

*Sokolov I.G.*

SOKOLOV, K.M.; YEVSTAFEYEV, S.V.; ROSTOTSKIY, V.K.; STANKOVSKIY, A.P.;  
 VARENIK, Ye.I.; ONUFRIYEV, I.A.; SVESHNIKOV, I.P.; UKHOV, B.S.;  
 BAUMAN, V.A.; BARSOV, I.P.; BASHINSKIY, S.V.; BOYKO, A.G.; VALUTSKIY,  
 I.I.; ZAPOL'SKIY, V.P.; ZOTOV, V.P.; IVANOV, V.A.; KAZARINOV, V.M.;  
 LEVI, S.S.; MALOLETKOV, Ye.K.; MERENKOV, A.S.; MIROPOL'SKAYA, N.K.;  
 OSIPOV, L.G.; PEREL'MAN, L.M.; PETROV, G.D.; PETROV, N.M.; POLYAKOV,  
 V.I.; VATSSLAVSKAYA, L.Ya.; VAKHRAMEYEV, S.A.; VERZHITSKIY, A.M.;  
 VLASOV, P.A.; VOL'FSON, A.V.; VOSHCHININ, A.I.; DEHUNKOVSKIY, N.B.;  
 DOMBROVSKIY, N.G.; YEPIFANOV, S.P.; YEFREMNKO, V.P.; ZELICHENOK, G.G.;  
 ZIMIN, P.A.; POPOVA, N.T.; ROGOVSKIY, I.V.; RNBROV, A.S.; SAPRYKIN, V.A.;  
 SOVALOV, I.G.; SOSHIN, A.V.; STARUKHIN, N.M.; SURENYAN, G.S.; TOLORAYA,  
 D.F.; TROITSKIY, Kh.L.; TUSHNYAKOV, M.D.; FROLOV, P.T.; TSIRKUNOV, I.P.

Andrei Vladimirovich Konorov; obituary. Mekh. stroi. 16 no.1:32 Ja  
 '59. (MIRA 12:1)

(Konorov, Andrei Vladimirovich, 1890-1958)

SOVALOV, I.G., kand.tekhn.nauk laureat; Stalinskoy premii

Simultaneous bricklaying and reinforced concrete construction  
under winter conditions. Stroitel.prom. 27 no.9:9-13 S '59.  
(MIRA 13:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po organi-  
zatsii i mekhanizatsii stroitel'stva.

(Bricklaying--Cold weather conditions)

(Reinforced concrete construction--Cold weather conditions)

BOYKO, Aleksey Gavrilovich, inzh.; SOVALOV, I.G., kand.tekhn.nauk, red.;  
UDQD, V.Ya., red.izd-vs; BOROVNEV, N.K., tekhn.red.

[Making reinforced concrete construction elements using layers  
of mortar and coarse aggregates] Isgotovlenie zhelezobetonnykh  
konstruktsii s razdel'noi ukladkoi rastvora i krupnogo zapolni-  
telia. Pod red. I.G.Sovalova. Moskva, Gos.izd-vo lit-ry po  
stroit., arkhitekt. i stroit.materialam, 1960. 58 p.

(Reinforced concrete)

(MIRA 13:7)

RABINOVICH, S.G., inzh.; SKVORTSOV, A.P., inzh.; SOVALOV, I.G., kand.  
tekhn.nauk, red.; GORDEYEV, P.A., red.izd-vs; GILENSKY, P.G.,  
tekhn.red.; GOL'BERG, T.M., tekhn.red.

[Album of drawings of molds and forms for monolithic and precast  
reinforced-concrete construction elements] Al'bom chertezhei  
opelubki i form dlia monolitnykh i sbornykh zhelezobetonnykh  
konstruktsii. Izd.2., dop. i perer. Moskva, Gos.izd-vo lit-ry  
po stroit., arkhitekt. i stroit.materialam, 1960. 107 p.

(MIRA 13:12)

(Precast concrete)

KRAUZE, L.S., inzh.; Prinsipal uchastiyе BELINOVICH, M.S.. SOVALOV, I.G.,  
kand.tekhn.nauk, nauchnyy red.; TYAPKIN, B.G., red.; izd-va;  
TEMKINA, Ye.L., tekhn.red.

[Making mortars and concrete mixes] Prigotovlenie rastvorov i  
betonnykh smesei. Moskva, Gos.izd-vo lit-ry po stroit., arkhit.  
i stroit.materialam, 1960. 178 p. (MIRA 13:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organi-  
zatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
2. Glavnyy inzhener tresta No.27 Glavmosoblastroya (for Belinovich).  
(Mortar) (Concrete)

SOVALOV, I.G.; LEVI, S.S.

Centralized production of reinforcements for concrete construction  
elements at local plants. Prom. stroi. 38: no.5:37-41 '60.

(MIRA 14:5)

(Reinforcing bars)

LEVI, S.S., kand.tekhn.nauk; RABINOVICH, S.G., inzh.; SOVALOV, I.G.,  
kand.tekhn.nauk; TYULENEVA, L.M., red.izd-va; OSENKO, L.M.,  
tekhn.red.

[Concrete and reinforced-concrete work in building monolithic structures] Betonnye i zhelezobetonnye raboty pri vozvedenii monolitnykh sooruzhenii. Moskva, Gos.izd-vo lit-ry po stroit., arkhitek. i stroit.materialam, 1961. 362 p.

(MIRA 14:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.  
(Concrete construction) (Reinforced concrete construction)

SOVALOV, I., kand.tekhn.nauk; ROZENBOYM, L., inzh.

Packing low-mobility concrete mixes by vibration rods. *Rech.*  
transp. 20 no. 2:25-26 F '61. (MIRA 14:2)  
(Ships, Concrete)



ZELICHENOK, G.G.; SOVALOV, I.G.

"Use of concrete in large-scale construction" by G.D. Petrov.  
Reviewed by G.G. Zelichenok, I.G. Sovalov. Prom. stroi. 39  
no. 2:63-64 '61. (MIRA 14:2)  
(Concrete construction)

SOVALOV, I.G., kand.tekhn.nauk; LYUL'YEV, B.V.

Mechanized means for dry concentration of concrete aggregates.  
Prom. stroi. 39 no.4:37-41 '61. (MIRA 14:6)

1. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii  
i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i  
arkhitektury SSSR.  
(Aggregates (Building materials))

YAKOBSON, Yakov Maksimovich. Primal uchastiye LEVI, S.S., kand. tekhn. nauk; SOVALOV, I.G., nauchnyy red.; GURVICH, E.A., red.; PERSON, M.N., tekhn. red.

[Young worker's handbook on the manufacture of precast reinforced concrete] Spravochnik mladogo rabochego po izgotovleniiu sbornogo zhelezobetona. Moskva, Proftekhizdat, 1962. 237 p. (MIRA 15:10)

(Precast concrete)

SOVALOV, I.G., kand.tekhn.nauk

For over-all mechanization of concrete and reinforced concrete  
work. Mekh. stroi. 19 no.5:2-4 My '62. (MIRA 15:5)  
(Concrete construction)

SOVALOV, Iona Grigor'yevich, kand. tekhn. nauk; KHAYUTIN,  
Yuliy Germanovich; ANTONOVA, N.N., inzh., red.

[Methods of activating cement and the effect of activation on the properties of cement] Metody aktivizatsii tsementov i vliianie aktivizatsii na svoistva betonov. (MIRA 17:5)  
Moskva, 1963. 39 p.

1. Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. 2. Rukovoditel' laboratorii tekhnologii opalubochnykh, armaturnykh betonnykh i zhelezobetonnykh rabot, sborno-monolitnykh konstruktsey Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR (for Sovalov).
3. Glavnyy tekhnolog laboratorii tekhnologii opalubochnykh armaturnykh betonnykh i zhelezobetonnykh rabot, sborno-monolitnykh konstruktsey Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR (for Khayutin).

SOVALOV, I.G., kand. tekhn.nauk; ROZENBOYM, L.S., inzh.;  
KUCHEROVSKIY, O.A., inzh.; RAYSKAYA, A.D., inzh.;  
OSMAKOV, S.A., kand. tekhn. nauk; BRAUDE, F.G., inzh.;  
FINKINSHTEYN, B.A., inzh., red.

[Methods of molding precast concrete products] Metody  
formovaniia sbornykh zhelezobetonnykh izdelii. Moskva,  
Gosstroizdat, 1963. 49 p. (MIRA 17:9)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
2. Rukovoditel' laboratorii betonnykh i zhelezobetonnykh rabot Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu, Moskva (for Sovalov).
3. Laboratoriya betonnykh i zhelezobetonnykh rabot Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu, Moskva (for Rozenboym, Kucherovskiy, Rayskaya).
4. Sotrudniki Vsesoyuznogo nauchno-issledovatel'skogo instituta gidrotekhnicheskikh i sanitarno-tekhnicheskikh rabot (for Osmakov, Braude).

GERASIMOV, A.K., inzh., red.; PETROV, G.D., doktor tekhn. nauk, red.;  
SOVALOV, I.G., kand. tekhn. nauk, red.; STRASHNYKH, V.P., red. izd-va

[Construction norms and regulations] Stroitel'nye normy i  
pravila. Moskva, Gosstroizdat. Pt.3. Sec.V. ch.1-2.  
[Solid concrete and reinforced-concrete structures] Beton-  
nye i zhelezobetonnye konstruksii monolitnye. (SNIP III-V.  
1-2-62). 1963. 74 p. (MIRA 16:7)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po de-  
lam stroitel'stva. 2. Gosudarstvennyy komitet po delam  
stroitel'stva Soveta Ministrov SSSR (for Gerasimov). 3. Mezhd-  
duvedomstvennaya komissiya po peresmotru Stroitel'nykh norm  
i pravil (for Petrov). 4. Nauchno-issledovatel'skiy institut  
organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroi-  
tel'stvu Akademii stroitel'stva i arkhitektury SSSR (for  
Sovalov).

(Reinforced concrete construction)  
(Concrete construction)

SOVALOV, I.G., kand. tekhn. nauk, nauchn. red.; SHESTOPAL, N.M.,  
kand. tekhn. nauk, nauchn. red.; FINKINSHTEYN, B.A., inzh.,  
red.

[Problems in improving the organization of construction and  
the overall mechanization of building and assembling opera-  
tions] Voprosy uluchsheniia organizatsii stroitel'nogo pro-  
izvodstva i kompleksnoi mekhanizatsii stroitel'no-montazh-  
nykh robot. Moskva, Stroiizdat, 1964. 78 p.

(MIRA 18:11)



RABINOVICH, S.G., inzh.; TOPCHIY, V.D., inzh.; SOVALOV, I.G.,  
kand. tekhn. nauk, red.

[Album of drawings of molds and forms for monolithic and  
precast concrete structures] Al'bom chertezhei opalubki i  
form dlia monolitnykh i sbornykh zhelezobetonnykh kon-  
struktsii. [By] S.G.Rabinovich i V.D.Topchii. Izd.3.,  
dop. i perer. Moskva, Stroiizdat, 1964. 125 p.

(MIRA 17:11)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii,  
mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.

SOVALOV, Iona Grigor'yevich, kand. tekhn. nauk; YAKOBSON, Yakov Maksimovich, inzh.; ROZENBOYM, Lev Sidorovich, inzh.; LALAKINA, Tamara Aleksandrovna, inzh.

[Improving the quality of precast reinforced concrete produced in plants] Povyshenie kachestva sbornogo zhelezo-betona zavodskogo proizvodstva. [By] I.G.Sovalov i dr. Moskva, Stroiizdat, 1964. 182 p. (MIRA 17:10)

SOVALOV, I.G., kand. tekhn. nauk; TOPCHIY, V.D., inzh.

Multipurpose standard formworks in industrial construction. Prom.  
stroil. 42 no.4:14-18 '65. (MIRA 18:4)

SOVALOV, S. A.

Cand. Technical Sci. Mbr., Energetics Inst. in. Krzhishanovskiy, Dept. Tech. Sci.,  
Acad. Sci., -c1948-. "Experimental Determination of the Parameters of an Electrical  
System, Working on the Process of Automatic Regulation of Frequency and Power," Elek-  
trichestvo, No. 8, 1948; "Automatic Distribution of Operating Loads in an Electric Power  
System," *ibid.*, No. 9, 1949; "Basic Requirements for Automatic Frequency Regulation in  
Power Systems," Elek. Stan., No. 5, 1949.

SOVALOV, S. A., Dr. Tech Sci

USSR/Electricity - Transmission Lines  
Power Stations

Jul 50

"Experimental Study of Dynamic Stability," I. M. Markovich, Dr Tech Sci, S. A. Sovalov,  
Cand Tech Sci, Moscow

"Elektrichestvo" No 7, pp 30-38

Made experimental study of dynamic stability of 220-kv power-transmission line from hydroelectric power station. Compares experimental and theoretical results and finds it practicable to make accurate calculations of dynamic stability. Considers this will be most important in operation of existing systems and in design of new power-transmission lines from large hydroelectric power stations.

164T14

SOVALOV, S. A., CAND TECH SCI, MOSCOW

USSR/Electricity - Power Transmission Jun 53

"Experimental Investigation of Operating Conditions for Long-Distance Electric Power Transmission Close to the Limit of Static Stability," I.M. Markovich, Dr Tech Sci; S.A. Sovalov, Cand Tech Sci, Moscow

Elektrichestvo, No 6, pp 3-9

Cites results of expts to check operation of hydro-elec generators fitted with electronic voltage regulators near limit of static stability. Dets max transmittable power without loss of stability. Compares exptl and calcd results. Exams effect on

268T50

max power of some parameters of voltage regulators. Includes diagrams, tables, oscillograms, graphs. Submitted 15 Dec 52.

268T50

SovALov, S.A.

AID P - 2001

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 5/31

Authors : Markovich, I. M., Doc. of Tech. Sci., and Sovalov,  
S. A., Kand. of Tech. Sci., Moscow

Title : Experimental study of resynchronizing generators

Periodical : Elektrichestro, 4, 24-29, Ap 1955

Abstract : The authors experimented first with a 50,000-kw 10.5-kv, 675-amp turbogenerator. A 3-phase, 0.55-sec. short-circuit at the high voltage buses created a 9-cycle 4-sec asynchronous oscillation in the generator after which it returned to synchronic speed. The next two series of tests were made with a 55,000-kw, 13.8-kv, 1170-a water-wheel generator with no damper windings, the first with the use of rapid excitation regulation, the second with a constant excitation voltage. In the first case, a series of 138 cycles of asynchronous oscillations lasted for

AID P - 2001

Elektrichestro, 4, 24-29, Ap 1955

Card 2/2 Pub. 27 - 5/31

15 sec with a maximum slip of 28.6%; in the second case resynchronization occurred after 171 cycles, after which the water-wheel again went out of synchronism for 8 cycles. Twenty-two seconds after the short occurred, synchronism was reestablished. Maximum slip was 32.5%. The authors conclude that the deciding role in the process of resynchronization was played by the inertia of the regulating system of the turbine. Eight diagrams and oscillograms, 4 Russian references (1948-1953).

Institution: None

Submitted: No date



*SOVALOV, S.A.*

SOVALOV, S.A., kand. tekhn. nauk, Moskva.

Testing the steady-state stability of single-circuit 400kv  
transmission systems. Elektrichestvo no. 11:58-64 N '57.  
(MIRA 10:10)

(Electric power distribution)

SOVALOV, S. A.

MAMIKONYANTS, L.G., kand. tekhn. nauk, Moskva; SOVALOV, S.A., kand. tekhn. nauk, Moskva; KHACHATUROV, A.A., kand. tekhn. nauk, Moskva.

Asynchronous operation, nonsynchronous switching and resynchronization of the Kuibyshev generators. Elektrichestvo no. 11:64-72 N '57.

(MIRA 10:10)

(Electric generators)

(Kuibyshev Hydroelectric Power Station)

SOVALOV, S. A., ROKOTYAN, S. S., AKOPYAN, A. A., BURGSDORF, V. V., BUTKEVICH, Y. V.,  
GERTSYK, A. K. GRYUNTAL, Y. L.

Development of 400-500 kV networks in the Soviet Union,  
paper submitted for presentation at the Intl. Conf. on Large Electric Systems (CIGRE)  
17th biennial Session, Paris, France, 4-14 June 1958.

Electra, No. 30, Nov 57, periodical news letter issued by the CIGRE, Paris France.

SOVALOV, S. A., BOGDANOVA, N. B., GERTSYK, A. K., YEMELYANOV, N. P., KOLPAKOVA, A. N.,  
MARKOVICH, I. M., POPKOV, V. I., and SLAVIN, G. A.

Results of Some Researches, Carried out in the USSR on 600 kV long-distance  
Power Transmissions.

paper submitted for presentation at the Intl. Conf. on Large Electric Systems (CIGRE)  
17th Biennial Session, Paris, France, 4-14 June 1958.

Electra, No. 30, Nov 57, periodical news letter issued by the CIGRE, Paris France.

SOVALOV, SA

BRUK, Isaak Semenovich; ZUBKOV, Pavel Izrailevich; KRYUKOV, Adrian Aleksandrovich; LIBKIND, Mark Samuilovich; MARKOVICH, Isaak Moiseyevich; SOVALOV, Solomon, Abramovich; GRIGOR'YEV, Ye.N., red.izd-va; NOVIKOVA, S., tekhn.red.

[Long distance transmission of alternating current] Dal'nie peredachi peremennogo toka. Moskva, Izd-vo Akad. nauk SSSR, 1958. 258 p. (MIRA 11:5)

1. Chlen-korrespondent AN SSSR (for Bruk)  
(Electric power distribution)

8(5)

AUTHORS:

Sovalov, S. A., Candidate of Technical Sciences, Leznov, S. I., Engineer, Smirnov, M. I., Engineer (Moscow) SOV/105-58-11-1/28

TITLE:

Experimental Investigation of Power System Performance Characteristics (Eksperimental'noye issledovaniye rezhimnykh kharakteristik energosistemy)

PERIODICAL:

Elektrichestvo, 1958, Nr 11, pp 1-7 (USSR)

ABSTRACT:

This paper gives an account of the principal results of an experimental investigation carried out in summer 1957 (on 3 weekdays and on one **Sunday**) in the Ob'yedinnennaya energosistema Tsentra (Combined Power System of the Center). It covers: 1) An investigation of the frequency fluctuations in a non-controlled power system. It appeared that the irregular frequency fluctuations in a large power system are relatively small (not exceeding 0.2%) and that with a relatively stable load in the power system (this implies only slow frequency variations) the usual requirements placed upon frequency maintenance on a certain level are

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Experimental Investigation of Power System Performance  
Characteristics

SOV/105-58-11-1/28

satisfied even without automatic control. 2) An investigation of the frequency fluctuations with automatic frequency control, even with the help of a relatively powerful station, does practically not at all reduce the amplitude of irregular fluctuations. In some instances, in particular on Sundays and during night hours such fluctuations became apparent in a much higher degree in an automatically controlled system than in a system without control. 3) Examinations of the total load variations in a power system. This study showed that the load varies very irregularly. When the load showed a general tendency to rise, it suddenly dropped back and vice versa. 4) The resulting static behaviour of all units of the power system, except of those of the Volzhskaya GES (Volga Power Station) remained within the limits of 8-10%. 5) A determination of the slope of the static frequency versus load characteristic. It was found that the voltage in the 110 kV-grid of the Moskovskiy uzel (Moscow Power Center) on the average

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Experimental Investigation of Power System Performance  
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varies by 1-2% if the frequency varies by 1%. This is true of the Moscow Power Center, of the Verkhnevolzhskiy energosistem (Upper Volga Power System), and of the 400 kV bus bars of the substations. The following persons assisted in the organization of the work and were engaged in the investigation: K.T.Nakhapetyan, V.T.Kalita, V.K.Meshkov, S.S.Shlopak, Ye.M.Malikova, M.D.Kuchkin, I.N.Popov, V.M.Gornshteyn. I.M.Markovich advanced valuable suggestions. There are 7 figures, 5 tables, and 2 references, 1 of which is Soviet.

SUBMITTED: August 6, 1958

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Sovalov S.A.

TABLE I main contents

eng/1407

Abstracts with ISBN. Bibliographically justified by G.M. Bratslavskaya

English copyright: generally permissively published G.M. Bratslavskaya  
(Problems of Power Engineering: Collection of Articles Dedicated to Academician G.M. Bratslavskaya) Moscow, 1979. 51 p. Serials only inserted.  
2,500 copies printed.

Eng. or Publ. No.: S.A. Sovalov, P.Y. Golov, P.I. Golov, and  
A.M. Bogdanov (Moscow); S.A. Sovalov; National Center for Energy  
Research (Moscow); V.I. Poylov (Suz. K.) Corresponding Member,  
Academy of Sciences USSR; V.I. Poylov, A.S. Prokofiev, K.A. Kabanov,  
E.F. Kostomarov, E.B. Bogdanov, Candidate of Technical Sciences, S.K. Golov,  
Candidate of Technical Sciences, K.M. Yashov, Candidate of Technical Sciences,  
and I.A. Babakov.

English: This collection of articles is intended as a tribute to the memory  
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SOVALOV, S. A., SOKOLOV, N. I., VENIKOV, V. A., GERTSENBERG, Grigoriy A.,  
NEYMAN, L. R.

"Excitation control of synchronous machines in power systems of the Soviet Union"  
report to be submitted for Intl. Conference on Large Electric Systems (CIGRE),  
18th Biennial Session, Paris, France, 15-25 Jun 60.

MARKOVICH, I.M., doktor tekhn.nauk; SOVALOV, S.A., kand.tekhn.nauk;  
KRYUKOV, A.A., inzh.

Some special features of long distance a. c. transmissions.  
Elektrichestvo no.2:35-40 F '60. (MIRA 13:5)

1. Energeticheskij institut imeni Krshizhanovskogo AN SSSR.  
(Electric power distribution--Alternating current)

MARKOVICH, I.M., doktor tekhn.nauk; TAFT, V.A., doktor tekhn.nauk;  
SOVALOV, S.A., kand.tekhn.nauk; VENIKOV, V.A., doktor tekhn.  
nauk; TSUKERNIK, L.V., kand.tekhn.nauk

Present-day use of computers in designing and operating electric  
power systems. Elektrichestvo no. 11:1-8 N '60. (MIRA 13:12)

1. Energeticheskiy institut AN SSSR (for Markovich, Taft & Sovalov).
  2. Moskovskiy energeticheskiy institut (for Venikov).
  3. Institut elektrotekhniki AN USSR (for Tsukernik).
- (Electronic calculating machines)  
(Electric power)

MARKOVICH, I.M., doktor tekhn.nauk; TAFT, V.A., doktor tekhn.nauk;  
SOVALOV, S.A., kand.tekhn.nauk; VENIKOV, V.A., doktor tekhn.nauk;  
TSUKERNIK, L.V., kand.tekhn.nauk

Problems on the use of computers in designing and operating  
electric power systems. Elektrichestvo no. 12:9-15 D '60.  
(MIRA 14:1)

1. Energeticheskiy institut AN SSSR (for Sovalov).
  2. Moskovskiy energeticheskiy institut (for Venikov).
  3. Institut elektrotekhnik AN USSR (for TSukernik).
- (Electronic calculating machines)  
(Electric power plants)

VENIKOV, V.A., doktor tekhn.nauk; GERTSENBERG, G.R., kand.tekhn.nauk;  
KOSTENKO, M.P., akademik; NEYMAN, L.R.; SOVALOV, S.A., kand.tekhn.  
nauk; SOKOLOV, N.I., kand.tekh.nauk

Strong regulation in electric systems. Elek.sta. 31 no.6:43-49  
Je '60. (MIRA 13:7)

1. AN SSSR (for Kostenko). 2. Chlen-korrespondent AN SSSR (for  
Heyman). (Electric power distribution)  
(Voltage regulators)

POPKOV, V.I.; TOLSTOV, Yu.G.; STEKOL'NIKOV, I.S.; MEYEROVICH, E.A.;  
MOSKVITIN, A.I.; TAFT, V.A.; GORUSHKIN, V.I.; SOVALOV, S.A.;  
LIBKIND, M.S.

Sixtieth birthday of I.M. Markovich. Elektrichestvo no.5:  
87 My '61. (MIRA 14:9)  
(Markovich, Isaak Moiseevich, 1901-)

GINZBURG, S.A., kand.tekhn.nauk; GORNSHTEYN, V.M., kand.tekhn.nauk;  
SOVALOV, S.A., kand.tekhn.nauk

Fundamental principles of designing a computer for operational  
calculation of the load distribution efficiency of a consolidated  
electric utility system. Elek. sta. 32 no. 5:35-41 My '61.

(MIRA 14:5)

(Interconnected electric utility systems)



MARKOVICH, I. M.; SOVALOV, S. A.

Principal requirements of automatic frequency and active power control in electric power distribution systems and prospects of satisfying these conditions with present control systems. Elektroenergetika no.6:22-41 '62.

(MIRA 16:4)

(Electric power distribution)  
(Electric power plants)

BOGOSLOVSKIY, A.V., kand.tekhn.nauk; SOVALOV, S.A., kand.tekhn.nauk/

Testing of the stability of the power transmission system  
between V.I. Lenin Volga Hydroelectric Power Station and the  
Ural Mountain region. Elektrichestvo no.8:1-9 Ag '62. (MIRA 15:7)  
(Electric power distribution)  
(Volga Hydroelectric Power Station (Lenin))

SOYALOV, S.A., kand.tekhn.nauk; BERKOVICH, M.A., inzh.

Operative automatic control systems of large hydroelectric power  
stations and 400 to 500 kv. electric power transmission lines.  
Elek. sta. 33 no.8:37-46 Ag '62. (MIRA 15:8)  
(Hydroelectric power stations)  
(Electric power distribution--High tension)

VENIKOV, Valentin Andreyevich; GARTSEMBERG, Grigoriy Rafailovich;  
SOVALOV, Solomon Abramovich; SOKOLOV, Nikolay Ivanovich;  
STROYEV, V.A., red.; BUL'DYAYEV, N.A., tekhn. red.

[Strong excitation control] Sil'noe regulirovanie возбуж-  
deniia. Moskva, Gosenergoizdat, 1963. 151 p.  
(MIRA 16:10)

(Turbogenerators)  
(Volga Hydroelectric Power Station (Lenin))

AZAR'YEV, D.I., kand. tekhn. nauk (Moskva); VENIKOV, V.A., prof.,  
doktor tekhn. nauk (Moskva); LITKENS, I.V., dotsent, kand.  
tekhn. nauk (Moskva); MAMIKONYANTS, L.G., prof., doktor  
tekhn. nauk (Moskva); PORTNOY, M.G., kand. tekhn. nauk  
(Moskva); SOVALOV, S.A., kand. tekhn. nauk (Moskva)

Fundamentals of the determination of power system stability.  
Elektrichestvo no.11:1-8 N '63. (MIRA 16:11)

BRONSHTEYN, E.L., inzh.; VENIKOV, V.A., doktor tekhn.nauk; SOVALOV, S.A.,  
kand.tekhn.nauk

Study of the electrical braking of the generators of the V.I.Lenin  
Volga Hydroelectric Power Station. Trudy VNIIE no.15:227-248 '63.  
(MIRA 16:12)

MESHKOV, V.K., inzh.; SOVALOV, S.A., kand.tekhn.nauk; GURINA, V.A., inzh.

Coverage of peak power loads in the consolidated electric power system  
of the European part of the U.S.S.R. Elek. sta. 34 no. 1:48-57 N'63.  
(MIRA 17:2)

SOVALOV, S. A.; SMIRNOV, K. A.; GORNSHTEYN, V. M.; USOV, S. V.

"The Economic Principles Governing Power System Operation Schedules in the  
U.S.S.R."

report submitted for Intl Conf on Large Electric Systems, 20th Biennial Session,  
Paris, 1-10 Jun 64.



MESHKOV, V.K., inzh.; SOVALOV, S.A., kand. tekhn. nauk; GURINA, V.A., inzh.

Graph of the electrical load of the consolidated electric utility  
system of the European part of the U.S.S.R. Elek. sta. 34 no.10:  
54-60 0 '63. (MIRA 16:12)

GORNSHTEYN, V. M.; SMIRNOV, K. A.; SOVALOV, S. A.; USOV, S. V.

"The Economic Principles Governing Power System Operation Schedules in the USSR."

report submitted for 20th Biennial Sess, Intl Conf on Large Electric Systems,  
Paris, 1-10 Jun 64.

ACCESSION NR: AP4019325

S/0105/64/000/003/0008/0012

AUTHOR: Borozinets, B. V.; Ginzburg, S. A.; Gornshteyn, V. M.;  
Shlimovich, V. D.; Sovalov, S. A.; L'vov, Yu. N.

TITLE: Computer for calculating power-system economy operation and the  
operating experience gained at ODU YeES

SOURCE: Elektrichestvo, no. 3, 1964, 8-12

TOPIC TAGS: power system, Soviet united power system, power system  
economics, power system economics computer, computer, interconnected  
power systems, high economy power system operation

ABSTRACT: An analog computer intended for calculating the high-economy  
operation of the Soviet United Power System (UPS) is described. The following  
features were taken into account in designing the computer: (1) The UPS is  
represented by an equivalent network in which all generating stations of a local  
power system are replaced by an equivalent station having an equivalent incre-  
mental economy rate characteristic; (2) Easy setting of any incremental  
characteristic; (3) System loads are represented by equivalent loads that have

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ACCESSION NR: AP4019325

individual load curves; (4) Interconnection-line losses are evaluated by special methods. The computer comprises the following essential parts: 16 generating station equivalents, 16 loads, 15 tie lines, 8 nonlinear units representing incremental losses due to power exchanges and tie-line load restrictions, 14 elements for setting the resistances of transmission lines. The computer includes 128 UPT-4 amplifiers, 1,000 6D6A diodes, 800 SP-2-A potentiometers, 2,000 resistors, 7 power-supply packs, etc.; power consumption is 7 kw. Computation of a set of operating UPS conditions takes about 2 hrs. The computer has been in continuous use since Nov. '62. "L. B. Denisevich (ODU YeES) and N. S. Malishevskaya (VNIE) took part in aligning and operating the computer." Orig. art. has: 3 figures and 1 table.

ASSOCIATION: VNIE (All-Union Scientific Research Institute of Electrical Power Engineering); ODU YeES (Joint Load-Dispatcher's Office, United Power System)

SUBMITTED: 10Jun63  
SUB CODE: PR, EE

DATE ACQ: 27Mar64  
NO REF SOV: 001

ENCL: 00  
OTHER: 000

Card 2/2

SOVALOV, S.A., kand. tekhn. nauk; SOKOLOV, N.I., doktor tekhn. nauk;  
SOKOLOV, N.N., inzh.

Carrying capacity of electric power transmission lines from  
thermal electric power plants. Elek. sta. 35 no.2:73-79  
F '64. (MIRA 17:6)

1. Ob'yedinennoye dispetcherskoye upravleniye Yedinoy ener-  
geticheskoy sistemy SSSR (for Sovalov).
2. Vsesoyuznyy nauchno -  
issledovatel'skiy institut elektroenergetiki (for N.I. Sokolov).
3. Energoset'proyekt (for N.N. Sokolov).

GONCHARENKO, A.S., inzh.; KUR'ANOV, A.M., inzh.; PUDENKO, Yu.N., kand.  
tekhn. nauk; SOVALOV, S.A., kand. tekhn. nauk

Determination of optimum operating modes of electric power  
systems. Elektrichestvo no.8:75-87 Ag '64.

(MIRA 17:11)

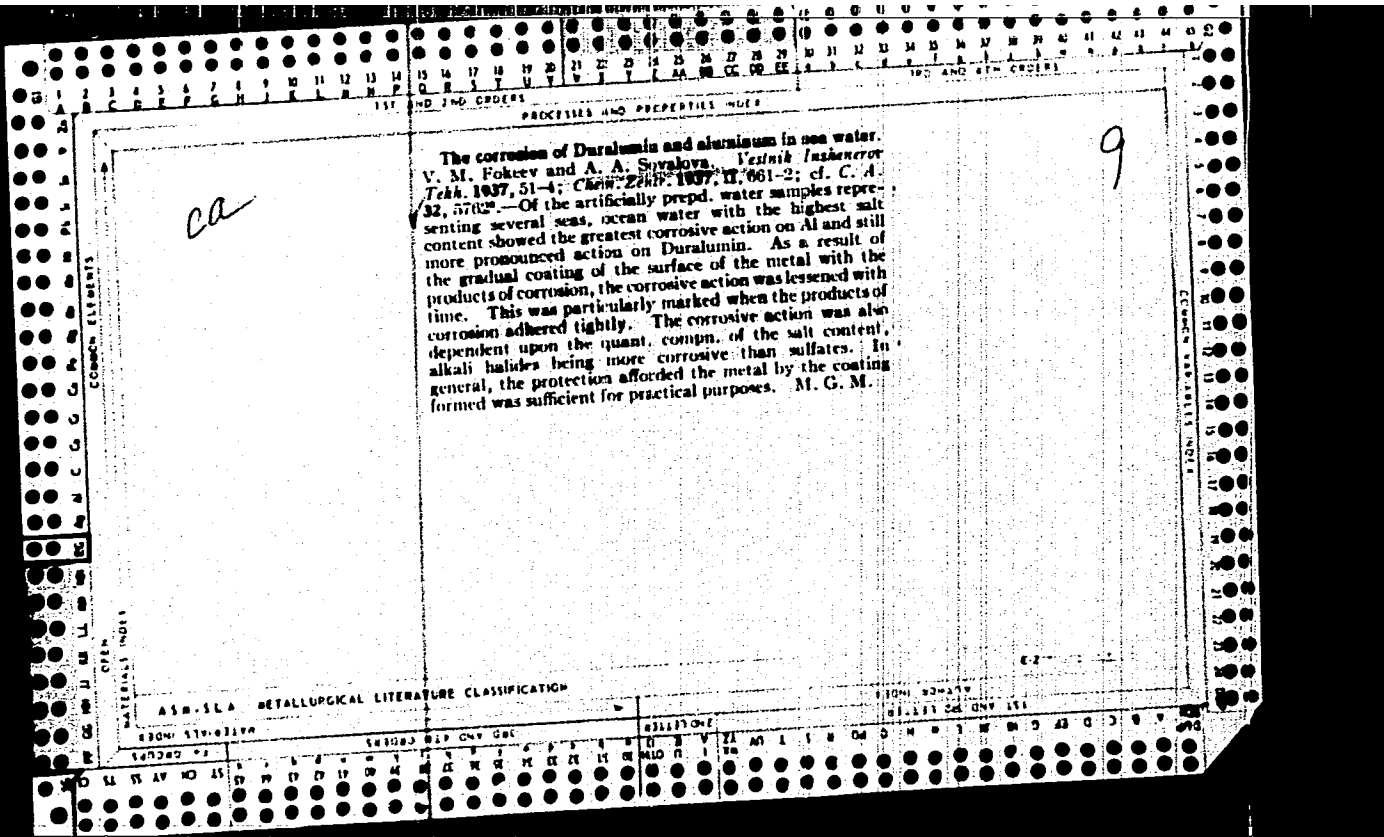
LEZNOV, S.I., inzh.; SOVALOV, S.A., kand. tekhn. nauk

Change in consumer loads with frequency deviations. Prom. energ. 19  
no.11:10-15 N 64. (MIR: 18:1)

BURGSBORG, V.V., doktor tekhn. nauk (Moskva); MESHKOV, V.K., inzh. (Moskva);  
SOVALOV, S.A., kand. tekhn. nauk (Moskva); KHEBNIKOV, A.G., inzh.  
(Moskva)

Melting of ice crusts on 400-500 kv. lines. Elektrichestvo  
no.2:7-10 F '65. (MIRA 18;3)





SOVALOVA, A. A.  
PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 603b - I

BOOK

Call No.: TL504.M63

Authors: KOMTOROVICH, I. Ye., Prof. Doc. of Tech. Sci. and SOVALOVA, A. A.,  
Dotsent, Kand. of Tech. Sci.

Full Title: CORROSION RESISTANCE OF NITRIDED FERROUS ALLOYS. In: Moscow Aviat-  
sionnyi Tekhnologicheskii Institut. Trudy. Issue 4, 1948.

Transliterated Title: Korroziionnaya ustoychivost' azotirovannykh zheleznykh splavov

PUBLISHING DATA

Originating Agency; Moscow Aviation Technological Institute

Publishing House: State Publishing House of the Defense Industry (Oborongiz)

Date: 1948 No. pp.: 19 (32-50) No. of copies: Not given

Editorial Staff

Ed.-in-Chief: Voronov, S. M., Prof., Doc. of Tech. Sci.

PURPOSE: For scientific workers in aviation technology and materials.

TEXT DATA

Coverage: This study of alloys outlines the connection between the methods of production and their composition and their resistance to corrosion. The article consists of 2 parts: I. electrode potentials of various nitrogen-containing phases in the system Fe-N; and II. testing for corrosion. At the end of each part, the conclusions of those studies are given. In the first part, graphical representation of the changing potential of nitrided iron is given. In the second part, several tables give results of test of various kinds of steel at changing conditions of time and temperature. Tables, charts, photos.

No. of References: Total 6, Russian 5 (1935-1940).

Facilities: Names of a few scientists appear in the text. Trademarks of various steels are mentioned.

SOVALOVA, A-A.

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 603c - I

BOOK

Call No.: TL504.M63

Authors: KONTOROVICH, I. Ye., Prof., Doc. of Tech. Sci. and SOVALOVA, A. A.,  
Dotsent, Kand. of Tech. Sci.

Full Title: PHASE TRANSFORMATIONS IN THE SYSTEM IRON-NITROGEN. In: Moscow  
Aviatsionnyi Tekhnologicheskii Institut. Trudy. Issue 4, 1948

Transliterated Title: Fazovyye prebrashcheniya v sisteme zhelezo-azot

PUBLISHING DATA

Originating Agency: Moscow Aviation Technological Institute

Publishing House: State Publishing House of the Defense Industry (Oborongiz)

Date: 1948 No. pp.: 17 (51-67) No. of copies: Not given

Editorial Staff

Ed.-in-Chief: Voronov, S. M., Prof., Doc. of Tech. Sci.

PURPOSE: For scientific workers in aviation technology and materials.

TEXT DATA

Coverage: The authors are concerned with the following problems:

1. the influence of temperature on the quantity of nitrogen absorbed;
  2. the influence of temperature on structure of nitrogenized layers;
  3. metastable structures;
  4. transformations during hardening and tempering.
- Conclusions from research conducted by the author are presented at the end of the article.

Photos, charts.

No. of References: None

Facilities: None

SOVALOVA, A. A.

USSR/Metals - Metallography Iron Alloys

Nov 49

"Structural Diagram and Phase Transformations in the Iron-Nitrogen System," I. Ye. Kontrovich, A. A. Sovalova, 10 pp

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 11

Endeavors to establish which of two existing diagrams is more correct. Establishes that sharp change in amount of absorbed nitrogen at 650° is caused by second phase transformation which is not accompanied by dissociation of the  $\gamma$ -phase. X-ray and metallographic study of structures at high temperatures led to conclusion that only correct equilibrium diagram of iron-nitrogen system is diagram with eutectoid transformation. Finds microhardness of various structural components of nitrified layer. Submitted by Acad N. T. Gudtsov.

PA 159T51

SOVALOVA, A. A.

Nature of the hardness of stable and metastable structure in the iron-nitrogen system. I. E. Kontorovich and A. A. Sovalova. Zhur. Tekh. Fiz. 20, 53-65 (1950).-- Samples of com. Fe were nitrided at 640-800° and the Vickers hardness was detd. at the surface and at 0.02 mm. intervals from the surface by successive removal of nitrided layers between hardness detns. Specimens quenched after nitriding had a surface hardness of 224-340 and a max. hardness, ranging up to 700 for specimens nitrided at 700°, at a distance 0.06-0.16 mm. from the surface. Specimens nitrided at 670° and cooled slowly had a surface hardness of 330 decreasing uniformly to 130 at a depth of 0.22 mm. Microscopic examn. of the nitrided specimens indicated that the solid soln. of N in  $\gamma$ -Fe (nitrided austenite) upon slow cooling underwent eutectoid decompn. with formation of a mixt. of the  $\alpha$  and  $\gamma'$  phases having a hardness of 180. Nitrided austenite contg. over 2% N did not transform when quenched; when the N conen. was below 2% a martensitic structure was formed; when N was very low a ferritenitride mixt. similar to troostite and sorbite was formed. Nitrided austenite had a hardness of 220-260, nitrided martensite 560-700, ferrite-nitride mixt. 350-500, nitrided ferrite 130-160, nitrided phases having a columnar structure 458-687, and the mixt. of nitrides on the surface 224-340.

H. W. Rathmann

SOVALOVA, A. A.

ANDREEVA, A. G., KONTOROVICH, I. E., & ~~SOVALOVA, A. A.~~ C. A. Vol. 44, May 10, 1950

"Effect of the Grain Dimensions on the Diffusion of Nitrogen in Iron."  
A. G. Andreeva, I. E. Kontorovich, and A. A. Sovalova. Zhur. Tekh. Fiz.  
17, 1521-6 (1947).

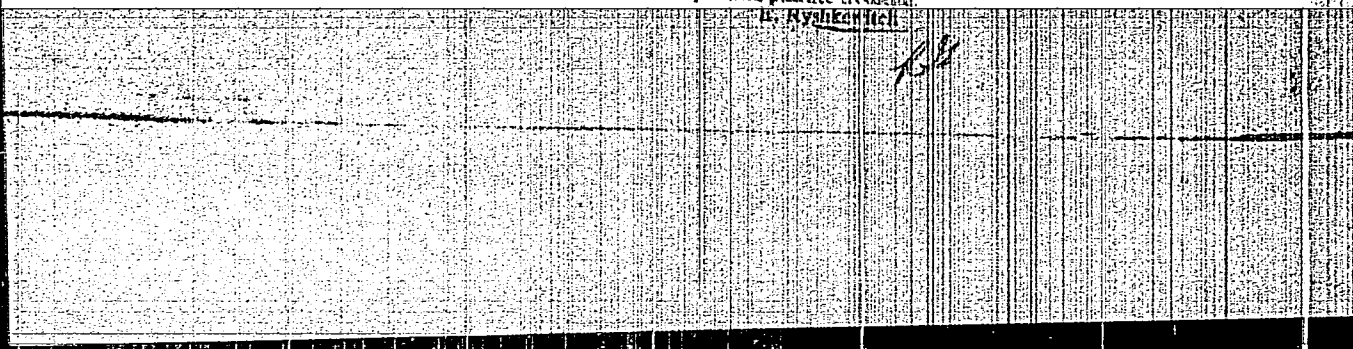
Samples of Armco Fe of different grain sized (detd. by micrography) were produced by compression (up to 40% and 4 hrs, recrystn. at 600°. The amts. of N<sub>2</sub> absorbed in 3-hr. nitrogenation in dissoed. NH<sub>3</sub> (20% dissoed.) at 520°, followed by slow cooling, were detd. by weighing, and the depth of penetration of N<sub>2</sub> by microscopy. In the grain size range 0.007-0.06 mm., diffusion of N<sub>2</sub> into Fe increases with the grain size, and the depth of the diffusion layer varies from 0.26 mm. for the finest grain to 0.60 mm. for the coarsest grain. In superficial diffusion, absorption of N<sub>2</sub> varies little with the grain size, but the concn. of N in the surface layer is greater in the finergrained Fe, owing to the greater depth of penetration in coarser-grained Fe. The rate of diffusion of elements forming interstitial solid solns. with Fe appears to be greater in the energetically more stable system which is the coarser-grained metal.

*Sov. J. Met. Sci.*

18

✓ *Temperability of high-alloy steels* - E. B. Korovin  
 and A. A. Sviridov. *Trudy Inst. Metal. Akad. Nauk  
 Tekhn. Inst. 1966, No. 2, pp. 48-50. U.S.S.R. standard  
 steels of Kh18A and Kh18A1 are thermally treated in order  
 to obtain different microstructures. The method consisted in  
 end-front annealing of samples with different initial struc-  
 tures. As criterion of the temperability was determined*

8  
LIFE





VISHNYAKOV, D. Ya., SOVALOVA, A. A. (Cand. of Tech. Sci., Doc) SMIRNOVA, K. A.

"Mechanical Properties of Steels at Low Temperatures." In book- Physical Metallurgy and Technology of Heat Treatment/ Moscow, Oborongiz, 1958, 179 p.

~~XXXXXXXXXXXX~~ Results are given of an investigation of the effect of the composition and heat treatment of certain alloy structural steels on the cold brittleness of the steels at sub-zero temperatures. There are 3 references, all Soviet.

The Cementation of Stainless Steels

SOV/163-58-1-51/53

Metallographic investigations of the cemented samples showed that these samples have the same diffusion and a lower content of carbon.

To determine the optimum production temperature for the hardest samples the cemented samples were hardened at temperatures of 1000° and 1050°. The greatest hardness of the steel sample X17H2 was obtained at temperatures of 1000 - 1150 (60 R<sub>c</sub>).

The cemented samples were also mechanically investigated. By hardening at 1000° C and tempering at 160° C all samples obtained a uniform hardness of 62 - 65 R<sub>c</sub>.

The optimum conditions for hardening are obtained with oil hardening at 1000° C.

By raising the hardening temperature the plastic properties of the samples were decreased. There are 2 figures, 5 tables, and 2 references, 2 of which are Soviet.

Card 2/2

ASSOCIATION: Moskovskiy aviatsionnyy tekhnologicheskii institut (Moscow Aviation Institute of Technology)

SUBMITTED: October 15, 1957

VISHNYAKOV, D.Ya., doktor tekhn.nauk, prof.; SOVALOVA, A.A., kand.tekhn.nauk,  
dotsent; SMIRNOVA, K.A., inzh.

Mechanical properties of steel at low temperatures. Trudy MATI no.31:  
100-106 '58. (MIRA 11:7)  
(Steel--Testing) (Mechanical wear) (Metals at low temperature)

SOVALOVA, A.A., kand.tekhn.nauk, dotsent; KORNILOVA, Z.I., inzh.

Heat resistance of certain nickel-base alloys. Trudy MATI no.31:  
107-112 '58. (MIRA 11:7)  
(Nickel alloys--Testing) (Heat-resistant alloys)

23010

157100 also 1416, 1454

S/536/60/000/043/001/011  
E193/E483

**AUTHORS:** Vishnyakov, D.Ya., Doctor of Technical Sciences,  
Professor and Sovalova, A.A., Candidate of Technical  
Sciences

**TITLE:** Properties of Carburized Stainless Steels

**PERIODICAL:** Moscow. Aviatsionnyy tekhnologicheskij institut.  
Trudy. No.43. 1960. pp.12-24. Termicheskaya obrabotka  
i svoystva stali i legkikh splavov

**TEXT:** The object of the present investigation was to establish  
the optimum conditions for carburizing stainless steels of the  
ferritic type and to determine various properties of both the  
core and the hardened surface layer of carburized components.  
The compositions (in %) of the steels, used in the experiments, are  
as follows:

Table 1

<u>Designation of steel</u>	<u>C</u>	<u>Cr</u>	<u>Ni</u>	<u>Mn</u>	<u>S</u>	<u>P</u>
1X13 (1Kh13)	0.12	12.84	0.22	0.45	0.014	0.028
2X13 (2Kh13)	0.19	13.80	-	-	-	-
X17N2 (Kh17N2)	0.13	16.80	2.23	0.57	0.010	0.024

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E193/E483

Properties of Carburized ...

Immediately before the carburizing treatment, the test pieces were sand-blasted in order to remove the surface oxide layer. The treatment itself was carried out in a shaft furnace, products of pyrolysis of pyrobenzol being used as the carburizing medium. In the first series of experiments, the effect of the duration (7 to 28 h) of carburizing at 950°C on the thickness and hardness of the carburized layer was studied. (The test pieces were air-cooled after the carburizing treatment and no other heat treatment was applied.) It was found that the thickness of the carburized layer on steel 2Kh13 increased almost linearly with time being 0.75 mm after 14 h and 1.23 mm after 28 h. In the case of steel Kh17N2, the depth of carburizing reached 0.95 mm after 14 h and increased very slowly on further treatment. Hardness ( $R_C$ ) of the carburized layer formed after 14 h on steel 2Kh13 was 57 - 58, the corresponding figure for steel Kh17N2 being 62 - 65. On further treatment, hardness decreased to 34 - 36 in the former case and increased to 66 - 68 in the latter case. The results of the next series of experiments showed that hardness of the carburized layer can be increased to  $R_C > 60$  by quenching the specimens from 1000°C (steel 2Kh13) or 950°C (steel Kh17N2). After a heat

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S/536/60/000/043/001/011  
E193/E483

Properties of Carburized ...

treatment consisting of quenching from 1000 - 1100°C, cooling to -60°C and tempering at 160°C, carburized specimens of all the steels studied had hardness  $R_C > 61$ . The object of the next series of experiments was to establish how the mechanical properties of the core are affected by both the carburizing process and the subsequent heat treatment. To this end, specimens of the steels studied were held at 950°C for 14 to 15 h without the application of the carburizing medium. After cooling in air, the specimens were annealed at 650°C and used for the preparation of test pieces which were then subjected to the heat treatment identical to that applied earlier to the carburized specimens. The results of mechanical tests carried out on these test pieces are given in Table 4. The symbols used in this table denote the following:  $\sigma_b$  - U.T.S.;  $\sigma_{0.2}$  - 0.2% proof stress;  $\delta$  - elongation;  $\psi$  - reduction in area;  $a_H$  - impact strength;  $R_C$  - Rockwell hardness (scale C). The transverse bending strength of carburized test pieces, subjected to various heat treatments, was determined next. It was found that increasing the quenching temperature from 1000 to 1050°C brought about a

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E193/E483

Properties of Carburized ...

decrease in the transverse bending strength  $\sigma_i$  and deflection  $f$  of carburized steel 1Kh13; in the case of steels 2Kh13 and Kh17N2, only  $\sigma_i$  was affected in this manner. The results of the next series of experiments are reproduced in Fig.7, where the impact strength ( $a_H$ ,  $\text{kgm/cm}^2$ ) of steel 1Kh13 (left-hand diagram) and steel Kh17N2 (right-hand diagram) is plotted against the quenching temperature, curves 1 and 2 relating, respectively, to notched non-carburized and unnotched carburized test pieces. It will be seen that the impact strength of steels studied decreases sharply after carburizing and that it depends (to some extent) on the properties of the core material. In the next stage of the investigation, the wear-resistance of carburized and heat-treated steels was studied with the aid of a Skoda-Savin testing machine. Cemented carbide grinding wheels were used in these tests which were conducted "wet", with a jet of  $\text{K}_2\text{CrO}_4$  solution impinging on the ground portion of the specimen. The results are reproduced in Fig.8, which shows the volume ( $10^{-3} \text{ mm}^3$ ) of the metal removed after 500 revs of the grinding wheel from (a) nitrided steel 38XMOA (38KhMYuA); (b) carburized, nitrided and hardened and tempered

X

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S/536/60/000/043/001/011  
E193/E483

## Properties of Carburized ...

steel 2Kh13; (c) carburized, nitrided and hardened and tempered steel Kh17N2. The effect of various heat treatments on the wear-resistance of carburized test pieces is shown in Fig.9, where the volume ( $10^{-3}$  mm<sup>3</sup>) of metal removed after 1000 revs is plotted against the quenching temperature (°C) for steel Kh17N2 - quenched, subjected to sub-zero treatment and tempered (curve 1), steel Kh17N2 - quenched and tempered only (curve 2) and steel 2Kh13 - quenched and tempered (curve 3). Finally, corrosion tests were carried out on carburized, fully heat-treated, and polished specimens, immersed for 2 months in kerosene or in tap water, or for 1 month in artificial sea water. Only in the latter case was the evidence of corrosion, confined to a few isolated spots, observed. The following conclusions were reached:

- (1) Stainless steels of the ferritic type can be gas-carburized to a depth of 0.7 to 0.8 mm by 14 to 15 h treatment at 950°C.
  - (2) The best combination of mechanical properties can be imparted to carburized components by the following treatment: oil-quenching from 1000°C; subzero treatment at -60°C; tempering at 160°C.
- The hardness of the carburized layer after this treatment is

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S/536/60/000/043/001/011  
E193/E483

Properties of Carburized ...

X

62 to 65 Rc (for all steels studied). The properties of the core are given in Table 7. The properties of carburized specimens after the optimum treatment are given in Table 8.

(3) The wear-resistance of carburized stainless steels is comparable to that of nitrided steel 38KhMYuA. Their corrosion resistance in kerosene and tap water is excellent; in sea water it is comparable to that of steel X18 (Kh18).

G.A.Slepoy and N.A.Bystrova participated in the experiments. There are 9 figures and 8 tables.

Card 6/12

S/536/61/000/050/001/017  
D217/D305

AUTHORS: Vishnyakov, D.Ya., Doctor of Technical Sciences, Professor  
and Sovalova, A.A., Candidate of Technical Sciences,  
Docent

TITLE: Influence of tungsten, niobium and zirconium on the  
stability of austenite and the hardenability of  
chromium-nickel steels for machine construction

SOURCE: Moscow. Aviatsionnyy tekhnologicheskii institute. Trudy,  
No. 50, 1961, Voprosy metallovedeniya, 5-16

TEXT: The mechanical properties of medium sized components made from  
Cr-Ni-Mo steel 40XHMA (40KhNMA) which has a relatively low alloy  
content, are not inferior to those of more highly alloyed Cr-Ni steels.  
However, the former contains expensive Mo which it is desirable to re-  
place with other elements capable of reducing the tendency to secondary  
temper brittleness and of increasing the hardenability of the steel.  
The elements, W, Nb, Zr and Ti in various proportions can be considered

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for this purpose. Ingots, weighing 40 kg, of 40KhN-type steel alloyed with Mo, W, Nb and Zr in different proportions, were made. The chemical composition of these steels is shown in Table 1. The critical points of the steels were determined, martensite curves plotted and the kinetics of isothermal transformation were studied by means of S-curves. The hardenability was then studied by means of the Jominy test. Engineers N.A. Kozlovai and E.Ya. Vel'mozhnyy participated in the experimental work. It was found that the alloying elements W, Nb and Zr have virtually no influence on the temperatures of the critical points of the steel 40KhNM. Mo depresses the critical points on heating to a somewhat greater extent than the other elements. The  $M_s$  points of the steels investigated are within the temperature range 270-300 °C. The S-curves plotted for steels 40KhN, 40KhNMA and 40KhN containing Nb, Zr and W reveal complications in the kinetics of isothermal transformation of austenite. The austenite of steel 40KhN is practically equally stable in the pearlitic and troostitic regions. Addition of the strong carbide-forming elements Mo, W, Zr and Nb changes the kinetics of isothermal

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transformation of austenite. The stability of austenite in the troostitic region becomes no less than in the pearlitic. On raising the temperature of preliminary heating from 830-850 C to 1050 C, the S-curve shifts to the right in all cases, and the stability of austenite in the pearlitic region increases 5-15 times. In the troostitic region it increases only to an insignificant extent. Investigation of the hardenability of the steels has shown that those containing Mo, Zr and W possess a high hardenability in cross sections of more than 200 mm diameter. Steel 40KhN and that containing Nb possess a limited hardenability. There are 11 figures, 3 tables and 4 Soviet-bloc references.

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Melt No

Chemical Composition, %

TABLE  
Table 1

№ плав- ки	ХИМИЧЕСКИЙ СОСТАВ В %											
	C	Cr	Ni	Mo	W	Nb	Zr	Mn	Si	P	S	
1	0,43	0,72	1,50	—	—	—	—	0,65	0,28	0,019	—	
2	0,38	0,84	1,35	0,27	—	—	—	0,74	0,31	0,016	0,027	
3	0,44	0,77	1,35	—	0,48	—	—	0,53	0,26	0,016	0,030	
4	0,41	0,77	1,40	—	—	0,46	—	0,50	0,26	0,016	0,034	
5	0,43	0,70	1,70	—	—	—	0,30	0,50	—	0,021	0,028	

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S/536/61/000/03/002/017  
D217/D305

AUTHORS: Vishnyakov, D.Ya., Doctor of Technical Sciences, Professor,  
Sovalova, A.A., Candidate of Technical Sciences, and  
Chudareva, L.P., Engineer

TITLE: Case hardening of stainless steels

SOURCE: Moscow. Aviatsionnyy tekhnologicheskii institut. Trudy,  
No. 50, 1961, Voprosy metallovedeniya, 17-27

TEXT: Processes for the case hardening of the stainless steels 2X13  
(2Kh13), X17H2 (Kh17N2), 13X14HBΦPA (ЭИ 736) ((13Kh14NVFRA (EI736))  
and 13X12HBMΦA ЭИ961(13Kh12NVMFA (EI961)) have been developed  
during the last few years and have since found wide application. The  
case hardening of the above steels is best carried out in a gas carbu-  
rizer at 950-10000°C for 5-15 hours. As a gas carburizer is not always  
available in factories, the development of methods of pack-carburizing  
stainless steels is of considerable interest. The authors' initial  
experiments in this direction were unsuccessful, as the depth and carbon

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concentration of the diffusion layers obtained proved to be variable. The main reason for this variation was the ready formation of strong oxide films on the surface of the stainless steels. The purpose of the present investigation was to develop a satisfactory case hardening process for these steels, using solid carburizing media, by using a more active carburizing medium and by preventing formation of oxide film on the steel surface. Protective pastes or graphite were applied to the ground or etched surfaces by immersing the specimens in an aqueous emulsion thereof; this yielded a layer of 2-3 mm thickness. After drying, the specimens were packed in the respective carburizing media, together with other specimens free from protective pastes, for comparison purposes. Chemico-thermal treatments were given to the steels 2Kh13, Kh17N2 and 13Kh12NVMFA, using protective pastes and various carburizing media at various temperatures and soaking times. The authors conclude that case carburizing of stainless steels using solid carburizing media is possible, and recommend the following composition for a carburizing medium (parts by wt.): (1) 50 charcoal, 50 BaCO<sub>3</sub> and 1 Na<sub>2</sub>CO<sub>3</sub>; (2) 50 wood charcoal,

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75 BaCl<sub>2</sub>, 3 NaCl and 15 K<sub>4</sub>Fe(CN)<sub>6</sub>; (3) 3 wood charcoal, 50 BaCO<sub>3</sub> and 5 NH<sub>4</sub>Cl. To protect a stainless steel surface against the formation of oxide films during heating to carburizing temperatures, greasing with graphite or a paste consisting of 45 parts by wt. ivory black, 20 parts by wt. BaCO<sub>3</sub>, 20 parts by wt. Na<sub>2</sub>CO<sub>3</sub> and 15 parts by wt. K<sub>4</sub>Fe(CN)<sub>6</sub> is recommended. Cementation should be carried out at 950 or 1000°C. Raising the temperature accelerates diffusion and enables the processing time to be somewhat reduced. Increasing the period of chemico-thermal treatment leads to an increase in the thickness of the layer. The optimum thermal treatment consists of oil quenching from 1000°C and cold working at 60-70°C with subsequent low temperature tempering at 150-170°C. Such treatment results in a surface hardness of 62-66 Rockwell C. There are 8 figures, 5 tables and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

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ACC NR: AT6036411

(N)

SOURCE CODE: UR/2536/66/000/006/0021/0032

AUTHOR: Vishnyakov, D. Ya. (Doctor of technical sciences; Professor); Sovalova, A. A. (Candidate of technical sciences); Paisov, A. I. Candidate of technical sciences); Dmitriyev, B. I. (Engineer)

ORG: none

TITLE: The effect of the rate of rolling from the homogenizing temperature on the structure and properties of KhN77TYuR (EI437B) alloy

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 66, 1966, Struktura i svoystva aviatsionnykh staley i splavov (Structure and properties of aircraft steels and alloys), 21-32

TOPIC TAGS: nickel chromium aluminum alloy, titanium containing alloy, boron containing alloy, alloy homogenization, cooling rate effect, alloy structure, alloy property/KhN77TYuR alloy

ABSTRACT: The structure and properties of KhN77TYuR(EI4337C) nickel-base alloy, homogenized at 1080C for 8 hr, cooled at different rates (in water, oil, air or in furnace) and then aged at 750C for 16 hr, have been investigated. Tests at room temperature showed that specimens cooled at a rate of 500 °/min (oil quenched) had the highest strength and ductility: tensile strength 96.0 kg/mm<sup>2</sup>, yield strength 69.8 kg/mm<sup>2</sup>, elongation of 18.8%, reduction of area 22.5%. The notch toughness also

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UDC: 669.017:669.15'24

ACC NR: AT6036411

increased with the increasing cooling rate from 2 kg·m/cm<sup>2</sup> in specimens cooled at a rate of 1 °/min to 6 kg·m/cm<sup>2</sup> in water-quenched specimens. The highest rupture strength was observed in specimens cooled at a moderate rate of 20 °/min. Specimens cooled at a higher or at a lower rate had lower heat resistance. Air cooling (140 °/min) causes decomposition of  $\gamma$ -solid solution and the precipitation of the Ni (Ti Al) strengthening phase at 780C. At lower cooling rates the decomposition of solid solution begins at a higher temperature (900C at 1 °/min rate). The particle size of the strengthening phase decreases with increasing cooling rate: 1200—2500 Å at 1 °/min and less than 500 Å at 20 °/min. The microstructure of the alloy with a maximum rupture strength is characterized by a uniform distribution of the strengthening phase particles (300—500 Å) within grains of  $\gamma$ -solid solution, an accumulation of chromium carbides, primarily at grain boundaries, and by the presence of layers of solid solution free of the strengthening phase along the grain boundaries, which prevent failures at small amounts of deformation. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 005/ ATD PRESS: 5107

Card 2/2

ACC NR: AT6036409

(A)

SOURCE CODEL: UR/2536/66/000/066/0005/0015

AUTHOR: Vishnyakov, D. Ya. (Doctor of technical sciences, Professor); Sovalova, A. A. (Candidate of technical sciences)

ORG: none

TITLE: Effect of carbide-forming elements on the kinetics of isothermal transformation of austenite and the mechanical properties of manganese-molybdenum steel.

SOURCE: Moscow. Aviatsionnyy tekhnologicheskii institut. Trudy, no. 66, 1966, Struktura i svoystva aviatsionnykh staley i splavov (Structure and properties of aircraft steels and alloys), 5-15

TOPIC TAGS: manganese molybdenum steel, low alloy steel, tungsten containing steel, niobium containing steel, zirconium containing steel, titanium containing steel, vanadium containing steel, steel heat treatment, steel mechanical property, structural steel

ABSTRACT: In a search for nickel-free structural steels suitable to replace Cr-Ni, Cr-Ni-Mo and Cr-Ni-W steels used in machine building, a study has been made of the effect of carbide-forming elements on the kinetics of isothermal transformation of austenite and the mechanical properties of manganese-molybdenum steel. Fourteen heats of Mn-Mo steel, containing 0.40-0.48% C, 1.52-1.79% Mn, 0.28-0.30% Mo and one or more carbide-forming elements W, Nb, Zr, Ti, and V, were tested. Analysis of the test data showed that steels containing 0.62% W; 0.44% W and 0.19% Ti; 0.41% W

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UDC: 669.017.669.15'17'28

ACC NR: AP6036409

and 0.16 Zr; 0.36% W and 0.18% V; 0.35% W, 0.02% Zr, and 0.20% Ti; or 0.28% W, 0.16% Ni and 0.18% Ti had high mechanical properties and high hardenability ( $D_1 > 200$ ) comparable to those of high-alloy Cr-Ni, Cr-Ni-Mo and Cr-Ni-W steels and that they can be recommended as substitutes for the latter. After oil quenching from 840—900C and tempering at 600C for 2 hr followed by water quenching, the steels had a tensile strength of 100.0—124.0 kg/mm<sup>2</sup>, a yield strength of 85—109 kg/mm<sup>2</sup>; an elongation of 13.0—16.0%, a reduction of area of 48.2—55.5%, and an impact toughness of 8.8—12.1 kg·m/cm<sup>2</sup>. Orig. art. has: 3 figures and 6 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 5108

Card 2/2

SOVLESOVS, U.]

USSR/Chemistry - Fuels

FD-1144

Card 1/1 Pub. 129-8/23

Author : Slovokhotova, T. A.; Sovalova, L. I.; Kazanskiy, B. A.; Balandin, A. A.

Title : Catalytic conversion of isomeric octanes with water over a nickel and kieselguhr catalyst

Periodical : Vest. Mosk. un., Ser. fizikom. i yest. nauk, 9, No 7, 65-72, Oct 1954

Abstract : Saturated hydrocarbons react with water over a nickel and kieselguhr catalyst forming products of gradual demethylation of the original hydrocarbon. The degree of conversion depends on the structure of the hydrocarbon. 2, 2, 4-Trimethylpentane reacts slower than the 2, 2, 3 isomer. Eight curves. Ten references (five USSR).

Institution : Chair of Organic Chemistry

Submitted : February 1, 1954

BALANDIN, A.A., akademik; SOVALOVA, L.I.; SLOVOKHOVA, T.A.

Catalytic demethylation of  $\alpha$ -picoline to pyridine under the  
action of water vapor. Dokl.AN SSSR 110 no.1:79-82 S-0 '56.  
(MLRA 9:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.  
(Picoline) (Pyridine)

AUTHORS: Balandin, A. A., Member, Academy of Sciences, USSR, Sovalova, L. I., Slovokhotova, T. A. SOV/20-120-4-24/67

TITLE: Catalytic Transformations of 2-Methyl-Thiophene Under Steam Influence (Kataliticheskiye prevrashcheniya 2-metil'tiofena pod vliyaniyem parov vody)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp. 775-778 (USSR)

ABSTRACT: Difficulties were bound to occur in connection with the problem of the applicability of the reaction of the catalytic demethylation to the thiophene derivatives because of the specific behaviour of the latter on metallic catalysts in the presence of hydrogen (Refs 6-11) which is known to be a product of the said reaction. Ni/Al<sub>2</sub>O<sub>3</sub> and Co/Al<sub>2</sub>O<sub>3</sub> were used as catalysts. The velocity and the products of the reaction of 2-methyl-thiophene with water change gradually if its vapors are allowed to pass above a fresh catalyst (Fig 1, Table 1). 2-methyl-thiophene separates the methyl group and is subjected to a small extent to a ring cleavage. The existence of lateral methyl groups renders the ring system more reactive. During the first minutes of the experiment the liquid catalyzed product

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Catalytic Transformations of 2-Methyl-Thiophene  
Under Steam Influence

SOV/20-120-4-24/6"

contains thiophene which vanishes as soon as the velocity of the gas separation has attained a constant value. The quantity of  $\text{CO}_2$  first exceeds that of the saturated compounds, vanishes then, however, together with thiophene. Unsaturated hydrocarbons and  $\text{H}_2\text{S}$  occur at temperatures higher than  $400^\circ$ . The co-catalyst has an effect similar to that of Al. Table 2 shows the dependence of the composition of the liquid and gaseous products on the temperature, on the quantity of water, and on the composition of the catalyst in the experiment with methyl-thiophene. Within 1 hour of heating in hydrogen the consumed catalyst is restored, unless it had lost its activity completely before. A longer heating increases its activity (Table 3). Herefrom it can be concluded that methyl-thiophene is demethylated in the reaction in question. The complete cleavage of the methyl-thiophene molecule which occurs as well may develop with the participation of either hydrogen or water. The dealkylation of methyl-thiophene thus determined is a model reaction for the production of thiophene from alkyl substituted. The present paper in principle shows a possibility of obtaining accessible

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Catalytic Transformations of 2-Methyl-Thiophene  
Under Steam Influence

SOV/20-120-4-24/67

raw material for the synthesis on thiophene basis from sulfurous mineral oils and slate resins (Ref 12). The reaction can be carried out on a mobile contact mass with a continuous regeneration of the circulating catalyst. There are 2 figures, 3 tables, and 19 references, 12 of which are Soviet.

SUBMITTED: February 18, 1958

1. Thiophene aldehydes--Catalysis effects
2. Metal catalysts--Chemical effects

Card 3/3

CA

11 0

**Mechanism of formation of Moskin's phenomenon.**  
Zoltán Fekete, Éva Sziváti, and Lajos Szorlosy. *Acta Morphol. Acad. Sci. Hung.* 1, 487-07(1951)(in French).  
When lithium-carminé was injected intravenously into rats or rabbits and, a few min. later, an irritant was injected into the skin, a red area developed in the vicinity of the intracutaneous injection. If trypan blue were the material injected intravenously, the area surrounding the point of irritation turned blue. Prior dosage with antihistaminic drugs did not prevent formation of the spot. The phenomenon was attributed to increased vascular permeability in the irritated area caused by the phys. or chem. effects of the irritant and by the local release of histamine. W. D. G.

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of Debrecen University.

SZODORAY, L.; NAGY, J.; SOVARI, Eva; TUZA, K.

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- 1. Klinik für Haut- und Geschlechtskrankheiten (Vorstand Prof. L. Szodoray) und Institut für gerichtliche Medizin (Vorstand Prof. S. Okros) der Medizinischen Universität, Debrecen  
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(PSORIASIS, pathol. nerves)

SOVARI, E.

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Histological study on neuroangiosis cruris hemosiderosa. Acta  
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1. Clinique dermatologique et venerologique de l'Universite  
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(LEG, blood supply  
neuroangiosis cruris hemosiderosa, histol.)

RINGELHANN, Bela, dr.; SOVARI, MIKLOS, DR.; HEDES, Pongrac, dr.

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A new procedure for increasing the output of smoke-aspirator  
ventilators. Musz elet 15 no.20:11 S '60. (EEAI 10:1)  
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