'' + p(t) x' + q(t) x = 0 \qquad\qquad (3)$$

where p (t) and q (t) are continuous coefficients. The method of successive approximations is applied to the evaluation of boundary value problems for the second-order differential equation

$$X'' = Q(t, X, X') \qquad\qquad (4)$$

Orig. art. has: 56 formulas.

SUB CODE: 12/ SUBM DATE: 22Apr65/ ORIG REF: 005/ OTH REF: 006

Card 2/2   MLP

MAKAROV, G.V.; KOCHKAREV,A.Ya., kand. tekhn. nauk, dots.,
       retsenzent; MIL'SHTEYN, I.D., inzh., red.

   [Sealing devices] Uplotnitel'nye ustroistva. Moskva,
   Mashinostroenie, 1965. 199 p.   (MIRA 18:3)

MIL'SHTEYN, I-M

Tetraacylsilanes in organic synthesis. VII. Silico anhydrides of unsaturated monobasic acids in synthesis of unsaturated ketones of the series of benzene, thiophene, and selenophene. Yu. K. Yur'ev, G. B. Elyakov, and I. M. Mil'shtein (State Univ., Moscow) Zhur. Obshcheĭ Khim. 26, 3104-8(1956); cf. C.A. 50, 4796h; 51, 5044c. Hartough and Kosak, C.A. 41, 1485i. Heating 150 ml. dry C₆H₆, 8.0 g. CH₂:CHCH₂CO₂H, and 15 g. SiCl₄ on a steam bath until HCl evolution ceased, cooling, adding 27 g. powd. AlCl₃, reheating until the HCl evolution ceased, treating with ice-HCl, and extg. with C₆H₆ gave 17% Br CH₂CH:CH₂, b₀ 104°, n²⁵ᵈ 1.5577, d₄ 1.0680 (2,4-dinitro-phenylhydrazone, red, m. 204-5°), and 14% BrCH₂CH-MePh, b₀ 100·5°, m. 72.5°. Heating 70 ml. dry C₆H₆, 0.015 mole SiCl₄, and 0.06 mole unsatd. acid until HCl evolution ceased, cooling, adding 0.060 mole thiophene, then, dropwise, 0.05 g. SnCl₄ in 15 ml. C₆H₆, at 0°, stirring at room temp. or brief heating, and hydrolyzing with ice-HCl gave the following ketones, purified by steam distn.: allyl 2-thienyl ketone, 20%, b₀ 104.5-5°, n²⁵ᵈ 1.5945, d₄ 1.1420 (2,4-dinitrophenylhydrazone, m. 170-1°); 2-thienyl α-butenyl ketone, 30%, b₀ 123-4°, n²⁵ᵈ 1.5585, d₄ 1.1130 (2,4-dinitrophenylhydrazone, m. 130-7°); 2-thienyl 1-cyclo-hexen-1-yl ketone, 33%, b₄ 155-6°, n²⁵ᵈ 1.5790, d₄ 1.1600 (2,4-dinitrophenylhydrazone, m. 176°). The following ke-tones based on selenophene were prepd as those of thio-phene but the silicoanhydride, prepd. as above, was first treated with SnCl₄, then a soln. of selenophene in C₆H₆ added dropwise with cooling; thus were prepd.: 30% allyl 2-selenienyl ketone, b₄ 128°, n²⁵ᵈ 1.5990, d₄ 1.4230 (2,4-dinitrophenylhydrazone, m. 174-6°); α-butenyl 2-selenienyl ketone, 23%, b₄ 116-17°, n²⁵ᵈ 1.5700, d₄ 1.3640 (2,4-dinitrophenylhydrazone, m. 165°); 3-cyclohexen-1-yl 2-selenienyl ketone, 30%, b₄ 151-2°, n²⁵ᵈ 1.5800, d₄ 1.3860 (2,4-dinitrophenylhydrazone, m. 177-7.6°).   G. M. K.

5 (3)
AUTHORS: Mel'nikov, N. N., Shvetsova-   SOV/79-29-5-43/75
              Shilovskaya, K. D., Kagan, M. Ya., Mil'shteyn, I. M.

TITLE: From the Field of Organic Insectofungicides (Iz oblasti
              organicheskikh insektofungitsidov). XLII. Synthesis of Some
              Mixed Esters of Dithio-phosphoric Acid (XLII. Sintez nekotorykh
              smeshannykh efirov ditiofosfornoy kisloty)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5,
              pp 1612-1614 (USSR)

ABSTRACT: In order to explain the dependence between the insecticidal
              effect and the constitution of the compound, mixed (alkyl-
              aryl-) esters with the following general formulae are to be
              prepared: $(RO)_2PSS(CH_2)_nAr$ (I); $(RO)_2PSS(CH_2)_nXAr$ $(X = OS)$, (II);
              $(RO)_2PSS(CH_2)_nNR_2'$ (III), and $(RO)_2PSO(CH_2)_nAr$. The present
              paper deals with the synthesis of the esters I and II. They
              were obtained by reaction between salts of dialkyl-phosphoric
              acids and the halogen derivatives of alkyl-substituted aryls.
              In some cases the reaction proceeded very slowly and the esters
              were obtained in low yield only. The reaction of the salts of
              dimethyl-thiophosphoric acid was particularly bad. The

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From the Field of Organic Insectofungicides.   30V/79-29-5-43/75
XLII. Synthesis of Some Mixed Esters of Dithio-phosphoric Acid

resulting methyl esters presumably act as alkylating
(methylating) agents owing to the considerable mobility of the
methyl radical. Nearly all compounds presented in a table with
their physical data have hitherto not been described in
publications, with the exception of the esters with p-chloro-
benzyl radical which are patented in the Federal Republic of
Germany (Ref 11). The authors prepared the compounds according
to I and II with $R = CH_3$, C_2H_5, C_3H_7, iso-C_3H_7, C_4H_9,
$Ar = C_6H_5$, C_6H_4Cl, $C_6H_4NO_2$, and n = 1,2 and 3. The experimental
part describes the production of O,O-dialkyl-S-benzyl-
dithiophosphates and O,O-dialkyl-S-2-phenoxy-ethyl-
dithiophosphates. There are 1 table and 12 references,
6 of which are Soviet.

ASSOCIATION: Nauchnyy institut po udobreniyam i insektofungitsidam
                (Scientific Institute for Fertilizers and Insectofungicides)

SUBMITTED: April 12, 1958
Card 2/2

MEL'NIKOV, N.N.; MANDEL'BAUM, Ya.A.; SHVETSOVA, K.D.; BAKANOVA, Z.M.
LOMAKINA, V.I.; ZAKS, P.G.; MIL'SHTEYN, I.M.; POPOV, P.V.;
POKROVSKIY, Ye.A.; BOCHAROVA, L.P.; SEDYKH, A.S.; UKRAINETS, N.S.

Improved technology for producing thiophos, metaphos, chlorophos
and other phosphorus organic insecticides and investigation of
new insecticides and fungicides derived from the esters of
phosphoric acids. [Trudy] NIUIF no.164:11-14 '59. (MIRA 15:5)
                    (Insecticides) (Fungicides)

MEL'NIKOV, N.N.; SHVETSOVA, K.D.; GRAPOV, A.F.; MIL'SHTEYN, I.M.; KAGAN, M.Ya.

Investigation of new chemicals for the protection of plants.
[Trudy] NIUIF no.164:27-28 '59.   (MIRA 15:5)
                              (Insecticides)

5.1320,5.3630,5.3610

77381
SOV/79-30-1-42/78

AUTHORS: Mel'nikov, N. N., Shvetsova-Shilovskaya, K. D., Mil'shteyn, I. M.

TITLE: Concerning Organic Pesticides. LIII. Concerning the Reaction of Esters of Thio- and Dithiophosphoric Acids With Tertiary Amines

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, Nr 1, pp 197-199 (USSR)

ABSTRACT: Looking for the explanation for the biological action of insecticides based on organophosphorus compounds, the authors assumed that the phosphorylation of cholinester- ase, advanced by many authors, cannot be the only reason for this action. Another explanation could be found in the formation of quaternary ammonium salts in the reaction of thio- and dithiophosphoric acids with tertiary nitrogen atoms present in many enzymes and in nucleic acids. It was established in the present study that esters of thio- and dithiophosphoric acid reacted

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Concerning Organic Pesticides. LIII. Con-
cerning the Reaction of Esters of Thio-
and Dithiophosphoric Acids With Tertiary
Amines

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on heating with tertiary amines and give the corresponding
ammonium salts as the chief product. The highest reac-
tivity was shown by esters whose molecule contained at
least one methoxy group, as well as acidic aromatic
radicals. The 11 new compounds thus obtained (see
Table) were extremely hygroscopic, and their density
could not be determined. There is 1 table; and 7 refer-
ences, 4 U.S., 1 German, 2 Soviet. The U.S. references
are: J. E. Casida, J. Agr. Food Chem., 4, 772 (1956);
T. R. Fukuto, The Chemistry and Action of Organic Phos-
phorus Insecticides, Advances in Pest Control Research,
I. N.Y. (1957); T. R. Fukuto, R. L. Metcalf, J. Agr.
Food Chem., 4,930 (1956), U.S. Pat. 2652416.

ASSOCIATION: Scientific Institute for Fertilizers and Pesticides
(Nauchnyy institut po udobreniyam i insektofungitsidam)

SUBMITTED: January 19, 1959
Card 2/3

Concerning Organic Pesticides. LIII. Concerning the Reaction of Esters of Thio- and Dithiophosphoric Acids With Tertiary Amines

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SOV/79-30-1-42/78

Table

Constants of salts of quaternary ammonium bases obtained from thiophosphates

* mp 67° C
** mp 96° C

Formula	Yield (in %)	n_D^{20}
$(CH_3O)_3PSN(C_2H_5)_3$	67	1.5010
$C_4H_9OPS(OCH_3)_2N(C_2H_5)_3$	50	1.4905
$iso\text{-}C_6H_{11}OPS(OCH_3)_2N(C_2H_5)_3$	41	1.4892
$(C_2H_5O)_2PSOCH_3N(C_2H_5)_3$	23	1.4959
$4\text{-}O_2NC_6H_4OPS(OCH_3)_2N(C_2H_5)_3$	60	1.5650
$4\text{-}O_2NC_6H_4OPS(OC_2H_5)_2N(C_2H_5)_3$	69	1.5550
$(4\text{-}O_2NC_6H_4O)_2PSOC_2H_5N(C_2H_5)_3$	32	*
$(4\text{-}O_2NC_6H_4O)_3PSN(C_2H_5)_3$	81	**
$(CH_3O)_3PSNC_5H_5$	17	1.5416
$(CH_3O)_3PSN(CH_3)_2C_6H_5$	37	1.5460
$(CH_3O)_2PSSCHCOOC_2H_5N(C_2H_5)_3$ $\quad\quad\quad CH_2COOC_2H_5$	79	1.5100

Card 3/3

KUCHEROV, V.F.; MIL'SHTEYN, I.M.; GURVICH, I.A.

Stereochemistry of cyclic compounds. Part 40: Stereochemistry of
diene condensation of trans-1-vinyl-6-keto-9-methyl-Δ-octalin with
maleic anhydride, and some transformations of formed isomers and
their ketals. Zhur.ob.khim. 31 no.9:2832-2839 S '61.

(MIRA 14:9)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Cyclic compounds) (Stereochemistry)

GURVICH, I.A.; MIL'SHTEYN, I.M.; KUCHEROV, V.F.

Stereochemistry of cyclic compounds. Part 43: Stereochemistry of
the diene condensation of trans-1-vinyl-6-acetoxy-9-methyl-
Δ-octalin with maleic anhydride, and some transformations of
dicarboxylic acids of the phenanthrene series. Zhur.ob.khim.
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