LITVINOV, N.N. (Moskva); KRAYEVSKIY, N.A., prof., [illegible] rukovoditel' raboty

Late changes of the bone system of dogs in radioactive strontium-induced lesions. Arkh. pat. 24 no.11:23-28 '62. (MIRA 18:11)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy).

LEBEDEVA, G.A. (Moskva); KRAYEVSKIY, N.A., prof., [illegible] raboty

Intestinal polyposis in rats developing under the influence of radioactive cerium. Arkh. pat. 24 no.11:29-34 '62. (MIRA 18:12)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy). Submitted January 15, 1962.

IVANOV, A.Ye. (Moskva); KRAYEVSKIY, N.A., prof., rukovoditel' raboty

Characteristics of aseptic pulmonary inflammation in acute radiation sickness. Arkh. pat. 24 no.11:34-41 '62. (MIRA 18:12)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy). Submitted November 20, 1961.

AFRIKANOVA, L.A. (Moskva); KRAYEVSKIY, N.A., prof., [illegible] raboty

Skin repair in acute radiation-induced necroses. Arkh. pat. 24 no.11:42-46 '62. (MIRA 18:12)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy). Submitted January 4, 1962.

KRAYEVSKIY, N.A., prof.; SAPOZHNIKOVA, M.A.

Work of the Moscow Society of Pathoanatomists. Arkh. pat. 24 no.11:85-93 '62. (MIRA 18:12)

1. Predsedatel' Moskovskogo obshchestva patologoanatomov; deystvitel'nyy chlen AMN SSSR (for Krayevskiy). 2. Sekretar' Moskovskogo obshchestva patologoanatomov (for Sapozhnikova).

Krayevskiy, N. A.

PHASE I BOOK EXPLOITATION SOV/6344

Alekseyeva, O. G., A. F. Bibikova, N. A. Vyalova, A. Ye. Ivanov, N. A. Krayevskiy, N. A. Kurshakov, N. V. Paramonova, V. N. Petushkov, V. V. Snegireva, L. A. Studenikina, Yu. M. Shtukkenberg, and A. Ya. Shulyatikova

Sluchay ostroy luchevoy bolezni u cheloveka (A Case of Acute Radiation Sickness in Man). Moscow, Medgiz, 1962. 149 p. 10,000 copies printed.

Ed. (Title page): N. A. Kurshakov, Corresponding Member Academy of Medical Sciences SSSR, Professor; Ed.: S. P. Landau-Tylkina; Tech. Ed.: N. A. Yakovleva.

PURPOSE: This monograph is intended for physicians and biologists.

COVERAGE: This book describes an actual case of acute radiation sickness in its severe form. It describes in detail clinical symptoms, changes in biochemical indexes, morphological changes in the nervous system, and the distribution of depth doses and energy absorption.

Card 1/[illegible]

KRAYEVSKIY, N.A.; LITVINOV, E.N.

Pretumorous changes in bony tissue in experimental conditions following the action of radioactive isotopes. Vop. onk. 9 no.1:2536 '63. (MIRA 16:5)

1. Iz Akademii meditsinskich nauk SSSR.
(BONES--CANCER) (RADIOISOTOPES)

KRAYEVSKIY, N.A., red.; LEBEDINSKIY, A.V., red.; SMOLYAN, G.L., red.

[Restorative processes in radiation lesions; collection of articles] Vosstanovitel'nye protsessy pri radiatsionnykh porazheniiakh; sbornik statei. Moskva, Atomizdat, 1964. 243 p. (MIRA 17:5)

1. Deystvitel'nyye chleny AMN SSSR (for Krayevskiy, Lebedinskiy).

KRAYEVSKIY, N.A., prof.; IVANOV, A.Ye., starshiy nauchnyy sotrudnik (Moskva)

Inflammation and penetrating ionizing radiation. Arkh. pat. 25 no.8:3-14 '63 (MIRA 17:4)

KRAYEVSKIY, N.A., prof.; SAPOZHNIKOVA, M.A.

Work of the Moscow Society of Pathoanatomists from September through December 1962. Arkh. pat. 25 no.10:71-76 '63.
(MIRA 17:7)

1. Predsedatel' Moskovskogo obshchestva patologoanatomov (for Krayevskiy). 2. Sekretar' Moskovskogo obshchestva patologoanatomov (for Sapozhnikova).

KURSHAKOVA, N.N.; PETROVA, A.S.; KRAYEVSKIY, N.A., nauchnyy rukovoditel'

Study by histochemical and cytological methods of early changes in the bones following Sr^{90} injury. Biul. eksp. biol. i med. 54 no.8:104-107 Ag '62. (MIRA 17:11)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy).

PONOMAR'KOV, V.I. (Moskva); KRAYEVSKIY, N.A., prof., nauchnyy rukovoditel'

Morphology of breast tumors induced by radioactive niobium.
Arkh. pat. no.12:44-51 '63. (MIRA 17:11)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy).

LEBEDEV, B.I. (Moskva); KRAYEVSKIY, N.A., prof., nauchnyy rukovoditel'

State of sensory innervation of the nose and tongue in dogs following injury with radioactive strontium and polonium. Arkh. pat. no.12:51-56 '63. (MIRA 17:11)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy).

KRAYEVSKIY, Nikolay Aleksandrovich; NEMENOVA, Nadezhda Maksimovna; KHOKHLOVA, Margarita Petrovna; AVERBAKH, M.M., red.

[Pathological anatomy and problems of the pathogenesis of leukemia] Patologicheskaia anatomiia i voprosy patogeneza leikozov. Moskva, Meditsina, 1965. 417 p.
(MIRA 18:7)

KRAYEVSKIY, N.A.

Problems of the pathological anatomy of cancer of the stomach.
Vest. AMN SSSR 20 no.12:3-10 '65. (MIRA 19:1)

1. Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR, Moskva.

VLASOV, P.A (Moskva); KRAYEVSKIY, N.A., prof., nauchnyy rukovoditel'

State of the bone marrow during the development of an osteogenic sarcoma induced by strontium 90. Arkh. pat. 27 no.2:14-18 '65. (MIRA 18:5)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy).

KRAYEVSKIY, N.A., prof. (Moskva)

Tumorous nature of leukemias. Arkh. pat. 27 no.5:3-8 '65.
(MIRA 18:5)

1. Institut eksperimental'noy i klinicheskoy onkologii (dir. - deystvitel'nyy chlen AMN SSSR prof. N.N.Blokhin) AMN SSSR. Deystvitel'nyy chlen AMN SSSR.

KRAYEVSKIY, N.A., prof.; SAPOZHNIKOVA, M.A.

Proceedings of the Moscow Society of Pathologists for the First half of 1964. Arkh. pat. 27 no.5:87-94 '65. (MIRA 18:5)

1. Predsedatel' Moskovskogo obshchestva patologoanatomov (for Krayevskiy). 2. Sekretar' Moskovskogo obshchestva patologoanatomov (for Sapozhnikova).

AFRIKANOVA, L.A. (Moskva); KRAYEVSKIY, N.A., prof., nauchnyy rukovoditel' raboty

Role of the panniculus adiposus in the reparative process following severe radiation injuries of the skin. Arkh. pat. 27 no.8:18-24 '65. (MIRA 18:10)

1. Deystvitel'nyy chlen AMN SSSR (for Krayevskiy).

KRASNOVSKIY, A.A.; CHERNOVSKAYA, I.G.; SOLOV'YEV, Yu.N. (Moskva)

Book reviews. Arkh. pat. 27 no.8:82-84 '65. (MIRA 18:10)

1. Deyatvitel'nyy chlen AMN SSSR (for Krasnovskiy).

KRAYNOVA, N. F.

Irrigation-Rostov Province

Building tunnels for the main Don irrigation canal. Mekh. trud. rab. 6, No. 7, 1951.

Monthly List of Russian Accessions, Library of Congress
October 1952. UNCLASSIFIED.

KRAYEVSKIY, R. G.:

KRAYEVSKIY, R. G.: "Methods of auditory work in the school for deaf and dumb children." Academy of Pedagogical Sciences RSFSR. Sci Res Inst of Defectology. Moscow, 1956. (Dissertation for the Degree of Candidate in Pedagogical Science.)

So: Knizhnaya letopis', No. 37, 1956. Moscow.

KRAYEVSKIY, S.S.

Using metal fenders instead of rubble belts. Bezop.truda v prom. 3 no.8:30-31 Ag '59. (MIRA 12:11)

1. Inspektor Nesvetayevskoy rayonnoy gornotekhnicheskoy inspektsii.
(Coal mines and mining--Equipment and supplies)

COUNTRY : USSR

CATEGORY : Forestry. Forest Economy

JOUR. SOURCE : Ref. Zhur., No. 1959, No. [illegible]

AUTHOR : [illegible]

TITLE : [illegible] of Aerial Assessment of Cedar Thickets

ORIG. PUB. : Sb. statey po ustroystvu i obsl-dovaniyu lesov. L., 1958, 86-93

ABSTRACT : [illegible] of all possible areas of cedar thickets of Kamchatskaya and [illegible] Oblasts a table was plotted of the wood resources on 1 hectare, depending on the denseness of the cedar thickets and type of its vegetation, and a basis was drawn up showing the overgrowth reserves, depending on the average height of the trunk and the denseness of the thicket. -- V.I. Klimov

Card: 1/1

KRAYEVSKIY, YA. M.

IA 170T73

USSR/Medicine - Sleep, Prolonged Narcosis

Jan/Feb 50

"The Problem of the Use of Prolonged Sleep in the Clinical Treatment of Organic Nervous Diseases," Ya. M. Krayevskiy, Neuro-Org Clinic, Inst of Evolutionary Physiol and Path of Higher Nervous Activity imeni I. P. Pavlov

"Nevropatol i Psikhiat" No 1, pp 37-41

History of subject therapy; results achieved in clinic by this method. Tabulates data. Of 50 cases, 21 showed good results, 15 showed improvement. Five case histories were used. Two tables. Submitted by Head of Clinic, Prof N. A. Kryshova, 31 Oct 49.

170T73

KRAYEVSKIY, Ya.M.; KRYSHOVA, N.A., zaveduyushchaya.

Changes in the activity of the cerebral cortex in connection with protective sleep inhibition in patients with cortical and subcortical injuries. Trudy Inst.fiziol. 1:394-405 '52. (MLRA 6:8)

1. Sektor organicheskikh nervnykh rasstroystv.
(Brain--Wounds and injuries) (Sleep)

1. KRAYEVSKIY, YA, M.

2. USSR 600

4. Nervous System - Diseases

7. Application of sleep therapy in the clinic for organic nervous disorders. Resulting reactions in the visual analysor and some other data on corticoocerebral dynamics in organic disorders of the nervous system in connection with sleep therapy, Zhur. nerv. i psikh, 53, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

KRAYEVSKIY, Ya.M.

The simultaneous use of barbiturates and of analgesics in prolonged sleep therapy. B. V. Adreev and Ya. M. Krayevskii. *Zhur. Nevropatol. i Psikhiatrii im. Korsakova* 53, 302–9(1953).—The barbiturates luminal, barbital, medinal, and occasionally Na-amytal were administered to patients in small doses, alone, and in association with pyramidon (0.05–0.30 g. doses) 3 times daily. In an addnl. series of expts. the barbiturates alone and in conjunction with the pyramidon were administered on an alternating basis. Differences in the duration and intensity of the induced sleep and in the general state of the patients were taken as indices of favorable or unfavorable effects of the combined type of sleep therapy. No clear indication of beneficial value of sleep therapy produced by the simultaneous administration of barbiturates and analgesics was found.

B. S. Levine

2

KRAYEVSKIY, Ya. M.

Sleep therapy in the clinic for organic nervous diseases. II. The content of potassium, calcium and magnesium in the blood serum of patients under sleep therapy. B. A. Dmitrieva and Ya. M. Krayevskii (I. P. Pavlov Inst. Physiol., Acad. Sci. U.S.S.R., Moscow). *Zhur. Nevropatol. i Psikhiatrii im. Korsakova* 54, 43–7(1954).—The study is concerned with the detn. of the amt. of K, Ca, and Mg present in the blood of patients undergoing sleep therapy. Forty patients with neural and sclerotic disorders were under observation. Values of Ca and K in the blood serum prior to treatment were, resp., 10.8–17.8, and 18.0–26.28 mg. %; the K/Ca ratio was 1.68–2.05; the Mg content was 2.21–4.98 mg. %. All such values are regarded as above those found in the literature for normal humans. Under the influence of sleep therapy a normalization of the K/Ca ratio and of the Mg content of the patients' blood serum was observed, but the shifts in the blood serum values were not sharply defined, nor were any toxic symptoms apparent. There was some evidence of correlation between the normalization of the blood indexes under study and the psychic condition of the patients, but no absolute parallelism was established. The level and the extent of variations in the blood serum content of K, Ca, Mg and of K/Ca ratio were high in patients with disseminated sclerosis, cerebellar syndrome (trauma), Friedreich's disease, phantom pain, neuralgia) and narcolepsy. —B. S. Levine

KRAYEVSKIY, Ya.M.

Significance of sleep in connection with diseases of the nervous system. Priroda 45 no.7:24-30 Jl '56. (MLRA 9:9)
(NERVOUS SYSTEM--DISEASES) (SLEEP)

KRAYEVSKIY, Ya.M.

Nina Aleksandrovna Kryshova; on her 60th birthday and 35th year of medical, scientific, and social activities. Zhur.nevr. i psikh. 56 no.6:518-519 '56. (MIRA 9:8)
(KRYSHOVA, NINA ALEKSANDROVNA, 1896-)

KRAYEVSKIY, Ya.M.

Conditioned and unconditioned vascular reflexes in patients with cerebral disorders treated by sleep. Zhur.nevr. i psikh. Supplement: 7 '57. (MIRA 11:1)

1. Sektor nervnykh bolezney (zav. - prof. N.A.Krylova) Instituta fiziologii imeni I.P.Pavlova AN SSSR, Leningrad.
(BRAIN--DISEASES) (SLEEP--THERAPEUTIC USE)
(REFLEXES)

KOROTKIN, I.I.; KRAYEVSKIY, Ya.M.

Investigating the higher nervous activity in patients with brain lesions following sleep therapy. Trudy Inst. fiziol. 7:177-184 '58. (MIRA 12:3)

1. Sektor nevrozov i organicheskikh zabolevaniy nervnoy sistemy (zav. - N.A. Kryshova) i Laboratoriya fiziologii i patologii vysshey nervnoy deyatel'nosti (zav. - K. P. Mayorov) Instituta fiziologii im. I.P. Pavlova AN SSSR.
(BRAIN--WOUNDS AND INJURIES)
(SLEEP--THERAPEUTIC USE)

KRAYEVSKIY, Ya.M.

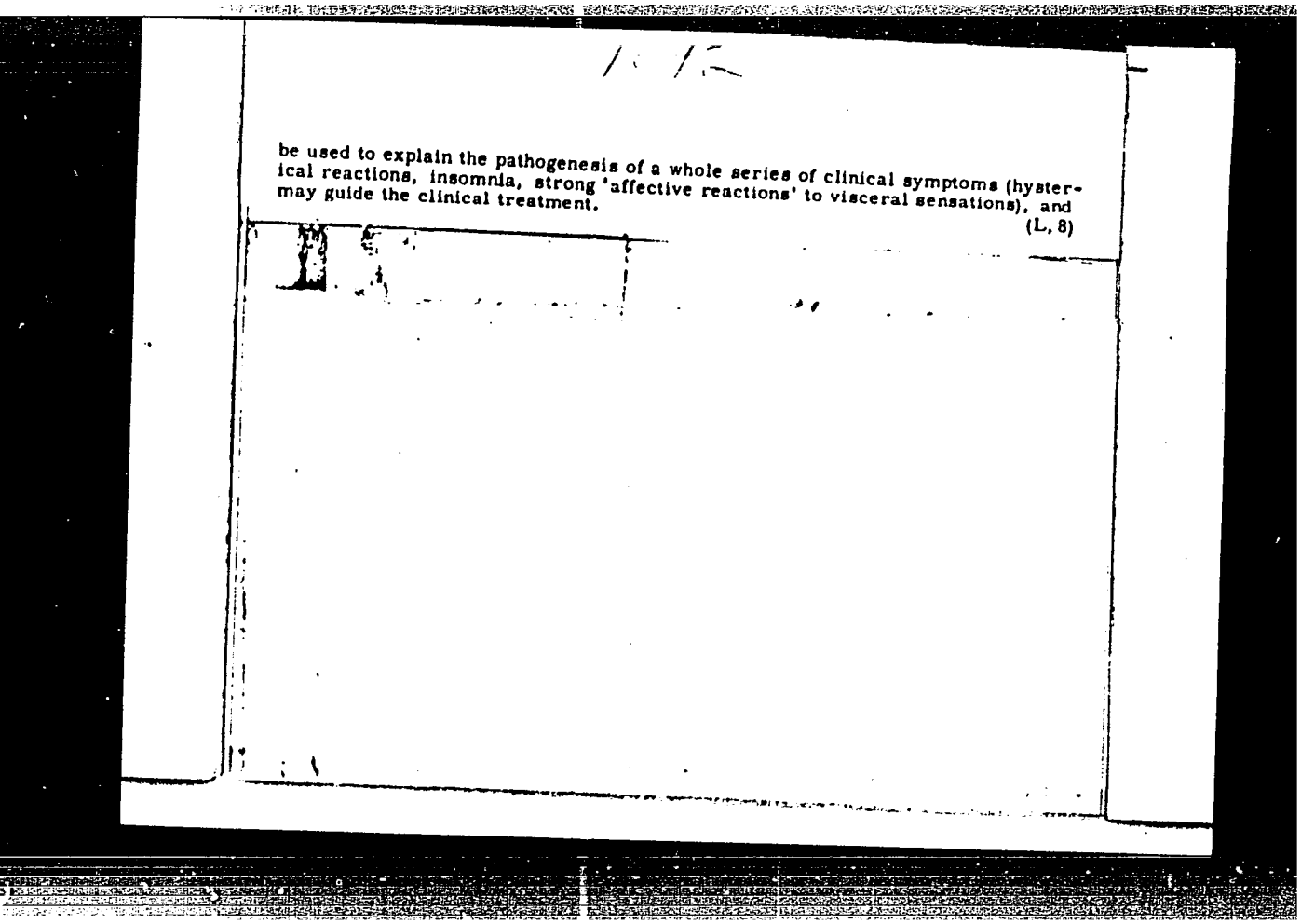
Treating organic diseases of the nervous system by prolonged sleep.
Trudy Inst. fiziol. 7:192-202 '58. (MIRA 12:3)

1. Sektor nevrozov i organicheskikh zabolevaniy nervnoy sistemy (zav. - N.A. Kryshova) Instituta fiziologii im. I.P. Pavlova AN SSSR.
(NERVOUS SYSTEM--DISEASES) (SLEEP--THERAPEUTIC USE)

EXCERPTA MEDICA SEC 8 Vol 12/2 Neurology Feb 59

1092. CLINICAL AND NEURODYNAMIC DETAILS OF CERTAIN INFECTIOUS DIENCEPHALITIDES. - Krayevskiy Y. M. - ZH. NEVROPAT. I PSIKHIAT. 1958, 58/4 (403-409) Graphs 3 Illus. /1

Clinical and experimental findings in 15 patients with focal encephalitis in the hypothalamic region are reported. The patients presented paroxysmal outbursts of vegetative disturbances. In addition, moderate hemisyndromes were observed, characteristic of lesions of the mesencephalon and diencephalon. All patients had trophic metabolic disturbances, which manifested themselves in the skeleton: in 11 patients especially the cranial vault was charactoristic. By determining the blood codehydrogenase level and the pantothenic acid activity, the degree of imbalance among the vitamins of the B complex was established. The higher nervous system of the patients was tested by examining conditioned conjunctival defence reflexes where disturbances were observed which diminished with regression of the clinical symptoms. The physiopathological analysis of the experimental data may



be used to explain the pathogenesis of a whole series of clinical symptoms (hysterical reactions, insomnia, strong 'affective reactions' to visceral sensations), and may guide the clinical treatment.
(L, 8)

KRAYEVSKIY, Ya.M.

Characteristics of defensive (winking) conditioned and unconditioned reflexes in infectious diencephalitis. Vop. psikh. i nevr. no.5: 72-81 '59. (MIRA 14:5)

1. Sektor nervnykh bolezney (zav. - prof. N.A.Kryshova) Instituta fiziologii AN SSSR (direktor - akademik K.M.Bykov [deceased]).
(REFLEXES) (ENCEPHALITIS)

GANELINA, I. Ye. and KRAYEVSKIY, YA. M. (Leningrad, USSR)

"Disturbances of lipid metabolism in patients with diencephalitis"

Report submitted to the 7th Intl. Congress of Neurology, Rome, Italy, 10-15 Sep 61

GANELINA, I.Ye.; KRAYEVSKIY, Ya.M. (Leningrad)

Lipid metabolism disorders in patients with diencephalitis.
Klin.med. 39 no.5:36-41 My '61. (MIRA 14:5)

1. Iz terapevticheskogo sektora (zav. - prof. B.V. Il'inskiy) i sektora nervnykh bolezney (dir. - prof. N.A. Kryshova) Instituta fiziologii imeni I.P. Pavlova AN SSSR (dir. - akad. V.N. Chernigovskiy).
(DIENCEPHALON--DISEASES) (LIPID METABOLISM)

GANELINA, I.Ye.; KOMAROVA, I.N.; KRAYEVSKIY, Ya.M. (Leningrad)

Function of the thyroid gland in relation to the state of lipid metabolism in the diencephalic syndrome. Klin.med. no.9:129-136 '62. (MIRA 15:12)

1. Iz sektora nervnykh bolezney (zav. - prof. N.A. Krynhova) Instituta fiziologii imeni I.P. Pavlova (dir. - akad. V.N. Chernigovskiy) AN SSSR i 3-y terapevticheskoy kliniki (zav. - prof. B.V. Il'inskiy) Gosudarstvennogo instituta dlya usovershenstvovaniya vrachey.
(THYROID GLAND) (LIPID METABOLISM) (DIENCEPHALON—DISEASES)

KRAYEVSKIY, Ya.M.

Clinicophysiological analysis of functional disorders in the higher nervous activity in diencephalitis. Vop. psikh. i nevr. no.9:227-239 '62. (MIRA 17:1)

1. Sektor nervnykh bolezney (zav. - prof. N.A. Kryshova) Instituta fiziologii AN SSSR (direktor - akaderik V.N. Chernigovskiy).

KRAYEVSKIY, Ya.M.; BULOVSKAYA, L.N.; BEZUGLAYA, A.S.

Acetylation processes in patients with diencephalitis. Vop. med. khim. 9 no.4:362-365 Jl-Ag '63 (MIRA 17:4)

1. Gruppa biokhimii pitaniya i sektor nervnykh bolezney Instituta fiziologii imeni Pavlova AN SSSR, Leningrad.

KRAYEVSKIY, Ya.M.

Some vegetative components of speech and motor conditioned reflexes in diencephalic syndromes. Zhur.nevr. i psikh. 66 no.1:36-41 '66. (MIRA 19:1)

1. Laboratoriya klinicheskoy neyrofiziologii (zaveduyushchiy - prof. N.A.Kryshova) Instituta fiziologii im. Pavlova (direktor - prof. V.N.Chernigovskiy) AN SSSR, Leningrad. Submitted March 3, 1965.

KRAEV, A P

Osnovy Geoelektriki (Fundamentals of Geo-Electricity) Moskva, Gos. I zd-vo Tekhniko-Teoreticheskoy Literatury, 1951 -

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KRAYKIN, V.A. (Yaroslavl')

Distribution of chronic tonsillitis among the workers of the "Tul'ma" Flax Combine. Zdrav. Ros. Feder. 8 no.288-10 F'63
(MIRA 17:3)

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S/208/62/002/001/009/016
D299/D303

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AUTHORS: Katskova, O.N., and Krayko, A.N. (Moscow)

TITLE: Computating an axisymmetric isentropic flow of a real gas

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 2, no. 1, 1962, 125 - 132

TEXT: The design of axisymmetric supersonic nozzles is considered. The experience gained in computating isentropic gas-flow by means of electronic computers, is set forth. A few numerical examples are given. It is assumed that the density ρ and the specific enthalpy h are functions of pressure and temperature only, viz.:

$$\rho = \rho(p, T), \quad h = h(p, T). \tag{1.2}$$

The isentropy condition is

$$\frac{dT}{dp} = h_T^{-1}\left(\frac{1}{\rho} - h_p\right) \tag{1.3}$$

Card 1/[illegible]

Computating an axisymmetric ...

where $h_T = \frac{\partial h}{\partial T}$, $h_p = \frac{\partial h}{\partial p}$.

The problem is formulated as follows: Calculate the supersonic section of an axisymmetric nozzle with inflection point A and uniform flow at the exit (Fig. 1), at given temperature and pressure on the flat transition (convergent-divergent) surface. The nozzle with inflection point is called the principal nozzle. The problem is divided as follows: Flow from the transition surface, determination of the cross-section in the (divergent) region OAB, and solution of Goursat's problem for the contour AC and the entire flow in the region ABC from data on the characteristics AB and BC. For the velocity of sound one obtains

$$a^{-2} = \rho_p + \frac{\rho_T}{h_T}\left(\frac{1}{\rho} - h_p\right), \text{ where } \rho_p = \frac{\partial \rho}{\partial p}, \ \rho_T = \frac{\partial \rho}{\partial T}. \qquad (2.1)$$

The first part of the problem is solved by expansion in series, whose coefficients are expressed by the parameter

Card 2/[illegible]6

$$n = h_T\left\{\left(\frac{1-\rho_p}{\rho_T}\right)^2(h_T\rho_{TT}-\rho_T h_{TT})-\rho_T(1+h_{pp})+ \right. \\ \left. +2\left[\frac{1-\rho_p}{\rho_T}(h_T\rho_{pT}-\rho_T h_{pT})-h_T\right]+h_T\rho_{pp}\right\}^{-1}; \quad (3.1)$$

where

$$h_{TT}=\frac{\partial^2 h}{\partial T^2}, \quad h_{pp}=\frac{\partial^2 h}{\partial p^2}, \quad h_{pT}=\frac{\partial^2 h}{\partial p\partial T}, \quad \rho_{TT}=\frac{\partial^2\rho}{\partial T^2},$$
$$\rho_{pp}=\frac{\partial^2\rho}{\partial p^2}, \quad \rho_{pT}=\frac{\partial^2\rho}{\partial p\partial T};$$

The solution in the regions OAB and ABC is carried out by the method of characteristics. In a form, suitable for computers, the equations of characteristics are:

$$r_3=\frac{r_3-kmr_1+k(x_1-x_3)}{1-km}, \quad x_3=x_1+m(r_3-r_1);$$
$$p_3=\frac{1}{NF+MB}\{E[Mp_2+F(\zeta_1-\zeta_3)-K(x_3-x_2)]+F[Np_1-L(r_3-r_1)]\}; \quad (4.1) \quad (4.1)$$
$$\zeta_3=\zeta_1-\frac{1}{E}[N(p_3-p_1)+L(r_3-r_1)];$$
$$T_3=T_2+T'(p_3-p_2); \quad \beta=\sqrt{w^2a^{-2}-1}; \quad w=\sqrt{2\left(h^*+\tfrac{1}{2}-h\right)},$$

Card 3/

where m, k, E, F, N, M, L, K and T' are given by expressions. This system of equations is solved by the method of successive approximations, whereby (as a rule) 3 approximations are sufficient. The order of calculation is as follows: From the dimensional quantities p* and T* one determines ρ*, h* and a* by formulas (1.2) and (2.1); these quantities are used to determine the corresponding dimensionless quantities. Then n is determined by formula (3.1) and the characteristic near the transition surface is found. Thereupon the method of characteristics is used. In many problems of interest in practice, the analytical expressions for ρ and h in terms of p and T are very cumbersome. In such cases, it is necessary to first eliminate the temperature from Eq. (1.2) by integrating (1.3). For the required thermodynamic functions one obtains

$$\frac{p}{\rho} = \int_{\ln p^*}^{\ln p} h^{(2)} d\ln p + \frac{p^*}{\rho^*}, \quad h = \int_{\ln p^*}^{\ln p} \frac{p}{\rho} d\ln p + h^*, \quad a^2 = \frac{(p/\rho)^2}{p/\rho - h^{(2)}}. \tag{6.2}$$

Hence it is expedient to approximate $h^{(2)}$ by the polynomial ln p. Elimination of the temperature involves some changes in the formulas and in the order of computation. Thus, Eq. (3.1) is replaced by

Card 4/7

Computating an axisymmetric ...

$$n = \left[\frac{h^{(2)}(1 - 2p) - h^{(3)}}{p^3} - 2\right]^{-1}. \qquad (7.1)$$

At present, the following programs were set up and put into operation on the electronic computer БЭСМ-2 (BESM-2) for a perfect gas, air, and dissociating diatomic gases. The complete program is divided in two: The first part -- computating of AOB -- involves transformation to a dimensionless form, series and calculation by the method of characteristics. The results obtained are recorded on perforated cards or on magnetic tape which are thereupon used in the second part of the program, for computing ABC. In the case of perfect- or diatomic gases, it is not necessary to first eliminate the temperature. In the case of air, however, the temperature is eliminated during the first part of the program. As the polynomial in p, the polynomial of best approximation has been taken. The program for determining such polynomials, was set up by S.F. Pashkovskiy (of the Polish Academy of Sciences), during his stay at the Computation Center of the AS SSSR. A 65-point scheme was taken on the transition surface; 100 points are taken on the BC-characteristic.

Card 5/0

Computating an axisymmetric ...

With such a number of points, 1.15, 1.45 and 1.8 hours are required for the calculation of the OAB region to axis points with a pressure of $10^{-1}p^*$, $10^{-2}p^*$ and $10^{-3}p^*$, respectively. The calculation of ABC takes 13 minutes; these calculations apply to a perfect gas. Some of the results are shown in figures. Nozzle contours are compared for hydrogen- and perfect-gas flow. It was found that for air $p^*/p = 1000$, and for a perfect gas $p^*/p = 760$. Thanks are extended to Yu.D. Shmyglevskiy, N.S. Galynn and L.M. Shashkova. There are 9 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: L. Heller, Equilibrium statistical mechanics of dissociating diatomic gases. Phys. Fluids, 1959, 2, no. 2, 147-152. R. Edse, Design of supersonic expansion nozzles and calculation of isentropic exponent for chemically reacting gases. Trans. ASME, 1957, 79, no. 7, 1527-1535.

SUBMITTED: September 20, 1961

Card 6/[illegible]

KRAYKO, A.N.; KATSKOVA, O.N., otv. red.; ORLOVA, I.A., red.; KORKINA, A.I., tekhn. red.

[Variational problems involving supersonic flows of a gas with arbitrary thermodynamic properties] Variatsionnye zadachi sverkhzvukovykh techenii gaza s proizvol'nymi termodinamicheskimi svoistvami. Moskva, Vychislitel'nyi tsentr AN SSSR, 1963. 82 p. (MIRA 16:12)
(Calculus of variations) (Gas dynamics)

L 17312-63 EPR/EPA(b)/EWT(l)/EWG(s)-2/EDS/ES(v) AEDC/AFFTC/ASD/
AFMDC/APGC Ps-4/Pd-4/Pw-4/Pe-4 WW S/0207/63/000/004/0116/0118
ACCESSION NR: AP3006157 80
77

AUTHOR: Katskova, O. N. (Moscow); Krayko, A. N. (Moscow)

TITLE: Calculation of plane and axisymmetrical supersonic flows in the presence of irreversible processes

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1963, 116-118

TOPIC TAGS: nozzle, contour, characteristic, frozen flow, equilibirum flow, supersonic nozzle, irreversible process, supersonic flow, plane flow, axisymmetrical flow, inviscid flow

ABSTRACT: A finite-difference method has been developed to simplify the numerical solution of the equations of the characteristics for one-dimensional and axisymmetrical supersonic flow of an inviscid, non-heat-conducting gas in the presence of irreversible physicochemical processes. The state of the gas is given by the pressure (p), temperature (T), and n parameters (q_i) characterizing the irreversible processes (e.g., component concentration, internal energy).

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The variation in these parameters is described by the equation:

$$\frac{dq_i}{dx} = F_i(w, \vartheta, p, T, q) = \varphi^i(w, \vartheta, p, T, q)\, f_i(p, T, q),$$

where x and y are rectangular coordinates; w is the absolute flow velocity; ϑ is the inclination angle of the velocity vector relative to the axis x; q is the sum of q_i; and F_i, φ^i, and f_i are known functions of ϑ, p, T, and q. φ^i determines the rate of the irreversible processes. Frozen and equilibrium flow occur at $\varphi^i = 0$ and $\varphi^i = \infty$, respectively. By series expansion of f_{i2} using steps of $(q_{i2} - q_{i1})$, the following finite-difference equation was obtained:

$$q_{i2} = q_{i1} + \frac{(F_{i1} + \varphi_2^i f_{i2})(x_2 - x_1)}{2 - \varphi_2^i f_{i1}^*(x_2 - x_1)},$$

where $f_{i1}^* = (f_{i1} + f_{i2})/2$; $f_{i1} = (\partial f_i / \partial q_i)_{p, T, q_j \neq q_i}$.

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ACCESSION NR: AP3006137

3

The subscript 3 denotes that arguments p_2, T_2, q_{j_2} ($j \neq 1$), and q_{1_1} are used. The subscripts 1 and 2 denote the known and unknown quantity. The formula was used for calculating the flow of dissociating oxygen in the diverging section of an axisymmetrical nozzle at initial pressure of 1 atm, initial temperature 5000K, and M = 1.001. The results (see Fig. 1 of the Enclosure) indicate that the presence of irreversible reactions leads to quantitative as well as qualitative changes. The formula can be used for calculating nozzle contours for arbitrary types of flow (subsonic, uniform, unsteady, etc.) in the presence of irreversible processes. "The authors are grateful to Yu. D. Shmyglevskiy for his interest in the work and his useful evaluations, and also to G. I. Suchkova for preparing the report." Orig. art. has: 4 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 11Apr63 DATE ACQ: 11Sep63 ENCL: 01

SUB CODE: AS, AI NO REF SOV: 001 OTHER: 003

Card 3/3

KRAYKO, A.N. (Moscow)

"Some variational problems of gas dynamics of nonequilibrium flows".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

KARSKOVA,G.N.;KRAYKO,A.N.;NAUMOVA,I.N. (Moscow)

"Characteristics method for the analysis of equilibrium and non-equilibrium gas flows"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan- 5 Feb 64.

L 10392-63 EPA(b)/EWT(1)/BDS--AEDC/AFFTC/ASD/AFMDC--Pd-4
ACCESSION NR: AP3003243 S/0040/63/027/003/0484/0495

58
57

AUTHOR: Krayko, A. N. (Moscow)

TITLE: On the determination of bodies of minimum drag by use of the Newton and Buseman pressure-coefficient laws

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 3, 1963, 484-495

TOPIC TAGS: bodies of minimum drag, Newton's pressure-coefficient law, Buseman pressure-coefficient law, necessary extremum conditions, necessary minimum conditions, determination of extremals, determination of optimum contours

ABSTRACT: After reviewing a series of studies on determining the shape of bodies having minimum drag under certain types of restrictions, the author analyzes the same problem with various arbitrary restrictions. The variational problem of determining functions (from the class of permissible functions) which under certain isoperimetric conditions minimize the drag functional is defined. A solution is first presented for a case in which pressure on the surface of a body is determined by Newton's pressure-coefficient law. The functional (1) (see Enclosure), which has the same first variation as the drag functional, is

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ACCESSION NR: AP3003243

used in this solution. From the first variation of (1), an expression is derived by which the required extremum and minimum-drag conditions and the end conditions for extremals are established. On the basis of these conditions the contour of the body having minimum drag can be constructed. For optimality of the contour constructed, certain conditions for extremals are established from the second variation of (1). An example of the determination of optimal contour for a body of given dimensions is presented. Some new results were obtained for plane and symmetric ducted bodies. An analogous study was made for the case in which pressure on the body is determined by Buseman's pressure-coefficient law. "The author is grateful to Yu. D. Shmyglevskiy for discussion of the work." Orig. art. has: 45 formulas.

ASSOCIATION: none

SUBMITTED: 30Jan63 DATE ACQ: 23Jul63 ENCL: 01

SUB CODE: 00 NO REF SOV: 010 OTHER: 017

Card 2/3

L 10392-63
ACCESSION NR: AP3003243

ENCLOSURE: 01

$$I = \int_{y_0}^{y_1} \left[\frac{y^{\nu}}{1 + x'^2} + (\lambda, f)\right] dy \qquad (1)$$

where (λ, f) is a scalar product of the Lagrange multipliers $\lambda = (\lambda^1, \ldots, \lambda^m)$ and of the vector $f = (f^1, \ldots, f^m)$.

ja/
Card 3/3

KAZAKOVA, O.N.; KRAYKO, A.N., RYZHOV, O.S., otv. red.; ORLOVA, I.A., red.

[Calculation of plane and axisymmetrical supersonic flows in the presence of irreversible processes] Raschet ploskikh i osesimmetrichnykh sverkhzvukovykh techenii pri nalichii neobratimykh protsessov. Moskva, VTs AN SSSR, 1964. 42 p. (MIRA 17:6)

AM4016847 BOOK EXPLOITATION S/

Krayko, A. N.

Variational problems of supersonic gas flows with arbitrary thermodynamic properties (Variatsionny*ye zadachi sverkhzvukovy*kh techeniy gaza s proizvol'ny*mi termodinamicheskimi svoystvami) Moscow, VTs AN SSSR, 1963. 82 p. illus., biblio. 1400 copies printed. (At head of title: Akademiya nauk SSSR) Responsible editor: Katskova, O. N.; Editor: Orlova, I. A.; Technical editor: Korkina, A. I.; Proofreader: Shvedova, T. N.

TOPIC TAGS: variational problems, supersonic flow, gas flow, thermodynamics, extremals, minima, maxima, shock solutions, shockless solutions, shock wave, bottom pressure

PURPOSE AND COVERAGE: The author expresses his gratitude to Yu. D. Shmy*glevskiy for his discussion of the problems arising in this presentation and to O. I. Suchkova and L. P. Frolova for their assistance with the manuscript preparation.

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AM4016847

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SUB CODE: AI, MM SUBMITTED: 16May63 NR REF SOV: 16

OTHER: 7 DATE ACQ: 23Jan64

Card 3/3

ACCESSION NR: AP4027587 S/0040/64/028/002/0285/0295

AUTHOR: Krayko, A. N. (Moscow)

TITLE: Variational problems in gas dynamics of equilibrium and nonequilibrium flows

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 2, 1964, 285-295

TOPIC TAGS: variational problem, gas dynamics, equilibrious flow, nonequilibrious flow minimal resistance, plane body, axisymmetric body, maximal thrust, irreversible process, nonlinear partial differential equation, control contour, Lagrange multiplier, optimal contour

ABSTRACT: The author studies the problem of determining the form of plane and axisymmetric bodies of minimal resistance and nozzles of maximal thrust in stationary supersonic flow of viscous and non-heat-conductive gas in the presence of irreversible processes (such as chemical reactions proceeding at finite rates) and in the absence of such processes. He assumes that the region of influence of the desired part of the contour is bounded by characteristics and does not contain shock waves. Restrictions on the contour of the body are arbitrary: the

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ACCESSION NR: AP4027587

dimensions of the body, the surface area, volume, etc., may be given. In this problem the parameters on the surface of the body, determined by a system of nonlinear partial differential equations, are functionals which are unknown in advance. This difficulty can be overcome by passing to a control contour. However, such a passage is applicable only when the dimensions of the body are given and in the absence of irreversible processes. Using a method which does not admit such a passage, the author obtains necessary conditions for an extremum, comprising the basis for construction of optimal contours. He explains that in many cases it is necessary to allow discontinuities of the Lagrange multiplier for continuous flow parameters. He shows that these discontinuities may occur along the characteristic and the flow line, and he obtains relations on the discontinuities. Orig. art. has: 5 figures and 51 formulas.

ASSOCIATION: none

SUBMITTED: 23Dec63 DATE ACQ: 28Apr64 ENCL: 00

SUB CODE: AI NO REF SOV: 007 OTHER: 005

Card 2/2

KRUYKOV, A.N. (Moskva)

Variational problems in gas dynamics of equilibrium and nonequilibrium flows. Prikl. mat. i mekh. 28 no.2:285-295 Mr-Ap'64. (MIRA 17:5)

L 10802-65 EWT(1)/EWP(m)/FCS(k)/EWA(1) Pd-4
ACCESSION NR: AP4013392 S/0040/64/028/001/0178/0182

AUTHORS: Krayko, A. N. (Moscow); Naumova, I. N. (Moscow); Shmy*glevskiy, Yu. D. (Moscow)

TITLE: Construction of bodies of optimal shape in supersonic flow

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 1, 1964, 178-182

TOPIC TAGS: optimal shape, supersonic flow, minimal drag, maximal thrust, axisymmetric jet, Lagrange problem

ABSTRACT: Under certain simplifying assumptions of a nature too detailed to be covered here, the authors determine the regions of existence in the plane of flow of various solutions to the problem of determination of bodies with minimal drag and jets with maximal thrust when certain limitations are placed on the dimensions involved. Working basically with a jet, they also construct new solution schemes. Their solutions contain the part of the boundary extremum brought about by the dimension restriction, which was formerly lost due to the necessity, previously, of using numerical methods. Orig. art. has: 3 figures and 26 formulas.

ASSOCIATION: none

SUBMITTED: 24Oct63 ENCL: 00

SUB CODE: ME NO REF SOV: 006 OTHER: 005

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KRAYKO, A.N. (Moskva); NAUMOVA, I.N. (Moskva); SHMYGLEVSKIY, Yu.D. (Moskva)

Construction of bodies of optimum shape in a supersonic flow.
Prikl. mat. i mekh. 28 no.1:178-182 Ja-F'64. (MIRA 17:2)

L 35462-65 EWP(m)/EWT(1)/FCS(k)/EWA(d)/EWA(1) Pd-1.

ACCESSION NR: AP5005172 S/0179/64/000/006/0041/0047

AUTHORS: Galyun, N. S. (Moscow); Krayko, A. N. (Moscow)

TITLE: Calculation of nonequilibrium flows

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 6, 1964, 41-47

TOPIC TAGS: nonequilibrium gas flow, numerical procedure, finite differences method

ABSTRACT: The finite differences method proposed by O. N. Katskova and A. N. Krayko (Raschet ploskikh i osesimmetrichnykh sverkhzvukovykh techeniy pri nalichii neobratimykh protsessov. PMTF, 1963, No. 4, p. 116-118) for solving nonequilibrium flow problems is demonstrated. This method permits integration steps which are much larger than is the case with the Euler or Runge-Kutta methods. The method can be applied to equations of the form $\dot{u}_{n+1} - \dot{u}_n = (f_n^n + f_{n+1}^{n+1}) \frac{\Delta}{2\varepsilon}$ ($u_k = u(\tau_k)$, $f_k^l = f(\tau_k, u_l)$, $\tau_k = \tau_0 + k\Delta$) ($\varepsilon > 0$ - constant parameter, $f(\tau\ u)$ - given function) with the finite difference equivalent $u_{n+1}^0 = u_n$, $u_{n+1}^{l+1} = u_n + (f_n^n + f_{n+1}^{n+1,l}) \frac{\Delta}{2\varepsilon}$ ($l > 0$), $(f_k^{kl} = f(\tau_k, u_k^l))$. Instead of the algorithm $u_{n+1} - u_n = \frac{f_n^n + f_{n+1}^n}{1 + 1/\varepsilon^{-1}\Delta (f_{un+1}^n + f_{un+1}^{n+1})} \frac{\Delta}{2\varepsilon}$ $\left(f_u = \left(\frac{\partial f}{\partial u}\right)_\tau\right)$ which

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L 35462-65

ACCESSION NR: AP5005172

requires that $|\Delta| < 2\varepsilon$, this method proposes the use of $u^{n}_{n+1} = u_n$:

$$u^{j+1}_{n+1} = u_n + \frac{(f^{n}_{n} + f^{n}_{n+1})}{1 + {}^{1}/_{6}\varepsilon^{-1}\Delta\left(f^{n}_{un+1} + f^{n+1,j}_{un+1}\right)} \frac{\Delta}{2\varepsilon} (j > 0)$$

which permits much larger integration steps. The method is demonstrated on a set of 11 equations describing nonequilibrium expansion of air with coupled chemical reactions. Its application to two-dimensional or axisymmetrical flow is also demonstrated by simplifying the above example to the two-dimensional case. It is found that the method requires a significantly smaller number of steps for convergence than the Euler or Runge-Kutta methods (in one of the examples the integration steps were 10^7 times larger and still produced the same accuracy). Orig. art. has: 11 formulas.

ASSOCIATION: none

SUBMITTED: 12May64 ENCL: 00 SUB CODE: MA, ME

NO REF SOV: 003 OTHER: 004

Card 2/2

KRAYKO, A.N. (Moskva)

Analytic representation of thermodynamic air functions. Inzh.zhur. 4 no.3:548-550 '64. (MIRA 17:10)

L 8487-66 EWT(1)/ETC/EPF(n)-2/EWG(m) IJP(c) GG/AT

ACC NR: AP5021915 SOURCE CODE: UR/0207/65/000/004/0154/0156

44,55 44,55 58

AUTHOR: Krayko, A. N. (Moscow); Moskvin, Yu. V. (Moscow) 13

ORG: none

TITLE: On determination of two-temperature plasma composition

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1965, 154-156

21,44,55 21,44,55

TOPIC TAGS: plasma temperature, plasma diagnostics, theoretic physics

ABSTRACT: The problem of the separate temperatures of the distinct components of a plasma is considered theoretically. The plasma consists of neutrals, ions and electrons and is quasineutral. Each specie forms a subsystem interacting with the two others. The slowest interaction process is the energy transfer to higher states of ionization (radiation processes are neglected) and the dominating effects are the elastic collisions. It is further assumed that electron gas and the energy levels of the heavy components are in equilibrium so that electron and ion temperatures are the same. An equation analogous to Saha's equation is derived, which with the usual constraint of statistical mechanics and the pressure-temperature relationship leads to a determination of the plasma state as a function of the two temperatures. The effect of departure from the stated assumptions is briefly considered. Orig. art. has: 6 formulas.

SUB CODE: 20/ SUBM DATE: 05Apr65/ ORIG REF: 000/ OTH REF: 005

LVK

Card 1/1

KRAYKO, A.N.; SLOBODKINA, F.A. (Moskva)

Solution of variational problems in one-dimensional magnetohydrodynamics. Prikl. mat. i mekh. 29 no.2:322-333 Mr-Ap '65. (MIRA 18:6)

L 59221-65 EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1) Pd-1

ACCESSION NR: AP5014933 UR/0040/65/029/003/0418/0429

23
31
B

AUTHORS: Krayko, A. N. (Moscow); Sternin, L. Ye. (Moscow)

TITLE: On the theory of flows of a two-speed continuous medium with solid or liquid particles

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 3, 1965, 418-429

TOPIC TAGS: viscous gas flow, particle motion, continuity, continuous flow method, flow research

ABSTRACT: The problem of movement of a continuous medium having extraneous matter is described by means of a model of a two-speed continuous substance. Several conditions are established for the purpose of clarifying the model: 1) the particles are identical spheres and collisions among the spheres can be ignored; 2) distances along which the flow characteristics are actually measured are a great deal larger than interparticle distances; 3) the Mach number of relative particle motion is less than critical. It is furthermore assumed that viscosity and thermal conduction are important only in processes of gas and particle interaction. The equations of motion and particle energy are given as

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L 59221-65

ACCESSION NR: AP5014933

$$(V_d\nabla)\,V_d + \frac{\partial V_d}{\partial t} + \frac{1}{\rho_d}\nabla p - f - F_d = 0$$

$$V_d\nabla e_d + \frac{\partial e_d}{\partial t} - q - Q_d = 0$$

$$f = \varphi^1 \cdot |V - V_d|^n (V - V_d), \quad q = \varphi^2 \cdot (T - T_d)^k$$

$$T_d = T_d(e_d), \quad \varphi^i = \varphi^i(p, T, T_d, |V - V_d|), \quad n > -1, \quad k \geq 0$$

The notation used includes: m- mass, $\rho^0 d$ - constant density, V_d- velocity, T_d- particle temperature, p- pressure, T- gas temperature, V- gas velocity, and t- time. An aggregate stream flow density is derived by considering mass transfer through an infinitesimal volume element. The equations of mass conservation are given in integral form for both gas and particles as

$$\iiint_{\tau} \frac{\partial \rho}{\partial t} d\tau + \iint_{S} \rho V n dS = 0, \qquad \iiint_{\tau} \frac{\partial \rho_d}{\partial t} d\tau + \iint_{S} \rho_d V_d n dS = 0$$

where τ is an arbitrary volume bounded by S, and n is the internal normal to S. The equations of conservation and motion within the control surface S are elaborated to include heat flow and work considerations. The mathematical model

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ACCESSION NR: AP5014933

is derived through the application of several transformations. It is then tested and appraised as it applies to several particular cases (presence and/or absence of certain types of flow). Additional discussion is devoted to conditions of two-dimensional and symmetric flow. The authors thank G. M. Bam-Zelikovich and G. G. Chernyy for their constructive criticisms. Orig. art. has: 42 equations.

ASSOCIATION: none

SUBMITTED: 13Dec64 ENCL: 00 SUB CODE: ME

NO REF SOV: 006 OTHER: 008

Card 3/3

L 29853-66 EWT(1)/EWP(m) WW

ACC NR: AP6013194 SOURCE CODE: UR/0421/66/000/002/0027/0036

AUTHOR: Galyun, N. S. (Moscow); Kraiko, A. N. (Moscow)

ORG: none

TITLE: A variational problem in one dimensional nonequilibrium gas dynamics

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 2, 1966, 27-36

TOPIC TAGS: gas dynamics, variational problem, heat conductivity, gas viscosity

ABSTRACT: The article starts with a consideration of one dimensional nonequilibrium flow. In the equations, the x axis is directed along the axis of the nozzle and the origin of coordinates is located in some cross section. y is the ordinate of the nozzle wall. Neglecting the effects of viscosity and heat conductivity, the flow under consideration is described by the equations:

$$\rho u w' + p' = 0 \quad \text{(motion)} \quad (1.1)$$

$$\rho w y^{\nu+1} = \rho_a w_a y_a^{\nu+1} \quad \text{(continuity)} \quad (1.2)$$

$$\tfrac{1}{2}w^2 + h = H \quad \text{(energy)} \quad (1.3)$$

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L 29858-66

ACC NR: AP6013194

Here p is the pressure; ρ is the density; h is the specific enthalpy; w is the gas velocity; ν = 0 and 1, respectively, and the flat and axisymmetrical cases; H is a constant. Solution of the system of equations is followed in the article by a number of examples of calculations using the method. It is demonstrated that a previous attempt at a similar solution (referred to in the bibliography) was in error. Orig. art. has: 25 formulas, 7 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 31May65/ ORIG REF: 006/ OTH REF: 005

Card 2/2

L 27379-66 EWT(1)/EWP(m)/EWA(d)/ETC(m)-6/EWA(1) WW

ACC NR: AP6012549 SOURCE CODE: UR/0040/66/030/002/0312/0320

AUTHOR: Krayko, A. N. (Moscow)

ORG: none

TITLE: Solution of variational problems in supersonic gas dynamics

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 2, 1966, 312-320

TOPIC TAGS: aerodynamic characteristic, aerodynamic configuration, missile aerodynamics, gas dynamics

ABSTRACT: A more general solution of a variational problem encountered in supersonic gas dynamics is presented. The solution is an extension of K. G. Guderley and J. V. Armitage (A general method for the determination of best supersonic rocket nozzles. Paper presented at the Symposium on extremal problems in aerodynamics. Boeing Sci. Res. Laboratories, Flight Sci. Laboratory, Seattle, Washington, Dec. 3-4, 1962). The extension consists of the inclusion of the linear relationships which exist between the coefficients of a closed flow characteristic in the calculation. Solutions for two special cases are presented: a) the base pressure is independent of the sought-for contour shape, and b) the base pressure is determined by conditions of the Korst type, H. H. Korst (A theory for base pressures in transonic and supersonic flow. J. Appl. Mech., 1956, vol. 23, No. 4). The solution for case (a) is similar to the solution derived by A. N. Krayko (Variatsionnyye zadachi gazovoy dinamiki neravnovesnykh i ravnovesnykh techeniy, PMM, 1964, t. 28 vyp. 2). In the solution for case (b), equations are derived which are important in the design of minimum friction nose cones. Orig. art. has: 2 figures and 25 equations.

Card 1/1 SUB CODE: 20, 01/SUBM DATE: 26Oct65/ ORIG REF: 005/ OTH REF: 002

L 46312-66 EWT(1)/EWP(m)

ACC NR: AP6028320 SOURCE CODE: UR/0040/66/030/004/0661/0673

AUTHOR: Krayko, A. N. (Moscow)

ORG: none

TITLE: Investigation of weakly disturbed supersonic flows in the presence of an arbitrary number of nonequilibrium processes

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 4, 1966, 661-673

TOPIC TAGS: supersonic aerodynamics, supersonic flow, steady flow, nonequilibrium flow, inviscid flow, flow field, flow analysis

ABSTRACT: This article presents an analytical study of steady flow fields of an inviscid, non-heat-conducting gas, assuming small disturbances and the presence of an arbitrary number of nonequilibrium processes. Its purpose is to derive and analyze linearized equations of a steady flow over a thin profile and a body of revolution. Integral representations of flow parameters are obtained, using Laplace transformations, which are employed to determine the velocity field. They are also used for studying the flow properties and attenuation of disturbances at large distances from the body in the region between the initial frozen and equilibrium characteristics. Orig. art. has: 3 figures and 50 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 12Jan66/ ORIG REF: 008/ OTH REF: 009/ ATD PRESS: 5105

Card 1/1

KRAYKO, K., mayor, propagandist

An excellent beginning. Voen. vest. 41 no.4:70-71 Ap '62.
(MIRA 15:4)

1. Politicheskiy otdel Zhitomirskogo oblvoyenkomata.
(Retired military personnel) (Journalism, Military)

ACCESSION NR: AP4043531 S/0258/64/004/003/0548/0550

AUTHOR: Krayko, A. N. (Moscow)

TITLE: Analytic representation of the thermodynamic functions of air

SOURCE: Inzhenerny*y zhurnal, v. 4, no. 3, 1964, 548-550

TOPIC TAGS: thermodynamic function, air property, specific enthalpy, specific density, pressure dependence, temperature dependence, computer BESM 2

ABSTRACT: Empirical equations are found for the density ρ and specific enthalpy h of air as functions of temperature T and pressure p valid for temperatures from 400 to 20000K and for pressures from 0.001 to 1000 atm. In deriving the expressions it is assumed that undissociated air contains 21% oxygen and 79% nitrogen by volume, that there are no compounds of oxygen and nitrogen, and that reactions take place in the following order: dissociation of oxygen, dissociation of nitrogen, single ionizations, double ionization of nitrogen. The single ionizations of nitrogen and oxygen are replaced by ionizations of some gas M whose properties are obtained by averaging over the number of particles. It is further assumed that each component satisfies the ideal gas law. The expressions, neglecting the double ionization of

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ACCESSION NR: AP4043531

oxygen, have the form $\frac{\rho R}{\mu} = \frac{p}{T(1+e_1+e_2+2e_3+2e_4)}$,

$$\frac{h\mu}{R} = [(0{,}21-e_1)H_{O_2} + (0{,}79-e_2)H_{N_2} + 2(e_1-0{,}21e_3)H_O + 2(e_2-0{,}79e_3)H_N + 2e_3H_{M+} + 5(e_3+e_4)]T + 59000e_1 + 113200e_2 + 333000e_3 + 687000e_4,$$

$$e_1 = \left[1{,}88 + \sqrt{8{,}3 + pT^{-1}\exp\left(\frac{57800}{T} - 4{,}02 + 1{,}32\cdot10^{-4}T\right)}\right]^{-1},$$

$$e_2 = \left[0{,}22 + \sqrt{1{,}096 + pT^{-1}\exp\left(\frac{113300}{T} - 5{,}94\right)}\right]^{-1},$$

$$e_3 = \left[1 + pT^{-1/2}\exp\left(\frac{166530 - 10p}{T} + 13{,}77\right)\right]^{-1/2},$$

$$e_4 = -0{,}5 + \sqrt{0{,}25 + 1{,}58\left[1 + pT^{-1/2}\exp\left(\frac{343500}{T} + 14{,}84\right)\right]^{-1}},$$

$$H_{O_2} = 3{,}076 + 1{,}19\cdot10^{-3}T - 9\cdot10^{-8}T^2,$$

$$H_{N_2} = 3{,}415 + 2{,}17\cdot10^{-4}T - 1{,}2\cdot10^{-8}T^2,$$

$$H_O = 2{,}514 + 1\cdot10^{-5}T + 1{,}2\cdot10^{-10}T^2,$$

$$H_N = 2{,}117 + 1\cdot10^{-4}T - 1{,}97\cdot10^{-8}T^2,$$

$$H_{M+} = 2{,}40 + 2\cdot10^{-5}T,$$

$$\mu = 29{,}25 \text{ g/mole},$$

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ACCESSION NR: AP4043531

where μ is the molecular weight of undissociated air and R is the universal gas constant. The ε_i's represent the fraction of molecules dissociated into atomic oxygen, the fraction of molecules dissociated into atomic nitrogen, the fraction of singly ionized atoms, and the fraction of doubly ionized atoms, respectively. Values computed from these equations agree with tabulated data within 3% for h and 1.5% for ρ. Corrections required to include the effect of doubly ionized oxygen are also indicated. Computations were performed on the computer BESM-2 at the Vy*chislitel'ny*y tsentr AN SSSR (Computer Center, AN SSSR). The author thanks N. S. Galyun and L. M. Shashkova for help in carrying out the work. Orig. art. has: 17 equations and 1 diagram.

ASSOCIATION: none

SUBMITTED: 020ct63 ENCL: 00

SUB CODE: TD NO REF SOV: 007 OTHER: 002

Card 3/3

KRAYKO, K., mayor

Enthusiasts. Voen. vest. 41 no.1:67-69 Ja '62. (MIRA 16:11)

KRAYKO Ye. A.

CA

1F

Biosynthesis of vitamin C as a regulatory property of the organism. B. I. Yanovskaya and E. A. Kraiko (Acad. Med. Sci., Moscow). *Biokhimiya* 17, 161-6(1952).—The synthesis of vitamin C (I) by white rats is increased by chloretone, a substance which depresses the activity of the central nervous system; more I is also excreted in the urine. Guinea pigs, which are unable to synthesize I, suffer a loss of I in the tissues (liver, kidney) after having been given chloretone. The stimulation of the biosynthesis of I is not the result of feeding precursors of I, but must be regarded as a regulatory mechanism of the organism based on the activity of the nervous system. H. Priestley

INST. NUTRITION Acad. Med Sci USSR, Moscow

КИНУКО, Ю.А.

(b)

Vitamin C biosynthesis in chicks in relation to the presence in the ration of folic acid and its derivatives. V. A. Kitsnova, E. A. Krafko, O. I. Pozur, A. V. Trufanov, and B. I. Yanovskaya (Nutrition Inst., Acad. Med. Sci., U.S.S.R., Moscow).—*Biokhimiya* 18, 351–3(1953). A deficiency of pteroylglutamic acid results in an increase in the concn. of vitamin C in the spleen of the chicks. This can be regarded as a compensatory response to the enhanced functional activity of the spleen. The introduction of pteroylglutamic acid or of pteroylaminobenzoic acid helps to retain the vitamin C in the spleen of chicks at a normal level. It appears possible to assume that a similarity exists between the biol. activity of pteroylglutamic acid and the pteroylaminobenzoic acids. Such an assumption finds its basis also in clinical observations. B. S. Levine

Translation in /M

KOSENKO, S.A., KRAYKO, Ye.A.

Some data on the vitamin C supply of the child's body. [with summary in English]. Vop.pit. 17 no.4:24-28 Je-Ag '58 (MIRA 11:7)

1. Iz laboratorii izucheniya vitaminov (zav. - prof. V.V. Yefremov) Instituta pitaniya AMN SSSR, Moskva.
(VITAMIN C, metabolism
requirement in child. (Rus))

KRAYKO, Ye.A.

Some materials on the significance of vitamin P for the organism.
Vit. res. i ikh isp. no.4:108-114 '59. (MIRA 14:12)

1. Institut pitaniya Akademii meditsinskikh nauk SSSR, Moskva.
(VITAMINS--P) (ASCORBIC ACID)
(CAPILLARIES--PERMEABILITY)

KRAYKO, Ye.A.

Effect of additional vitamin P (a catechin complex) administration on capillary resistance in factory workers exposed to high temperatures. Vit. res. i ikh isp. no.4:265-271 '59. (MIRA 14:12)

1. Institut pitaniya Akademii meditsinskikh nauk SSSR, Moskva.
(VITAMINS--P) (CAPILLARIES--PERMEABILITY)
(HEAT--PHYSIOLOGICAL EFFECT)

MASLENIKOVA, Yo.N.; TIKHOMIROVA, A.N.; KRAYKO, Ye.A.; PENAR, O.I.; GVOZDOVA, L.G.; SOLOV'YEVA, L.Ya.; KULICHENKO, Ye.V.; GEL'FENBEYN, A.Sh.

Study of the metabolism of vitamins in workers in the hot shop of a metallurgical factory. Vop. pit. 19 no.2:3-9 Mr-Ap '60. (MIRA 14:7)

1. Iz laboratorii izucheniya vitaminov (zav. - prof. V.V.Yefremov) Instituta pitaniya AMN SSSR, Moskva.

(VITAMINS) (HEAT--PHYSIOLOGICAL EFFECT)

GRUBINA, A.Yu.; KRAYKO, Ye.A.; MASLENIKOVA, Ye.M.; RAZUMOV, M.I.; SERGEYEVA, M.A.; SKIRKO, B.K.; SHISHOVA, O.A.

Effect of food enriched by methionine on the development of experimental silicosis in white rats. Vop.pit. 20 no.3:41-46 My-Je '61. (MIRA 14:6)

1. Iz Instituta pitaniya AMN SSSR, Moskva.
(LUNGS--DUST DISEASES) (METHIONINE) (DIET)

KRAYKO, Ye.A.

Method for determining the amount of vitamin P-active catechins in the urine. Vop. pit. 20 no.4:57-59 Jl-Ag '61. (MIRA 14:7)

1. Iz laboratorii izucheniya vitaminov (zav. - prof. V.V.Yefremov) Instituta pitaniya AMN SSSR, Moskva.
(URINE--ANALYSIS AND PATHOLOGY) (CATECHOL)
(COLORIMETRY)

GRUBINA, A.Yu.; YEZHOVA, Ye.N. [deceased]; KRAYKO, Ye.A.; MASLENIKOVA, Ye.M.; RAZUMOV, M.I.; SERGEYEVA, M.A.; SKIRKO, B.K.

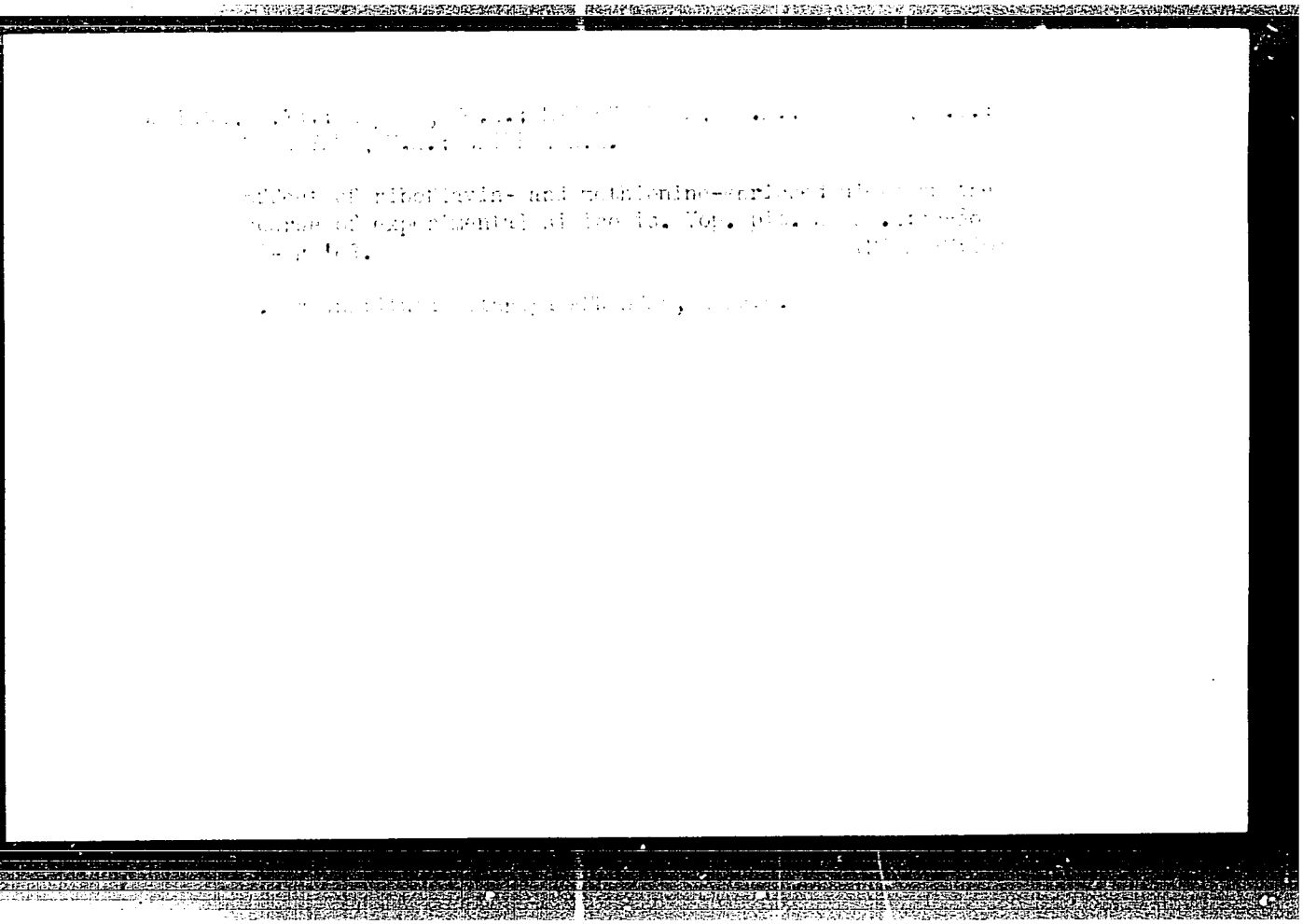
Influence of riboflavin on the course of experimental silicosis in white rats. Vop. pit. 20 no.6:40-45 N-D '61. (MIRA 15:6)

1. Iz Instituta pitaniya AMN SSSR, Moskva.
(LUNGS--DUST DISEASES)
(RIBOFLAVIN--PHYSIOLOGICAL EFFECT)

Influence of long-term introduction of vitamins into the ration on white rats, general condition and longevity. V. V. EFREMOV, A. N. TIKHOMIROVA, E. M. MASLENNIKOVA, [illegible] A. KOZLOVA, O. I. PUNAR and L. C. GVOZDOVA. *Institute of Nutrition, A.M.S., Moscow, U.S.S.R.*

In our observations, made on 400 white rats for about four years, we studied the influence of a complex of thirteen vitamins added to the ration of the animals since their weaning from females to their death. The rats were divided into groups which received additionally (*a*) vitamin complex (VC), (*b*) vitamin complex without vitamin E, (*c*) only vitamin B_1, (*d*) only vitamin B_2. We studied the influence of these additions on (1) the weight of body and its length. Animals receiving VC increased them faster. (2) The consumption of feed per 100 g. of body-weight by the rats receiving VC was, on the contrary, less. (3) Excretion of eight vitamins with urine and their content in organs. In urine the rats of the VC group of all ages had these indices higher than control animals. (4) Working capacity; the VC rats gnawed several times as much wood a day as animals of other groups. (5) Fertility and weight of litter; the number of litters from VC females, number of young rats in them, and their weight were greater than those from control rats. (6) The content of cholesterol in blood at the age of 1 year increased in all groups, but most of all in control group of rats. (7) The VC animals had a much lower morbidity and death-rates than control rats; the VC rats had the greatest duration of life of individual animals, that of animals which received B_1 and B_2 vitamins only was less, and rats of control group had the least longevity.

6th International Congress on Nutrition, Edinburg
9-15 August 1963



KRAYKOVA, T.G., kand.ekon.nauk

Determination and control of the actual time of a production cycle. Mashinostroitel' no.11:38 '65.
(MIRA 18:11)

KHAZANOV, V.S., kand.tekhn.nauk; KRAYMAN, T.Ya., inzh.

A photometer for checking lighting engineering platics.
Svetotekhnika 9 no.1:18-21 Ja '63. (MIRA 16:1)

1. Vsesoyuznyy svetotekhnicheskiy institut.
(Photometers) (Plastics--Measurement)

KRAYNDLER, A. (Bukharest); UNGER, Yu. (Bukharest); VOLANSKIY, D. (Bukharest)

Effect of partial injury of the reticular formation of the brain stem on the higher nervous activity in dogs. Fiziol.zhur. 45 no.3:261-270 '59. (MIRA 12:11)

(REFLEX, CONDITIONED,
eff. of damage of brain stem reticular form. in dogs (Rus))
(BRAIN STEM, physiol.
eff. of reticular form. lesions on conditioned reflex activity in dogs (Rus))