

SPITSYH, VIKT.I.; POBNODEM'YANSKAYA, G.V.

Reaction of phosphotungstic acid and its trialkylated sodium salt with caustic soda. Zhur. neorg. khim. 10 no.3:657-661
Mr '65. (MIRA 18:7)

1. Kafedra neorganicheskoy khimii Moskovskogo gosudarstvennogo universiteta imeni M.V. Lomonosova.

KOSMOBIM'YANSTVA, I.

Korea, North in

Stop the villains. Sov. zhenn., 3, no. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, August 1953. Unclassified.

KOSMODEM'YANSKAYA, Igubov' Timofeyevna [Kosmodziamskaya, L.P.S.]

Friendship strengthened through the shedding of our heroes' blood. Rab.1 sial. 36 no.2:6 F '60. (MIRA 13:6)
(White Russia--Women)

cm. and 25-32 cm. Out of 60 cases on varying soil and climatic conditions, in only 42 did plowing without the moldboard result in any increase in yield; in 26 the exact yield was obtained as with ordinary plowing, and in 18 cases there was a significant decli-

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Card 1/3

... had not been cultivated for a long time gave no increase in yield compared

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S/035/62/000/012/029/064
A001/A101

AUTHOR: Kosmodem'yanskiy, A.

TITLE: The satellite in flight

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 12, 1962, 85.
abstract 12A631 ("Aviatsiya i kosmonavtika", 1962, no. 7, 49 - 53)

TEXT: The classical problem of two bodies is expounded in application to motion of Earth's artificial satellites. ✓

[Abstracter's note: Complete translation]

Card 1/1

L 16613-63
SSD/AFFTC

EPA(b)/EWT(1)/FCC(w)/FS(v)-2/BDS/ES(v) AFMDC/ESD-3/APGC
Pd-4/Pe-4/Pg-4/Po-4/Pq-4 GW

S/124/63/000/004/001/064

82

AUTHOR: Kosmodem'yanskiy, A.

TITLE: Sputnik in flight

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1963, 13, abstract 4A57.
(Aviatsiya i kosmonavtika, no. 7, 1962, 49-53)

TEXT: The author discusses the problem of ²motion of artificial earth satellites at great heights; the problem is equivalent to the classical one regarding the motion of a material point under the effect of a central force. The concepts of the first and second cosmic velocities and their numerical values for the earth and other planets of the solar system are discussed. Formulas are adduced for computing the velocity of a sputnik and the period of its rotation as a function of its height. L. S. Yevdokimova.

[Abstracter's note: Complete translation.]

Card-1/1

L 12863-63 EPA(b)/EWT(d)/EWT(1)/EWT(m)/FAS/BDS/FGC(w)/FS(v)/T-2/
ES(v) AFPTC/ASD/AFMDC/ESD-3/APGC/SSD Pd-4/Pe-4/Pg-4/Po-4/Pq-4 TF
ACCESSION NR: AP3004315 S/0055/63/000/004/0070/0076 88

AUTHOR: Kosmodem'yanskiy, A. A.

TITLE: Variational problems in dynamics of orbital aircraft

SOURCE: Moscow, Universitet, Vestnik. Ser. 1. Matematika, mekhanika, no. 4, 1963, 70-76

TOPIC TAGS: orbital flight, orbital aircraft, variational problem, reciprocal isoperimetric problem

ABSTRACT: The optimal conditions of motion of an orbital aircraft with a liquid-propellant reactor power plant are studied under the assumptions that 1) velocities are cosmic ($M > 10$), 2) altitude is on the order of 60 to 100 km, and 3) the effect of aerodynamic forces is substantial. The mass variation law for an orbital aircraft is established, and equations of extremals are derived for those flight conditions which would provide for maximum range and maximum flight time with a given propellant reserve. Two reciprocal isoperimetric problems are studied, and extremals for range and flight time are found. A calculation sequence is presented for the simplest flight regime, in which $T = T_{max}$ and v_1 tends to infinity (case of the flat earth). The expression

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Card 2/2

KOSMODEM'YANSKIY, ARKADIY ALEKSANDROVICH

Kteorii lobobogo sporotivle nia. Chast'III. () vikhrevom soprotivlenii.
Moskva, 1935. 18 p., diagsr. (Tsagi. Trudy, no. 216)

Summary in English.

Title tr.: Contribution to the drag theory. Part III. Vortex resistance.

QA 912.M65 no.216

SO: AERONAUTICAL SCIENCES AND AVIATION IN THE SOVIET UNION, LIBRARY OF CONGRESS,
1955

KOSGODEM'YANSKIY, ARKADIY ALEKSEANDROVICH.

K teorii loboogo soprotivlenia. I. Priblizhennoe integrirovanie differentsial'nogo uravnenia laminarnogo pogramchnogo sloia. (Izvestia. Trudy, 1935, no. 215, p. 3-20, diags.)
Summary in English.

Title tr.: Contribution to drag theory. I. Method of approximate integration of differential equation of the laminar boundary layer.

DA911. M65 no. 215

SO. Aeronautical Science and Aviation in the Soviet Union. Library of Congress, 1955.

KOSMODEM'YANSKIY, ARKADIY ALEKSANDROVICH.

K teorii lobovogo soprotivleniia. II. Teoreticheskii raschet profil'-nogo soprotivleniia rulia Zhukovskogo. (TSAGI. Trudy, 1935, no. 215, p. 21-54, diags.)

Summary in English.

Title tr.: Contribution to drag theory. II. Theoretical determination of the profile drag of Zhukovskii-type rudder.

QA911. M65 no. 215

S0. Aeronautical Science and Aviation in the Soviet Union. Library of Congress, 1955.

KOSHODEM'YANSKIY, ARKADIY ALEKSANDROVICH

Vikhrevoe soprotivlenie teoreticheskikh profilei. Moskva, 1937. 58 p., plates, diags. (TSAGI. Trudy, no. 317)

Title tr.: Eddy resistance of theoretical airfoils.

QA911. M65 no. 317

SO. Aeronautical Science and Aviation in the Soviet Union. Library of Congress, 1955.

KOSMODEM'YANSKIY, ARKADIY ALEKSANDROVICH.

Lobovoe soprotivlenie kryl'ev S.A. Chaplygina. (Kryl'ia tipa inversii ellipsa).
(Moscow. Universitet. Uchenye zapiski, 1937, no.7: Mekhanika. p.103-111)

Summary in French.

Title tr.: Drag of Chaplygin wings. (Wings of the inverted ellipse type.)

Q60.M868 1937, no.7

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress,
1955.

KOSMODEN'YANSKIY, ARKADIY ALEKSANDROVICH.

K probleme vikhrevogo soprotivleniia. (Moscow. Universitet. Uchenye zapiski, 1937. no. 7: Mekhanika. p. 113-116)

Summary in French.

Title tr.: The problem of vortex resistance.

Q60. M868 1937, no. 7

SO. Aeronautical Science and Aviation in the Soviet Union. Library of Congress, 1955.

KOSMODEM'YANSKIY

KOSMODEM'YANSKIY, ABRADIY ALEKSANDROVICH.

Nekotorye voprosy aerodinamicheskoi teorii soprotivleniia. (Moscow. Universitet. Uche-nye zapiski, 1940, no. 46: Mekhanika, p. 39-83, illus., diagrs.)

Title tr.: Some problems of the aerodynamic theory of drag.

Q60.M868 1940, no. 46

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

KOSMODEM'YANSKIY, A.A.

Obshchie teoremy mekhaniki tela peremennoi massy
(General theorems of the mechanics of a body of variable mass), Izd.
VVIV (Voenno-vozdushnoi inzhenernoi akademii imeni Zhukovskogo),
Moscow, 1946, 16 pp.

KOSMODEM'YANSKIY, A. A.

"Extremal Problems for a Point of Varying Mass," Dokl. AN SSSR, 53, No.1, 1946

KOSMODEM'YANSKIY, A.A.

Mekhanika tel peremennoi massy; teoriya reaktivnogo
dvizheniya (Mechanics of bodies of variable mass; theory of reactive
motion), Izd. VVIA (Voenno-vozdushnoi inzhenerno akademii imeni
Zhukovskogo), Moscow, 1947, 110 pp.

KOSMODEM, YANSKIY, ARKADIY ALEKSANDROVICH

KOSMODEM¹ YANSKIY, ARKADIY ALEKSANDROVICH.

Konstantin Eduardovich Tsiolkovskii, 1857-1935; stenogramma publichnoi lektsii, pročitannoi v Moskve. Moskva, Pravda, 1948. 31 p., illus., port.

Title tr.: Konstantin Eduardovich Tsiolkovskii, 1857-1935; a stenographic report of a public lecture delivered in Moscow.

TL540.T84K6

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

KOSMODEM'YANSKIY, A. A.

KOSMODEM'YANSKIY, A. A.

Ocherki po istorii teoreticheskoi mekhaniki v Rossii. (Moscow. Universitet. Uchenye zapiski, 1948, no. 122: Mekhanika, v. II, p. 193-296)

Title tr.: Historical sketches of theoretical mechanics in Russia.

Q60.M868 1948, no. 122.

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

КОЛОДИЦКАЯ, А. А.

34106. Константин Эдуардович Циолковский--основательник современной ракетостроения. Физика в школе, 1949, No. 5, с. 17-24, с. портр.

SO: Knizhuaya, Letopis' Vol. 7, 1955

PROCESSING AND PROPERTIES INDEX

KOSMODEM'YANSKIY, A. A. Miscellaneous

JHS Vol. 10, No. 5

(160) Konstantin Eduardovich Tsiolkovskii, founder of
modern rocket dynamics. A. A. Kosmodem'Yanskii. Bull. U.S.S.R.
Acad. Sci., Sect. Tech. Phys. (12), 1872 (Dec., 1950). (In
Russian.) *Basic*

METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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KOSMODEM'YANSKIY, A. A.

Mathematical Reviews
Vol. 14 No. 10
Nov. 1953
Mechanics

Kosmodem'yanskii, A. A. General theorems of the dynamics
of a body of variable mass. Moskov, Gos. Univ. Uchenye
Zapiski 152, Mehanika 3, 13-42 (1951). (Russian)
This paper covers the same ground as Lectures 8 and 9 of
the paper reviewed below.
R. A. Rankin

AB 11/54

KOSMODEM'YANSKIY, A. A.

Mathematical Reviews
Vol. 14 No. 10
Nov. 1953
Mechanics

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Kosmodem'yanskii, A. A. Lectures on the mechanics of bodies of variable mass. Moskov. Gos. Univ. Uchenye Zapiski 154, *Mechanika* 4, 73-186 (1951). (Russian)

These lectures are from a course which the author has given since the session 1943/44 at the Soviet academy of military and aeronautical engineering. The paper begins with a historical account of theoretical mechanics giving especial emphasis to the work of Mečerskil (1859-1935) and Tsiolkovskii (1857-1935) who evidently were the first to consider mathematically problems concerning bodies of variable mass. The work of Esnault-Plantier, Goddard, Oberth, Levi-Civita, Tsander and Kondratjuk is mentioned, but there is no reference to more recent work done outside Russia.

First lecture. Here are derived the equations of motion of a particle (the author uses the word 'point' for the word 'particle' which he uses in a different connexion) of variable mass, including the equation

(1)
$$M \frac{dv}{dt} = F + V \frac{dM}{dt}$$

where M is the mass of the particle, v its velocity, t the time, F the external force acting and V , the relative velocity of the ejected part. In the case when the absolute velocity of the ejected part is zero this equation was first obtained by Mečerskil [Thesis, St. Petersburg, 1897]. Equation (1) is resolved into three scalar equations for the case when F is composed of gravity and air resistance in the direction opposing motion. When these forces are neglected, the now well-known law $v = v_0 + V \log (M_0/M)$ is deduced from (1)

Kosmodrom' yaus'ii 2/3

motion of a particle which is both losing mass and gaining mass is obtained; it is of similar form and was given by Meščerskiĭ [Izvestiya St.-Peterburg. Politehn. Inst. 1, no. 1-2, 77-118 (1904)]. In §2 this is applied, as an approximation, to the motion of a reaction boat which expels the same amount of water as it takes in. The motion of a uniform chain falling over the edge of a table is studied as a further example on variable mass in §3.

Fifth lecture. In §1 the rectilinear motion of an aircraft with air-jet motor is considered; it is assumed that conditions are such that the particle theory can be applied. Thus, for example, the motion of the mass-centre in the aircraft is supposed negligible, and the motion of the air inside the aircraft is ignored. Resistance is taken to be proportional to velocity. The velocity and horizontal range are calculated. In §2 rectilinear motion of a particle under gravity is treated for a general law of air resistance, it being assumed that the rate of gaining mass is a constant multiple of the rate of losing mass. The optimum form of the function $f(t)$ is found in order to give the maximum range. In §3 the similar problem of finding the optimum $f(t)$ such that a

given distance is traversed in a minimum time is discussed. In both cases $f(t)$ is obtained, in the first place, as a function of the velocity.

Sixth lecture. This deals with the converse problem where from known external forces and motion the law of burning is to be determined. In §1 such a problem due to Meščerskiĭ (1897) is considered; it is assumed that s and v are known as functions of t , also $g=g(s)$ and the inclination θ of the trajectory (assumed constant). With these conditions $f(t)$

and attributed to Tsiolkovskii (1903). The 'burning laws' (i) $f(t) = M/M_0 = 1 - at$, (ii) $f(t) = e^{-at}$ are investigated in detail.

Second lecture. The vertical movement of a particle of variable mass with the second burning law, under a uniform field of gravity and without air resistance, is considered; the maximum height H attainable, for given α , V_0 and final mass M_1 , is obtained. It is deduced that H is greatest when $\alpha = \alpha_0$, i.e., when the mass is reduced from M_0 to M_1 instantaneously. The maximum height attainable at the instant of 'all-burnt' is also obtained. Rectilinear motion without gravity with the first burning law and a resistance proportional to the square of the velocity is also considered.

Third lecture. In §1 the motion under a resistance of the form $u+bv$ is considered for the first burning law. In §2 the author considers a jet aircraft moving horizontally against air resistance so that the lift just compensates the weight. The application of the particle theory to this problem is, of course, only possible as an approximation. The distance traveled during the period when the jet is acting is calculated, for the first burning law, and the optimum value of α is obtained. In §3 vertical motion under uniform gravity subject to air resistance proportional to the velocity is considered. In §4 the problem is of vertical motion away from the surface of the earth under varying gravity; air resistance is neglected and the maximum velocity attained is sufficiently small so that the distance traveled from the surface is small in comparison with the earth's radius. These assumptions permit simplifying approximations to be used when calculating the distance traveled.

Fourth lecture. In §1 the general vectorial equation of

Kosmodem'yanskiy, A.A.

КОСМОДЕМ'ЯНСКИЙ, А. А.

Nikolai Egorovich Zhukovskii - otets russkoi aviatsii /Nikolai Egorovich Zhukovskii,
father of Russian aviation/. Moskva, Voenizdat, 1952. 136 p.

SO: Monthly List of Russian Accessions, Vol. 6 No. 5, August 1963

KOSMODEM'YANSKIY, A.A.

K.E. TSiolkovskii, founder of modern rocket dynamics. Trudy po ist. tekhn.
no.1:20-34 '52. (MLBA 6:7)

(TSiolkovskii, Konstantin Eduardovich, 1857-1935)
(Rockets (Aeronautics))

KOSMODEM'YANSKIY, A.A., professor

N.E. Zhukovskii's theorem on the lift force of airplane wings.
Kryl. rod. 3 no.1:20-21 Ja '52. (MLBA 8:8)

1. Chlen-korrespondent Akademii artilleriyskikh nauk
(Zhukovskii, Nikolai Egorovich) (Lift (Aeronautics))

LYAPUNOV, B.V., inshener; KADKE, Ya.M., redaktor; KOSNODEM'YANSKIY, A.A., doktor fiziko-matematicheskikh nauk, professor, inshener-polkovnik, konsul'tant; TIKHONRAVOV, M.K., inshener-polkovnik, kandidat tekhnicheskikh nauk, konsul'tant; SRIBN'IS, M.V., tekhnicheskiy redaktor.

[Rocket; rocket technology and jet propulsion] Raketa; raketnaya tekhnika i reaktivnaya aviatsiya. Moskva, Voennoe izd-vo Ministerstva oborony SSSR, 1954. 127 p. [Microfilm] (MLRA 7:11)
(Rockets (Aeronautics))

KOSMODEM'YANSKIY, A.A., doktor fiziko-matematicheskikh nauk, professor;
KADER, Ya.M., redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor.

[K.E.Tsiolkovskii, outstanding scientist] Znamenityi deiatel'
nauki K.E.Tsiolkovskii. 2-e, ispr. i dop. izd. Moskva, Voennoe
izd-vo Ministerstva oborony SSSR, 1954. 133 p. (MLRA 7:11)
(Tsiolkovskii, Konstantin Eduardovich, 1857-1935)
(Rockets (Aeronautics))

KOSMODEM'YANSKIY, A.A.

TSIOLKOVSKIY, Konstantin Eduardovich; BLAGONRAVOV, A.A., akademik, redaktor;
VOROB'YEV, B.N., inzhener, redaktor; KOSMODEM'YANSKIY, A.A., doktor
fiziko-matematicheskikh nauk, nauchnyy redaktor; BEKASOVA, L.M.,
redaktor; ZEMLYAKOVA, T.A., tekhnicheskiy redaktor

[Collected works] Sobranie sochinenii. Moskva, Izd-vo Akademii nauk
SSSR. Vol. 2. [Jet propulsion flying machines] Reaktivnye letatel'-
nye apparaty. 1954. 453 p. (MLRA 8:4)
(Jet propulsion) (Rockets (Aeronautics))

KOSMODEN'YANSKIY, Arkadiy Aleksandrovich, professor Moskovskogo universiteta; GLIKI, L.V., redaktor; MAKHOVA, N.N., tekhnicheskii redaktor.

[Course in theoretical mechanics for departments of physics and mathematics in pedagogical institutes] Kurs teoreticheskoi mekhaniki; dlia fiziko-matematicheskikh fakul'tetov pedagogicheskikh vuzov. Izd.2-oe, dop. i ispr. Moskva, Gos.uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR, 1955. 655 p.
(Mechanics) (MIRA 9:3)

KOSMODEM'YANSKIY, A.A., professor, doktor fiziko-matematicheskikh nauk

Konstantin Eduardovich Tsiolkovskii. *Nauka i zhizn'* 22 no.9:53-55
S '55. (MIRA 8:12)

(Tsiolkovskii, Konstantin Eduardovich, 1857-1953)

KOSMODEM'YANSKIY, A.

85-8-12/18

AUTHOR: Kosmodem'yanskiy, A., Professor

TITLE: K. E. Tsiolkovskiy (Konstantin Eduardovich Tsiolkovskiy).
On the Occasion of the 100th Anniversary of his Birth
(K 100-letiyu so dnya rozhdeniya)

PERIODICAL: Kryl'ya Rodiny, 1957, Nr 8, pp. 22-23 (USSR)

ABSTRACT: The article is a first installment of a popularly written biography of K. E. Tsiolkovskiy. The second and last installment will appear in the next issue of the Kryl'ya Rodiny. The author of the article lays stress on the scientific achievements of the eminent Russian scientist, apparently seeking to present him as the one who has paved the way for the recent successes in the field of applied sciences. Below are summarized the more important assertions made in the article: (a) The main scientific works of Tsiolkovskiy deal with three technological problems: the problem of directing the flight of rigid lighter-than-the-air airships with all-metal body; the problem of the form to be given to the heavier-than-the-air aircraft; and the problem of using jet propulsion

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K. E. Tsiolkovskiy. On the Occasion of the 100th Anniversary of his Birth

for interplanetary flights. It is that the bulk of Tsiolkovskiy's work related to the theory of flight of dirigibles was done between the years 1885 and 1892; that principal articles dealing with the building of heavier-than-the-air ships were published in 1894; and that Tsiolkovskiy began a systematic study of the theoretical aspects of the motion of the rockets as early as 1896. (b) The problem of flight of the lighter-than-the-air rigid airships is discussed in Tsiolkovskiy's work entitled "The Theory on Airships and its Practical Application" (Teoriya i Opyt Aerostata). Tsiolkovskiy is said to have been "the first to indicate what geometric form shall be given to the airship, and to calculate the required structural strength of the thin metallic sheath." The airship Tsiolkovskiy deals with is an air ship "of varying volume, and therefore independent, in regard to its liftpower, of any possible changes in the temperatures of the surrounding air and in the altitudes of the flight". The exact date of the publication of this Tsiolkovskiy's work is not given. (c) with respect to the theory of flight of heavier-than-the-air airships, it is asserted that Tsiolkovskiy was the first to set forth the idea of an all-metal airplane. In an article published in 1894 under the title

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KOSMODEM'YANSKIY, A.

85-9-15/33

AUTHOR: Kosmodem'yanskiy A., Professor

TITLE: K.Ye. Tsiolkovskiy (Konstantin Eduardovich Tsiolkovskiy).
On the occasion of the 100th anniversary of his birth
(k 100-letiyu so dnya rozhdeniya)

PERIODICAL: Kryl'ya Rodiny 1957, Nr 9, pp. 14-16 (USSR)

ABSTRACT: The article is the 2nd and last installment of a popularly written biography of K.Ye. Tsiolkovskiy. The first installment appeared in Nr 8, 1957, of the Kryl'ya Rodiny. The author of the biography is chiefly concerned with the scientific achievements of the Russian scientist. In the part of the 2nd installment given to the outline of Tsiolkovskiy's achievements in the study of the influence of the force of gravity and of the drag on the flight of a rocket, Prof. Kosmodem'yanskiy indicates that Tsiolkovskiy's calculations concerning the optimum distribution in time of the thrust produced by a reactive engine in a vertical flight form the basis of a series of subsequent Soviet studies. In that connection he quotes his own, Kosmodem'yanskiy's, formula correlating the weight of the rocket and the force of resistance of the atmosphere:

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$$P = Q \left(1 + \frac{v}{V_r} \right)$$

85-9-15/33

APPROVED FOR RELEASE: 06/14/2000 the CIA on the occasion of his 100th anniversary of his birth (Cont.)

where P - the weight of the rocket; Q - the force of resistance of the atmosphere; v - the velocity of the rocket; and V_r - the relative velocity of the ejected particles. The formula applies when the law governing the drag is quadratic. In describing K.Ye. Tsiolkovskiy's work in the field of rocket dynamics (both the purely scientific work and the work concerning the solution of practical technological problems), Prof. Kosmodem'yanskiy notes that Tsiolkovskiy's studies permitted to establish that the coefficient of efficiency of a reactive engine will approach 1 when the relative velocity of the ejected particles equals the velocity of the rocket itself, and indicates that the present relative velocity of the ejected particles is that of 1800 to 2500 m per second. With respect to Tsiolkovskiy's studies in the domain of fuel for rockets, the author of the article credits him with having formulated the basic requirements which these fuels must satisfy. Noteworthy among these 6 requirements - which are supposed to govern up to now the research - may be the 5th: the fuel "Must be liquid

Card 2/4

... is said to ... a given total weight, such weights ... component parts that would ensure the maximum velocity of the last part, i.e. of the part carrying the useful load. Prof. Kosmodem'yanskiy indicates on that occasion that the construction of a rationally built "train of rockets" is now one of the actual problems of astronautics.

85-9-15/33

K.E. Tsiolkovskiy. On the occasion of the 100th anniversary of his birth (Cont.)

Kosmodem'yanskiy calls him the founder of that theory and lists the following ideas Tsiolkovskiy was assertedly the one to bring forth: the idea of using jet streams for steering the rockets; the idea of using gyroscopes for stabilizing the rockets traveling through gravity-less areas; and the idea of using the components of the fuel for cooling the exhaust nozzle. The author mentions also Tsiolkovskiy's idea of avoiding the burning out of the rockets returning to the Earth, by making them glide along inclined paths and by cooling them with a liquid oxidizer. Moreover, Tsiolkovskiy is said to have scientifically proven the theoretical possibility of traveling through space at cosmic speeds. The greatness of Tsiolovskiy as scientist Prof. Kosmodem'yanskiy sees in that Tsiolkovskiy has correctly foreseen the lines of future developments in the field of science his contemporaries could not perceive. 2 photos

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Card 4/4

KOSMODEM'YANSKIY, A.A.

AUTHOR: Kosmodem'yanskiy, A.A., Professor 26-10-9/44

TITLE: An Eminent Pioneer of Science (Vydayushchiysya uchenyy-novator)

PERIODICAL: Priroda, October 1957, No 10, pp 73-78 (USSR)

ABSTRACT: The article deals with the life of K.E. Tsiolkovskiy, an eminent Russian scientist who was born on September 17, 1857. He was the initiator of the scientific theory on interplanetary travel and had made several outstanding discoveries in aerodynamics, rocket dynamics, geophysics and the theory of aviation. As early as 1929 he suggested the construction of multistage rockets or entire rocket trains on principles that are applied in modern artificial satellites. Tsiolkovskiy published a number of articles which dealt with 3 main problems: the construction of all-metal dirigibles, airplanes and rockets for interplanetary communication. He suggested various kinds of fuel for propelling rockets and figured out the quantities of fuel needed for the return trip to earth. Tsiolkovskiy earned recognition only after the Communist regime had taken over, when he was granted the means to publish the results of scientific research he had been conducting for years in miserable circumstances.

Card 1/2 The article contains one photo. The bibliography lists one

Kosmodem'yanskiy, A.A.

AUTHOR:

Kosmodem'yanskiy, A.A., Professor, Doctor of Physico-Mathematical Sciences

3-58-4-6/34

TITLE:

Introduce the New, the Progressive in the Education in General-Scientific and General-Technical Disciplines (Novoye, progressivnoye - v prepodavaniiye obshchenauchnykh i obshchetekhnicheskikh distsiplin). Answer Questions Put Forward By Life (Otvchat' na voprosy, vydvigayemye zhizn'yu)

PERIODICAL:

Vestnik Vyshey Shkoly, 1958, # 4, pp 20 - 26 (USSR)

ABSTRACT:

In the article, the author sets forth his views on the methods of instructing theoretical mechanics at higher technical schools with regard to the great achievements of our time in science and technics.

He enumerates these achievements, stating that the center of gravity of scientific searchings in theoretical mechanics has been shifted to the dynamical problems.

The new scientific subjects connected with rocket technique and nuclear power engineering call for a critical revision of scientific problems, even in such a classical subject as theoretical mechanics. The new demands, put forward by life itself, are not being reflected in lectures on theoretical mechanics, because of the small number of hours allotted to mechanics. In

Card 1/ 3

..... Academy (Imeni Zhukovskiy)

3-58-4-b/34

Introduce the New, the Progressive in the Education in General-Scientific and General-Technical Disciplines

uses the following schedule of hours in the course in mechanics: second semester (16 weeks) 2 hours of lectures and 2 hours of practical exercises per week (for geometrical statics and the principle of possible permutations); third semester (16 weeks) 3 hours for lectures and 3 hours of practical exercises weekly (for the study of kinematics and the dynamics of the point); fourth semester (16 weeks) 3 hours weekly for lectures and 2 hours of practical exercises (for the study of the dynamics of system and solids as well as special chapters of dynamics). The author recommends that 128 hours of lectures and 112 of practical exercises, as in the above example, be allotted to the entire course. He divides the course into 4 sections: Statics, Kinematics, Dynamics of the Point, Dynamics of the System and Special Questions of Dynamics, giving the number of hours for each.

In conclusion, he affirms that a full course in theoretical mechanics is also required for electrical-engineers and radio operators.

There are 3 Soviet and 1 English reference.
Library of Congress

AVAILABLE:
Card 3/3

PHASE I BOOK EXPLOITATION

SOV/4399

Kosmodem'yanskiy, Arkadiy Aleksandrovich, Doctor of Physics and Mathematics, Professor

K.E. Tsiolkovskiy -- yego zhizn' i raboty po raketnoy tekhnike (K.E. Tsiolkovskiy, His Life and Work in Rocket Engineering) Moscow, Voenizdat M-va obor. SSSR, 1960. 190 p. (Series: Nauchno-populyarnaya biblioteka) No. of copies printed not given.

Ed.: Ya.M. Kader; Tech. Ed.: Ye.K. Konovalova.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book describes Tsiolkovskiy's scientific work in astronautics and in the theory of rocket propulsion. The first three Soviet artificial satellites are discussed. The TU-114 airliner is mentioned and shown in a photograph. The history of Soviet rocketry is sketched. The Soviet MR-1 meteorologic rocket used during the International Geophysical Year is described. No personalities are mentioned. There are no references.

Card 172

BLAGONRAVOV, A.A., akademik, red.; GRIGOR'YAN, A.T., doktor fiz.-
mat. nauk, red.; DUSHKIN, L.S., doktor tekhn. nauk, red.;
KOSMODEM'YANSKIY, A.A., doktor fiz.-mat. nauk, red.;
KOZLOV, S.G., prof., red.[deceased]; SOKOLOVA, S.A., kandd.
tekhn. nauk, red.; SOKOL'SKIY, V.N., kand. tekhn.nauk, red;
FEDOROV, A.S., kand. tekhn. nauk, red.; CHEKANOV, A.A.,
kand. tekhn. nauk, red.; SHUKHARDIN, S.V., kand. tekhn. nauk,
red.

[From the history of rocket engineering] Iz istorii raket-
noi tekhniki. Moskva, Nauka, 1964. 254 p. (MIRA 17:8)

1. Akademiya nauk SSSR. Institut istorii yestestvoznaniya i
tekhniki.

TSIOLKOVSKIY, K.E.; VOROB'YEV, B.N., inzh.; SOKOL'SKIY, V.N.;
KOSMODEM'YANSKIY, A.A., doktor fiz.-mat. nauk, otv. red.;
KUDRYAVTSEVA, L.V., red.izd-va; POLYAKOVA, T.V., tekhn.red.

[Jet aircraft] Reaktivnye letatel'nye apparaty. Moskva, Izd-
vo "Nauka," 1964. 473 p. (MIRA 17:3)

KOSMODEM'YANSKIY, A.A.

Variational problems of the dynamics of orbital airplanes.
Vest. Mosk. un. Ser. 1: Mat., mekh. 18 no.4:70-76 J1-Ag '63.
(MIRA 16:8)

1. Kafedra teoreticheskoy mekhaniki.

L 61736-65 EWT(d)/EWT(1)/EWT(m)/EWT(m)/FS(y)-3/FA/ENG(y)/EWA(d)/EWP(h) Pg-5/Pg-4/
 UR/0055/65/000/004/0067/0077
 ACCESSION NR: AP5019914 Po-4/Pg-4 GW 533.665:519.3 53
 52
 B

AUTHOR: Koamodem'yanakiy, A. A.

TITLE: On the maximum duration of horizontal flight of a rocket-powered aircraft

SOURCE: Moscow. Universitet. Vestnik. Seriya 1. Matematika, mekhanika, no. 4, 1965, 67-77

TOPIC TAGS: rocket aircraft, flight mechanics, powered flight, flight path, time optimal control, trajectory optimization, rocket thrust, lift drag ratio, aerodynamics, thrust control

ABSTRACT: The dynamics of horizontal flight of a rocket-powered aircraft in a gravitational field are analyzed, with the effect of varying mass taken into account. An empirical method based on the calculus of variations is outlined for the solution of differential nonlinear equations of motion of the center of mass. Expressions are established for the time of flight and distance traveled during powered flight. The optimum law of variation of mass is established for which the powered flight time is maximum. The optimum thrust program is determined by an exponential function and depends only on lift-drag ratio of the aircraft. It was ascertained that the

Card 1/2

L 61736-55 EWT(d)/EWT(1)/EWT(m)/EWT(m)/FS(v)-3/F/EWG(v)/EWA(d)/EWP(h) Ps-5/Pq-4/

ACCESSION NR: AP5019914 Po-4/Pq-4 GR

UR/0055/65/000/004/0067/0077

533.665:519.3

53

352

B

AUTHOR: Kosmodem'yanskiy, A. A.

TITLE: On the maximum duration of horizontal flight of a rocket-powered aircraft

SOURCE: Moscow. Universitet. Vestnik. Seriya 1. Matematika, mekhanika, no. 4, 1965, 67-77

TOPIC TAGS: rocket aircraft, flight mechanics, powered flight, flight path, time optimal control, trajectory optimization, rocket thrust, lift drag ratio, aerodynamics, thrust control

ABSTRACT: The dynamics of horizontal flight of a rocket-powered aircraft in a gravitational field are analyzed, with the effect of varying mass taken into account. An empirical method based on the calculus of variations is outlined for the solution of differential nonlinear equations of motion of the center of mass. Expressions are established for the time of flight and distance traveled during powered flight. The optimum law of variation of mass is established for which the powered flight time is maximum. The optimum thrust program is determined by an exponential function and depends only on lift-drag ratio of the aircraft. It was ascertained that the

Card 1/2

L 61736-65

ACCESSION NR: AP5019914

optimum motion is a retarded motion which decreases the value of thrust required for horizontal flight. The influence of basic parameters of the aircraft and rocket motor on the optimum flight regime is investigated. Orig. art. has: 5 figures and 44 formulas. [AB]

ASSOCIATION: Kafedra teoreticheskoy mekhaniki Moskovskiy gosudarstvennyy universitet (Department of Theoretical Mechanics, Moscow State University)

SUBMITTED: 08Jul64

ENCL: 00

SUB CODE: ME

NO REF SOV: 002

OTHER: 000

ATD PRESS: 4061

Card 2/2 *200*

L 3941-66 EWT(d)/EWT(m)/EWP(w)/T-2/EWP(k)/EWA(h)/ETC(m) EN/WW
ACC NR: AP5023985

UR/0055/65/000/005/0052/0060
533.69

33
32
B

AUTHOR: Kosmodem'yanskiy, A. A.

TITLE: Determining the lift of an airfoil at an instantaneous change in angle of attack

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no. 5, 1965, 52-60

TOPIC TAGS: ²⁴airfoil lift, trailing edge vortex, trailing vortex circulation, lift curve slope, angle of attack change

ABSTRACT: Formulas for the lift coefficient C_y of an airfoil and its increase $dC_y/d\alpha$ caused by a sudden change in the angle of attack α are derived by using the following model of lift generation in a plane-parallel flow: At the instant $t = 0$, when α assumes instantaneously a new value $\alpha_1 > \alpha$, an initial Prandtl vortex leaves the sharp trailing edge of the airfoil. The circulation of this vortex increases with distance from the trailing edge, and at any instant $t > 0$, the circulation must have such a value that the Zhukovskiy hypothesis (about the finite velocities at the points where the airstream leaves the trailing edge) will be fulfilled. The axis of this trailing-edge vortex can be visualized as a small-radius cylinder on which the boundary layer leaving the airfoil surface is wrapped, thus gradually increasing the cir-

Card 1/2

Card 2/2 *AP*

KOSMODEMYANSKIY, A.A.

Maximum duration of the horizontal flight of a jet-propelled
airplane. Vest. Mosk. un. Ser. 1: Mat., mekh. 20 no.4:67-77
Jl-Ag '65. (MIRA 18:9)

1. Kafedra teoreticheskoy mekhaniki Moskovskogo gosudarstvennogo
universiteta imeni M.V. Lomonosova.

KOSMODEM'YANSKIY, A.I.

Determining the lifting force of a wing profile in the case of instantaneous changes in the angle of attack. Vest. Mosk. un. Ser. 1: Mat., mekh. 20 no.5:52-60 3-6 '65. (MIRA 18:9)

1. Kafedra teoreticheskoy mekhaniki Moskovskogo universiteta.

KOSMODEMYANIKIY, Arkadiy Aleksandrovich; MIKHALKEVICH, T.V., red.

[Course in theoretical mechanics] Kurs teoreticheskoi me-
khaniki. Moskva, Prosveshchenie. Pt.1. 1965. 537 p.
(MIRA 18:10)

S/258/62/002/003/005/008
1006/1208

AUTHOR: Kosmodemianskiy, A.S. (Saratov)

TITLE: On state of strain of anisotropic plate with two infinite rows of elliptic cutouts

PERIODICAL: Inzhenernyy zhurnal. v.2, no.3, 1962, 109-118

TEXT: The paper is an extension of the work of Vorovich and Kosmodemianskiy (Mekhanika i Mashinostroyeniye, No.4, 1959) and of Sherman (Inzhenernyy sbornik, v.31, 1961) on strain in isotropic plate with one infinite row of curvilinear cutouts, to include the case of the non isotropic plate with two parallel rows of elliptic cutouts. There are 1 figure and 7 tables.

SUBMITTED: February 25, 1962

Card 1/1

KOSMODEM'YANSKIY, L.V.; FARBEROV, M.I.; LAZARYANTS, E.G.; SHUSHKINA, Ye.N.;
ROMANOVA, R.G.

Effect of the colloid-chemical characteristics of soaps on
the polymerization kinetics and properties of latex. Koll.
zhur. 27 no.6:833-838 N-D '65. (MIRA 18:12)

1. Nauchno-issledovatel'skiy institut monomerov dlya sintetiches-
skogo kauchuka, Yaroslavl' Submitted June 30, 1964.

RUMYANTSEVA, Z.M.; GOLITSINA, A.A.; FARBEROV, M.A.; EPSHTEYN, V.G.;
LAZARYANTS, E.G.; YEMEL'YANOV, D.P.; KOSMODEM'YANSKIY, L.V.

Synthesis and use of butadiene-methacroleinic latexes. Kauch.
i rez. 23 no.7:7-10 J1 '64. (MIRA 17:8)

1. Nauchno-issledovatel'skiy institut monomerov dlya sinteti-
cheskogo kauchuka, Yaroslavskiy tekhnologicheskiiy institut i
Yaroslavskiy shinnyy zavod.

L 34418-66 /EWP(j) IEP(e) RM

ACC NR: AP6010546

(A)

SOURCE CODE: UR/0069/65/022/005/0833/0338

AUTHOR: Kosmodem'yanskiy, L. V.; Farberov, M. I.; Lazaryants, E. G.; Shushkina, Ye. N.; Romanova, R. G.

ORG: Scientific Research Institute of Monomers for Synthetic Rubber, Yaroslavl'
(Nauchno-issledovatel'skiy institut dlya sinteticheskogo kauchuka)TITLE: Effect of the colloidal-chemical characteristics of soaps on the polymerization kinetics and properties of latex ¹⁶

SOURCE: Kolloidnyy zhurnal, v. 27, no. 6, 1965, 833-838

TOPIC TAGS: particle size, polymerization kinetics, soap, emulsion polymerization

ABSTRACT: The colloidal-chemical characteristics of potassium salts (soaps) of di-tert-butylbenzoic acid (DTBBA) and their relation to the kinetics of emulsion polymerization were studied by carrying out the emulsion copolymerization of divinyl and α -methylstyrene with these soaps and their mixtures. The soaps were found to have a low solubilizing capacity and a high value of the critical concentration of micelle formation (CCMF) as compared to soaps of disproportionated rosin and synthetic fatty acids. The rate of emulsion polymerization is determined primarily by the quantity and nature of the micellar soap present in the system. The quantity of the micellar soap in the mixture undergoing polymerization determines the character of the change

Card 1/2

UDC: 541.18:542.952/954

L 34418-66

ACC NR: AP6010546

in the surface tension of the latex and its magnitude. In latexes obtained from soaps with high CCMF the particle size is higher than in latexes of low CCMF. This is attributed to the fact that soaps of high CCMF have emulsifying properties in the presence of micelles, and after the latter disappear, the soaps have the properties of electrolytes, which promote the formation of larger latex particles. It is concluded that the CCMF value of soaps has a definite influence on the particle size of the latex particles, and that the fractional composition of the soaps influences the particle size distribution. Orig. art. has: 6 figures and 1 table.

SUB CODE: 07/ SUEM DATE: 30Jun64/ ORIG REF: 008/ OTH REF: 009

Card 2/2 *BLG*

KOSMODEM'YANSKIY, V.A. (Moskva)

Design of stage rockets. Inzh. zhur. 4 no. 34319-224 '64
(MIRA 17:8)

L 48339-55 BMT(d) Pg-4 LJP(o)

ACCESSION NR: AP5010636

UR/0040/65/029/002/0368/0372

AUTHOR: Kosmodem'yanskiy, V. A. (Moscow)

23
B

TITLE: Necessary conditions of calculus of variations for Bolts-Mayer type problem

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 2, 1965, 368-372

TOPIC TAGS: differential equation, optimal control, calculus of variations

ABSTRACT: Consider

$$\dot{x}_i = x_i' - f_i(x_1, \dots, x_n, u_1, \dots, u_r, t) = 0 \quad (i = 1, \dots, n) \quad (1)$$

which is a system of n first order ordinary differential equations describing a dynamic process, together with a system

$$Y_k = Y_k(x_1, \dots, x_n, t) = 0 \quad (k = 1, \dots, r < n) \quad (2)$$

of r dependencies. Here $u_j(t, t_j)$ are control functions having discontinuities of the first kind at times t_j . It is assumed that the coordinates of the system satisfy p end point conditions (t_0 and T are not fixed),

$$x_i = x_i(t_0, T, x(t_0), x(T)) = 0 \quad (i = 1, \dots, p < 2n + r) \quad (3)$$

Card 1/2

L 48339-65

ACCESSION NR: AP5010636

The author determines the times t_1 whose choice gives the functional

$$J = g(t_1, \dots, T, \dots) + \int_{t_1}^T f(t, \dots) dt \quad (4)$$

an extremum. In various sections he justifies the applicability of several necessary conditions from Calculus of Variations (multiplier law, Weierstrass conditions, Klebsch conditions, and Jacoby conditions) to problems of the given type. As an illustration he presents an elementary example of rectilinear motion of a two-stage rocket in a homogeneous, resistanceless, gravitational field. Orig. art. has: 22 formulas.

ASSOCIATION: none

SUBMITTED: 09Apr64

ENCL: 00

SUB CODE: MA

NO REF SOV: 002

OTHER: 001

Card 2/2

I 43662-66 EWT(d)/EWT(l)/EWP(m) IJP(c) GW

ACC NR: AP6022530

SOURCE CODE: UR/0040/66/030/003/0599/0604

AUTHOR: Kosmodem'yanskiy, V. A. (Moscow)

ORG: none

TITLE: Sufficient conditions for an absolute extremum in one variational problem of the Boltz-Mayer type

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 3, 1966, 599-604

TOPIC TAGS: variational problem, rocket flight, rocket engine

ABSTRACT: Sufficient conditions for an absolute minimum in a variational problem of the Boltz-Mayer type are proposed. The source of the class of problems examined here is that certain functions depend parametrically in a well known way on time and the position of a discontinuity of the first kind. In the references it is shown that the problem posed here is a problem of variational calculus and with the aid of the classical understanding of variations, necessary conditions for extrema of a functional are derived. Application of the principle of optimality makes it possible to establish the existence of certain non trivial curves on which the absolute extremum of the given functional is reached. For example, the problem of a multiple stage rocket is considered. The formula obtained is a generalization of the Tsiolkovsky formula for the case of arbitrary motion of a continuous rocket. Related to the problem under

Card 1/2

L 43662-66

ACC NR: AP6022530

study is the well known problem of the dynamics of the flight against a programmed force of a jet engine assuming that the work of the engine takes place in the regime of maximum force and duration. In this case an absolute extremum of the functional is reached on a curve obtained through sliding regimes. Orig. art. has: 3 figures, 22 formulas.

SUB CODE: 16,12,01/

SUBM DATE: 09Apr65/

ORIG REF: 005

Card 2/2 JS

KOSMOLINSKIY, F., kand.med.nauk

Poison in your pocket. Kryl. rod. 16 no.12:30 D '65.
(MIRA 18:12)

Card 1/2 qualities.. Accuracy in orienting the ship by angular coordinates was
UDC: none

ACC NR: AN7004823

reduced 1.5—2 times during experiments with a prolonged (up to 12 days) stay in a spaceship mockup. The time of information transfer increased 10% by the end of the experiment. Other changes in psychophysiological functions were observed. The need for further study of work capacity and development of optimal work-rest systems for cosmonauts during long flights is indicated.

[SW]

SUB CODE: 06/ SUBM DATE: none/ ATD PRESS: 5115

GUROVSKIY, N.N.; KOSMOLINSKIY, P.P.

Problem of periodic secretion of the gastrointestinal system in dogs.
Fiziol. zh. SSSR 39 no.4:451-455 July-Aug 1953. (GIML 25:1)

1. Central Institute for the Advanced Training of Physicians, Moscow.

KOSMOLINSKIY, F. P.

Kosmolinskiy, F. P. "The effect of certain water-soluble vitamins on the resistance of the organism to oxygen insufficiency (experimental investigation)." Military Faculty, Central Inst for the Advanced Training of Physicians. Chair of Aviation Medicine. Moscow, 1955. (Dissertation for the Degree of Candidate in Medical Science)

So: Knizhnaya letopis', No. 27, 1956. Moscow. Pages 94-109; 111.

KOSMOLINSKIY, F.P., podpolkovnik meditsinskoy sluzhby, kandidat meditsin-
skikh nauk; PODOL'SKIY, I.B., mayor meditsinskoy sluzhby

Effect of hyperventilation on increasing flying personnel's ability
to work. Voen.-med. zhur. no.5:72-73 Iy '56. (MLRA 9:9)
(OXYGEN—PHYSIOLOGICAL EFFECT)
(AVIATION MEDICINE)

Kosmolinskiy, F. P.

U.S.S.R. / Human and Animal Physiology. Metabolism. T

Abs Jour: Ref Zhur-Biol., No 5, 1958, 21864.

Author : ~~Kosmolinski F. P.~~

Inst : Not given.

Title : The Effect of Thiamine on the Processes of
Tissue Respiration Under Conditions of Anoxia.

Orig Pub: Vopr. Pitaniya 1956, No 5, 73-75.

Abstract: Determination was made of O_2 requirement (Q.O2) of tissues of rats and the activity of succin-dehydroase (I), and cytochrome oxydase (II) by introduction of thiamine (III), (1 mg/100 gm of weight), following elevation of the animals in an altitude chamber to 10.000m. In the controls (without elevation) the QO2 of kidney tissue averaged (in MM3/lmg of dry residue) 9.95; of the liver 5.3; of the brain 4.23. Follow-

Card 1/2

10

AID P - 5303

Subject : USSR/Aeronautics - Aeromedicine

Card 1/1 Pub. 58 - 10/13

Author : Kosmolinskiy, F., Candidate of Medical Sciences

Title : Vitamines as an element of pilot's diet

Periodical : Kryl. rod., 10, 19, 0 1956

Abstract : A sketchy description of the influence of various types of vitamins on the functioning of human organism.

Institution : None

Submitted : No date

KOSMOLINSKIY, F. P.

Effect of polyvitaminic complex on the organism during an oxygen deficiency. F. Kosmolinskiy (Central Inst. Improvement Physicians, *Prory. Priboro* 15, No. 3: 15-22 (1956)).— White rats, mice, and dogs were exposed to O-deficient atmosphere (1000-14000 m. high) followed by deflection of the cerebral cortex (by radio) activities of succinic dehydrogenase and cytochrome oxidase of cerebral, liver, and kidney tissues. All animals received thiamine (I) 0.1, nicotinic acid (II) 0.5, p-aminobenzoic acid (IV) 0.5, folic acid (V) 0.5 and vitamins B₁ 0.1, B₂ 0.3, B₆ 0.5 mg./100 g. body wt., resp. The resistance of the organism against the O deficiency increased with the administration of these 10 water-soluble vitamins to the normal shapes of the microgram. The activities of the enzymes were lowered by lifting the animals into the O-deficient atmosphere; however, when the animals received the vitamins before the lifting the activities were nearly normal. The resistance of the organism against anoxia was also studied in human beings received with the diet (20-30 min. before the ascent) I 20, II 10, III 10, IV 50, V 10, and vitamins B₁ 15, B₂ 50, and C 100 mg./person, resp. and 3-5 times (with 3-5 days in between) 5000 mg. of ascorbic acid. Observations showed that the human organism is also more resistant against anoxia when supplied with vitamins.

Resistance of organism against anoxia. F. Kosmolinskiy (Moscow).— White rats, mice, and dogs were exposed to O-deficient atmosphere (1000-14000 m. high) followed by deflection of the cerebral cortex (by radio) activities of succinic dehydrogenase and cytochrome oxidase of cerebral, liver, and kidney tissues. All animals received thiamine (I) 0.1, nicotinic acid (II) 0.5, p-aminobenzoic acid (IV) 0.5, folic acid (V) 0.5 and vitamins B₁ 0.1, B₂ 0.3, B₆ 0.5 mg./100 g. body wt., resp. The resistance of the organism against the O deficiency increased with the administration of these 10 water-soluble vitamins to the normal shapes of the microgram. The activities of the enzymes were lowered by lifting the animals into the O-deficient atmosphere; however, when the animals received the vitamins before the lifting the activities were nearly normal. The resistance of the organism against anoxia was also studied in human beings. Nine human beings (before the ascent) received the diet (20-30 min. before the ascent) I 20, II 10, III 10, IV 50, V 10, and vitamins B₁ 15, B₂ 50, B₆ 5, and C 100 mg./person, resp. and 3-5 times (with 3-5 days in between) 5000 mg. of ascorbic acid. Observations showed that the human organism is also more resistant against anoxia when supplied with vitamins.

Wierbicki

KOSMOLEVSKIY, F. P.

Conditional reflex activity in white rats caused by admin-
 istration of thiamine during hypoxia. F. P. Kosmo-
 levskiy (Central Inst. Improvement Physicians, Moscow).
 Izvestiya Akad. Nauk SSSR Ser. Biol. Med. Sci. 1958, No. 1, p. 105.
 Received 1 mg thiamine bromide (I) 100% body wt for
 30-45 days developed rapidly motor conditioned pos-
 itive and defensive reflexes (blinking, vitals). I shortened the
 latent period of the conditioned reflex and increased its
 intensity. After developing of the conditioned reflex
 stereotypically the rats were brought to the barometer of Kolyva-
 shi to the altitudes of 5, 10, and 11 x 10³ m for 2 1/2 h.
 30 min. before the hypoxia the animals received subcutane-
 ously 1 mg I. Under these conditions in 7 exper. animals
 none was killed and only 2 showed fat. lack of the con-
 ditioned reflexes, while from the same pop. of the con-
 trol animals 3 were killed and 3 were deprived of the condi-
 tioned reflex activity. To decrease the natural resistance of the cen-
 tral nerve system against O₂ deficiency the control animals were
 injected 30 min. before the exp. with phenamine (II),
 0.05 mg/100% body wt, and the exper. animals with I
 and with I + II in the same dose. At 1000 m
 altitude the animals injected with II died after 20-45 min.
 with I and II after 1-1 1/2 hrs, and with I alone after 1 1/2
 hrs. Thus, I increases the organism's resistance against
 hypoxia.

KOSMOLINSKIY, F. P.

Effect of thiamine on the process of tissue respiration during hypoxia. F. P. Kosmolinskiy (Central Inst. Improvement Physicians, Moscow). *Voprasy Fiziol.* 15, No. 5, 73-5 (1950). Oxygen absorption (Q_{O_2}) by various tissues of white rats was studied as regards the effect of thiamine (I) (2 mg./100 g. body wt.) and the O deficiency (boiling of the animals at simulated altitude of 11,000 m. for 9 hrs.). The following Q_{O_2} values were obtained for slices of kidneys, liver, and brain: control—3.95, 5.3, and 4.23; subcutaneous injection of I, but no anoxia (40 min. after the I injection)—10.4, 5.69, and 4.68; control animals exposed to the high altitude (O deficiency)—11.33, 6.91, and 6.31; and the expl. animals (with I) exposed to the O deficiency—11.13, 6.63, and 4.52 ca. mm. per mg. of dry tissue, resp. Activities of the tissue enzymes, succinic acid dehydrogenase (II), and cytochrome oxidase were greatly decreased by the altitude exposure. Administration of I increases the enzyme activities; this decreases the altitude effect. I increases particularly the activity of II in the tissue of basal cores of brain.

B. Vitshickl.

KOSMOLINSKIY, F.P., kand.med.nauk

International symposium on the physiology of labor. G1g. 1 san.
23 no.9:51-56 S '58 (MLA 11:11)
(WORK,
physiol. of work, conf. (Rus))

KOSMOLINSKIY, F.P., kand. med. nauk, polkovnik meditsinskoy sluzhby

Symposium on "Vitamins and wounds". Voen. med. zhur. no.4:94
Ap '59. (MIRA 12:8)

(WOUNDS--TREATMENT)
(VITAMINS)

KOSMOLINSKIY, F.P.

Medical and biological problems of space flight. Khim. med. 38
no.5:8-12 My '60. (MIRA 13:12)
(SPACE BIOLOGY)

KOSMOLINSKIY, F.P., kandidat meditsinskikh nauk, polkovnik meditsinskoy sluzhby

"How to pressure the flyer's health" by A.I. Severskii. Reviewed
by F.P. Kosmolinskii. Voen.-med. zhur. no.5:94-95 My '60. (MIRA 13:7)

(AVIATION MEDICINE)

(SEVERSKII, A.I.)

KOSMOLINSKIY, F.P. (Moskva)

Vitamin P as an effective substance for raising body resistance to
oxygen deficiency. Vop. pit. 20 no.5:44-47 S-O '61. (NIRA 14:10)
(VITAMINS--P) (ANOXEMIA)

KOSMOLINSKIY, F., kand. med. nauk, polkovnik meditsinskoy sluzhby;
MAZIN, A., polkovnik meditsinskoy sluzhby

Keep heart and nerves well in hand. Kryl. rod. 14 no.5:34-36
My '63. (MIRA 16:7)

(Parachuting)

KOSMOLINSKIY, F., kand.med.nauk

The first space scouts. Av.i kosm. 45 no.2:89-90 F '63.

(Space flight)

(MIRA 16:2)

KOSMOLINSKIY, F.P., polkovnik meditsinskoy sluzhby, kand. med. nauk;
PETROVYKH, V.A., polkovnik meditsinskoy sluzhby, kand. med. nauk

Means to increase working capacity and their practical significance for the flying personnel. Voen.-med. zhur. no. 1:57-59
Ja '66 (MIRA 19:1)

L 47295-66 EEC(k)-2/EWT(1)/FSS-2 SCTB TT/DD/RD/GW

ACC NR: AP6032042

SOURCE CODE: UR/0245/66/000/005/0067/0071

AUTHOR: Gorbov, F. D. (Moscow); Kosmolinskiy, F. P. (Moscow); Myasnikov, V. I. (Moscow)

41
B

ORG: none

TITLE: Some characteristics of the effect of increased and decreased afferentation on the human organism from the standpoint of space psychophysiology

SOURCE: Voprosy psikhologii, no. 5, 1966, 67-71

TOPIC TAGS: human physiology, space physiology, space psychology, psychologic stress, isolation test, *HUMAN SENSE; PSYCHOPHYSIOLOGY*

ABSTRACT: Characteristics of human reactions to increased and decreased afferentation were studied using a variety of approaches. Formation of the "~~man-spacecraft~~ surrounding atmosphere" concept was studied in experiments with centrifuges and special testing units of the author's invention [not described]. In order to produce an excess of sensory information, various types of communication were imitated and interference close to the signal frequency being used was introduced. Results of these experiments were compared with data from sensory deprivation experiments and requirements for good nervous tolerance of changes in afferentation were formulated. Studies have shown that sensory deprivation produces important psychophysiological shifts, including lowered work capacity, loss of general tone, and appearance of apathy.

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However, it is considered that the high degree of motivation associated with actual spaceflight will prevent the occurrence of pathological states such as depression, hallucination, and personality disintegration. The cosmonaut selection and training program is also mentioned as a factor in preventing severe psychic disturbances during prolonged isolation. Spaceflight situations presenting the cosmonaut with an excess of sensory information occur routinely during radiocommunication with Earth, during repair work or special scientific investigations, or in any complex spaceflight situation. In-flight aircraft refueling is considered a good model of a stress situation because it requires attention, accurate work, and a high degree of motor coordination. Furthermore, the refueling operation is usually performed when the pilot is in a state of poor physiological tone due to previous use of the automatic pilot. While refueling, pilots are under great emotional stress, and physiological limits are pushed (heart beat up to 160—186 beats/min, breathing rate up to 40—50 times/min, weight loss up to 5—7% of total). Psychophysiological analysis of these data reveals two main reasons for the acute strain. First, the pilot is upset by the narrowing of his field of vision to include the other aircraft. Secondly, psychological difficulty is created by the combination of two types of activity, the well-known habits of normal piloting and the unfamiliar tasks associated with refueling. Several preventive measures for avoiding nervous and emotional strain in conditions of sensory deprivation or excess information are suggested. First, the necessary postural and motor habits must be acquired, and the cosmonaut must learn to program situations correctly in advance. Stress can be avoided if the optimum work-rest regimes are observed and special patterns of motor activity are followed.

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ACC NR: AP6032042

In order to increase general physiological supplementary tone and to reduce nervous tension, the following amounts of vitamins are recommended: 300 mg of ascorbic acid, 50—150 mg of vitamin P, 25 mg of vitamin B₁, and others. [JS]

SUB CODE: 05, 06/ SUBM DATE: none/ ORIG REF: 010/ OTH REF: 005/ ATD PRESS: 5092

ms
Card 3/3

KOSMODEM'YANSKIY, L.V.; SHUSHKINA, Ye.N.; KOPYLOV, Ye.P.; KOVRAYSKAYA, N.
L.; LAZARYANTS, E.G.; FARBEROV, M.I.

Use of a synthetic emulsifier with a base of di-tert-butylbenzoic acid for the synthesis of all-purpose rubbers. Kauch. i rez. 22 no. 11:11-14 N '63. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut monomerov dlya sinteticheskogo kauchuka i Yaroslavskiy tekhnologicheskiy institut.

AL'BAM, M.A.; PISARENKO, A.P.; LAZARYANTS, E.G.; Primalni uchastiye:
ALADINSKAYA, I.P.; VOLKOVA, S.A.; DYUNINA, V.G.; GROMOVA, V.A.;
KOSMODEM'YANSKIY, L.V.; KOPYLOV, Ye.P.; ROKHMISTROVA, A.P.;
SHUSHKINA, Ye.N.

High-styrene rubber mixtures for the manufacture of microporous
non-shrinking rubbers. Kauch. i rez. 22 no.7:1-3 J1 '63.
(MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh
materialov i iskusstvennoy kozhi i Nauchno-issledovatel'skiy
institut monomerov dlya sinteticheskogo kauchuka.
(Rubber, Synthetic)

KOSMODEM'YANSKIY, V.A.

Working a shaft with automatic skip-winding. Transp. stroi. 12
no.12:19-21 D '62. (MIRA 16:1)

1. Glavnyy mekhanik Stroitel'nogo upravleniya Leningradskogo
metropolitena.
(Leningrad--Subways) (Hoisting machinery)

KOSMODEM'YANSKIY, V.A. (Moskva)

A certain type of variational problems. Prikl. mat. i mekh. 27 no.6:
1111-1116 N-D '63. (MIRA 17:1)

ACCESSION NR: AP4036718

S/0020/64/156/002/0286/0289

AUTHOR: Kosmodem'yanskiy, V. A.

TITLE: On the theory of multistage rockets

SOURCE: AN SSSR. Doklady*, v. 156, no. 2, 1964, 286-289

TOPIC TAGS: rocket, rocket control theory, multistage rocket, flight dynamics, rocket flight

ABSTRACT: Let the motion of a multi-stage rocket be determined by ordinary first order differential equations

$$g_s = \dot{x}_s - f_s(x_1, \dots, x_n, u_1, \dots, u_m, t) = 0 \quad (s = 1, \dots, n) \quad (1.1)$$

and a set of constraints

$$\psi_k = \psi_k(u_1, \dots, u_m, t) = 0 \quad (k = 1, \dots, r < m). \quad (1.2)$$

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ACCESSION NR: AP4036718

where $x_s(t)$ are the coordinates of the dynamic system and $u_j(t)$ is the control function having discontinuities of the first kind at times t_1, \dots, t_r such that $m-r$ of the u_j are given explicitly in terms of t and t_1, \dots, t_r . Let the state of the system at $t = t_0$ be determined by the initial values

$$x_s(t_0) = x_s^0 \quad (s = 1, \dots, n) \quad u_j(t_0) = u_j^0 \quad (j = 1, \dots, m).$$

Then, at time T , the coordinates are related by certain equations

$$\Phi_l = \Phi_l[x_s(T), T] = 0 \quad (l = 1, \dots, p < n). \quad (1.3)$$

The problem is to find the (optimal) values of t_1 (i.e., choosing the best rocket stages) corresponding to an extremal value of a functional $J = J[x_s(T), T]$, subject to (1.1) and (1.2). For example, J may be the distance travelled, or the altitude, or the horizontal velocity at T . By the use of the auxiliary functional

$$I = J + \sum_{l=1}^p \rho_l \Phi_l + \int_{t_0}^T \left\{ \sum_{i=1}^n \lambda_i g_i + \sum_{k=1}^r \mu_k \psi_k \right\} dt, \quad (2.1)$$

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ACCESSION NR: AP4036718

where $\lambda_s(t), \mu_n(t), f_l$ are undetermined Lagrange multipliers, the problem is reduced to a variational problem of the Bolza-Mayer type. Assuming the rocket has three stages, the author derives equations for the variations of the coordinates at the points of discontinuity. Then, after choosing some of the multipliers in such a way that certain coefficients in δI are 0 and setting the remaining multipliers equal to 0, he is led to a system of differential and integro-differential equations which solve the problem. The theory is applied to the example of a two-stage rocket in a uniform gravitational field with no resistance of the medium. Here the function $u(t)$ is the ratio of the variable mass of the rocket at time t to its initial mass. u drops suddenly at t_1 (time at which the first stage is dropped), and is assumed to decrease linearly for other values of t . Orig. art. has: 1 figure and 21 formulas.

ASSOCIATION: None

SUBMITTED: 09Mar63

ATD PRESS: 3048

ENCL: 00

SUB CODE: ME, GM

NO REF SOV: 001

OTHER: 002

Cord 3/3

USSR/Engineering - Metallography

FD-2240

Card 1/1 Pub 41-8/17

Author : Kornilov, I. I. and Kosmodem'yanskiy, V. V., Moscow

Title : Relationship between composition, temperature, and heat resistance. II.
Ternary system Nickel-Chromium-Titanium alloys

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 2, 90-97, Feb 1955

Abstract : Studies the relationship between composition, structure, and heat resistance of Ni-Cr-Ti ternary system alloys over a wide temperature range (500-1200°). Twenty different alloys were tested. The chromium content was constant at 20% while titanium content was varied from 0% to 10%. Titanium solubility was investigated at the following temperatures: 700°, 800°, 900°, 1000°, 1100°, and 1200°. Diagrams. Eight references, 7 USSR.

Institution:

Submitted : January 21, 1955

KOSMODINSKIY, Vladimir Nikolaevich; KASHKIN, P.N., prof., nauchnyy
red.; VOROB'YEV, G.S., red.; GUDZHIYEVA, A.M., tekhn. red.

[Riddles of life of the world of the invisible]Zagadki zhizni
mira nevidimyykh. Leningrad, Ob-vo po rasprostraneniyu polit.
i nauchn. znaniy RSFSR, 1962. 52 p. (MIRA 15:12)
(MICRO-ORGANISMS)

ACCESSION NR: AT4042676

S/0000/63/000/000/0165/0169

AUTHOR: Dlusskaya, I. G., Kosmolinaskiy, F. L., Fedorov, N. A.

TITLE: Some data on the excretion of 17-hydroxycorticosteroids during a study of the efficiency of flight crews on long night flights

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 165-169

TOPIC TAGS: flight crew efficiency, flying time, homeostasis, neuroendocrine system, pituitary activity, adrenal activity, ACTH, corticosteroid production, hydroxycorticosteroid excretion, stress, hormone balance, night flying

ABSTRACT: During a study of the efficiency of nighttime flight crews, attention was directed towards the problem of homeostasis, in which the neuroendocrine system and particularly the pituitary-adrenal axis play an important role. In order to evaluate the effects of stress on ACTH and hence on glucocorticoid production, the authors determined the free and bound 17-hydroxycorticosteroids in urine samples taken immediately before take-off, after landing and during the first 6 hours after landing from crews participating in long-distance night flights. In general, the results showed a relatively low level of hormone

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ACCESSION NR: AT4042676

excretion during flight, and a significant increase after landing, a 50-150% increase being observed during the first 6 hours after landing in 12 out of 16 cases. In 2 crew members and 3 flight commanders, however, there was a significant increase (80-500%) in hormone excretion during flight. The authors noted a definite relationship between hormone excretion and the emotional state of the crew, and suggest that the increased excretion noted in some pilots and flight commanders is due to their increased responsibilities during prolonged complex operations.

ASSOCIATION: None

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

Card 2/2

~~KOSMOLINSKIY, P.F.~~
KOSMOLINSKIY, P.F., polkovnik meditsinskoy sluzhby

Disorders of vascular tonus in enlisted personnel. Voen.-med.zhur.
no.8:44-46 Ag '57. (MIRA 10:12)

(NEUROCIRCULATORY ASTHENIA, epidemiology,
in armed forces personnel (Rus))

(ARMED FORCES PERSONNEL, diseases,
hypertensive dis. & neurocirc. asthenia (Rus))

(HYPERTENSION, epidemiology,
in armed forces personnel (Rus))

KOSMOLSKA, K.

Free amino acids in the gastrointestinal contents of chickens on various feeds. Acta physiol.polon. 11 no.5/6:782-783 '60.

1. Z Katedry Fizjologii Zwierząt S.G.G.W. w Warszawie. Kierownik: prof.dr B.Gutowski.

(AMINO ACIDS)

(GASTROINTESTINAL SYSTEM)

KOSMORTOV, V.A.

[Growing potatoes in the Komi A.S.S.R.] Agrotekhnika kartofelia
v Komi ASSR. Syktyvkar, Komi gos.izd-vo, 1950. 23 p.
(MIRA 14:7)

(Komi A.S.S.R.—Potatoes)

KOSMORTOV, V. A.
~~KOSMORTOV, V. A.~~

KOSMORTOV, V. A. - "Potatoes in the Komi ASSR." Syktyvkar, 1955. All-Union Order of Lenin Academy of Agricultural Science named V. I. Lenin. All-Union Inst of Plant Growing. (Dissertations for degree of Candidate of Agricultural Sciences)

SO: Knizhnaya letopis', No 48. 26 November 1955. Moscow.

105 MCR/17.17.6
KOSMORTOVA, A.P.; LEVICHEVA, V.S.; P'YANKOV, P.I.

Synthomycin for treating typhus and paratyphoid diseases. Klin.med.
35 [i.e.34] no.1 Supplement:33 Ja '57. (MIRA 11:2)

1. Iz kliniki infektsionnykh bolezney (zav. - prof. I.A.Leont'yev)
Molotovskogo meditsinskogo instituta.
(CHLOROMYCETIN) (TYPHUS)
(PARATYPHOID FEVER)

KOSMOVICH, L.S.; DMITRIYEV, V.I.

Pistonless electric hydraulic crane. Mashinostroitel'
no.9:29 9 '62. (MIRA 15:9)
(Electric cranes)

KOSMOVICH, L. S., inzh.; DMITRIYEV, V. I.

Pistonless electric hydraulic faucet. Vest. mashinostr. 42
no.10:86 0 '62. (MIRA 15:10)

(Faucets)

KOSMOWSKA, Alina; NIEZGODA, Jerzy

Practical utilization of the equivalent failure rate
method. Przegl elektroniki 4 no. 10/11:639-641 O-N '63.

1. Przemyslowy Instytut Elektroniki, Warszawa.

FIRKOWICZ, Szymon, dr inż.; KOSMOWSKA, Alina

Distribution of certain measurable attributes of low-power electron tubes. Przegl elektroniki 4 no. 10/11: 635-638 O-N '63.

1. Przemyslowy Instytut Elektroniki, Warszawa.

KOSMOWSKA, Alina

Tables for determination of the equivalent frequency of
damages $h^* \cdot F (\psi_{gr} = \bar{\psi} - 3\psi)$. Przegl. elektroniki 4
no. 5/6: 293-297 My-Je '63.

1. Przemyslowy Instytut Elektroniki, Warszawa.

FIRKOWICZ, S.; KOSMOWSKA, A.

Statistical determination of the tolerance of measurable characteristics. Przem inst elektron prace 5 no.1:53-70 '64.

1. Department of Radio Engineering of the Industrial Institute of Electronics, Warsaw. Submitted January 13, 1964.