30246

S/145/60/000/002/014/020
D221/D302

On the problem of calculating a ...

obtained for both instant mixing and ideal displacement. It also demonstrated that the effective operation of the pulsating stage requires the geometrical inlet angle of rotor blades to be close to the inlet angle of flow entering the rotor at the start of the outflow process. The coefficient of efficiency of the pulsating stage will attain the values of 0.74 - 0.77 for $\mu_2 = 0$, or 0.85 - 0.9 when $\mu_2 = 1$. There are 6 figures, and 4 Soviet-bloc references.

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan Aviation Institute)

SUBMITTED: December 15, 1959

Card 3/43

20602

26.2124

S/147/61/000/001/011/016
E194/E184

AUTHOR: Lokay, V.I.

TITLE: The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1961, No. 1, pp. 97-104

TEXT: In strength calculations and in selecting permissible stresses it is necessary to know the temperatures of gas turbine parts. This article gives a fairly simple method of determining the temperature of runner blades and discs in gas turbines with air cooling. With internal air cooling of thin walled blades made of sheet material the spatial problem of determining the temperature distribution may be approximately related to the unidimensional. Fig.1 shows the notation used in determining the blade temperature with internal air cooling. For this case from the heat balance equation

$$q_1 + q_2 = q_3 + q_4 \quad (1)$$

we may obtain

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S/147/61/000/001/011/016
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The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

$$\lambda f \frac{d^2 t}{d\bar{x}^2} + \alpha_g u_g \ell^2 (t_g^* - t) - \alpha_a u_a \ell^2 (t - t_a^*) = 0 \quad (2)$$

where the suffixes g and a refer to gas and air respectively. In Eq. (2) $\bar{x} = x/\ell$, the thermal conductivity λ and the cross-sectional area f are assumed constant over the blade height; α_g and α_a are the mean values of heat transfer coefficient from gas to the blade and from the blade to the air. After various conversions the problem is put in the form of a third order differential equation with solution of the form of:

$$\theta = A_1 e^{a1\bar{x}} + A_2 e^{a2\bar{x}} + A_3 e^{a3\bar{x}} \quad (9)$$

where a1, a2, a3 are the roots of the characteristic equation

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$$a^3 + k_3 a^2 - (k_1 + k_2)a - k_1 k_3 = 0 \quad (10)$$

The method of calculating the coefficients in Eq. (9) is explained.

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E194/E184

The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

The change in wall temperature over the blade height is then found from the following equation:

$$t = t_r^* + A_2 e^{a_2 \ddot{x}} + A_3 e^{a_3 \ddot{x}} \quad (14)$$

Fig.2 compares calculated values of runner blade temperatures in an engine type РД-20 (RD-20) derived from formula (14) and temperatures measured on a rig, and it will be seen that agreement is satisfactory. An expression is derived for the change in cooling air temperature over the blade height and it is shown that the common assumption that the temperature difference between the blade and the cooling air is constant over the blade height can lead to considerable errors. In using Eq. (14) it is necessary to know the temperature t_1 at the blade roots, which is considered below. The temperature distribution in the disc is then considered. The differential equation that describes the distribution of temperature t over the radius r of a turbine disc

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The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

cooled from both sides is obtained from the heat balance equation and is of the form:

$$\frac{d^2t}{dr^2} + \left(\frac{1}{r} + \frac{1}{y}\frac{dy}{dr}\right)\frac{dt}{dr} - \frac{2\alpha_{ox}}{y\lambda}\left(t - t^*_{ox}\right) = 0 \qquad (16)$$

where λ is the thermal conductivity of the disc material; t^*_{ox} is the cooling air temperature; α_{ox} is the heat transfer coefficient from the disc wall to the cooling air, and approximately,

$$\alpha_{ox} = 0.0348\,\frac{\lambda_{ox}}{d'_1}\left(\frac{c_{ox}\,d'_1\,\gamma_{ox}}{\eta_{ox}\cdot g}\right)^{0.73}$$

where λ_{ox} is the thermal conductivity and η_{ox} the dynamic viscosity related to the temperature of the cooling air; γ_{ox}, c_{ox} are the specific gravity and speed of the cooling air.

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The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

The notation used in determining the temperature distribution is given in Fig.3. Complete solution of Eq. (16) is very cumbersome, but it has been shown elsewhere that it is sufficient for practical purposes to replace the disc of variable profile by a disc of constant thickness y'_1 if

(a)
$$m = r'_1 \sqrt{\frac{2\alpha_{ox}}{\lambda y'_1}} \geqslant 5$$

and if
(b) no allowance is made for heating of the cooling air by the disc

$$m_1 = \frac{G'_{ox} c_{p\,ox}}{4\pi\lambda y'_1} \geqslant 15$$

where G'_{ox} is the rate of flow of cooling air per hour.
A simplified form of the equation is then derived with a solution in the form of:

$$t = t'_{ox} + AI_0(m\bar{r}) + BK_0(m\bar{r}) \qquad (18)$$

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S/147/61/000/001/011/016
E194/E184

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where functions $I_0(mr)$ and $K_0(mr)$ are Bessel functions. The boundary conditions are then discussed. Finally, the following expression is obtained:

$$t = t^{*}_{ox} + AI_0(mr) \tag{23}$$

This equation may be used to find the temperature distribution over the radius of the disc if the values Δt_{ob} and t_1 are known. Temperature distribution of the disc rim is then considered. The notation used is shown in Fig.4. The amount of heat transmitted through the cylindrical wall from the flow path may be expressed approximately as follows:

$$q_{ob} - q_{ox} = \alpha_{yc} \cdot 2\pi r_1 y_1 (t^{*}_r - t_1) - \alpha_{ox} 2\pi \Phi \left(t_1 - \frac{\Delta t_{ob}}{2} - t^{*}_{ox}\right) \tag{24}$$

The following equations are then derived:

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20602

S/147/61/000/001/011/016
E194/E184

The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

$$A = \frac{r_1 y_1 \alpha_{yc}(t^g - t_1)}{\lambda'_1 \; y'_1 \; mI_1(m)} , \qquad (27)$$

$$\Delta t_{ob} = \frac{r_1 \alpha_{yc}(t^*_{r1} - t_1) \ln \frac{r_1}{r'_1}}{\frac{\lambda_{ob}}{n}} \qquad (28)$$

In engineering calculations it may be supposed that in the thickness of the rim the temperature changes from t_1 to t'_1 according to a linear law. The formulae given may be used to find the temperature drop in the rim of the disc if the temperature t_1 is known at the point of contact of the rim and runner blade. Determination of the temperature t_1 at the root section of the runner blade is then considered. The following formula is derived for the temperature in the root section:

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S/147/61/000/001/011/016
E194/E184

The Temperature Field of Discs and Runner Blades of Gas Turbines With Air Cooling

$$t_1 = \frac{\alpha_{yc} r_1 y_1 t^{*}_{r1} + \left(\frac{B}{C} + \alpha_{ox} \Phi\right) t^{*}_{ox}}{\alpha_{yc} r_1 y_1 + \frac{B}{C} + \alpha_{ox} \Phi} \qquad (29)$$

where

$$C = 1 + \frac{\lambda_{ob} \nu_1 I_0(m)}{\lambda'_1 y'_1 m I_1(m) n \ln \frac{r_1}{r'_1}}$$

which can be somewhat simplified if there is no heat loss from the side surface of the rim. Fig.5 shows the results of temperature calculations of runner blades, rim and disc of a high temperature gas turbine, using the formulae given in this article.
There are 5 figures and 6 references: 5 Soviet and 1 German.

ASSOCIATION: Kafedra turbomachin, Kazanskiy aviatsionnyy institut (Department of Turboengines, Kazan' Aviation Institute)

Card 8/8

SUBMITTED: September 6, 1960

L 14424-63 EWP(r)/EWP(q)/EWT(m)/BDS AFFTC/ASD/AFGC JD

ACCESSION NR: AP3004725 S/0147/63/000/002/0078/0086

54

AUTHOR: Lokay, V. I.

[redacted]

TITLE: Temperature of cooled turbine blades in a nonuniform gas field

SOURCE: IVUZ. Aviats. tekhnika, no. 2, 1963, 78-86

TOPIC TAGS: turbine, turbine-blade cooling, nonuniform gas flow, internally cooled turbine blade, blade, gas flow, gas, flow, gas turbine

ABSTRACT: The temperature field of internally cooled turbine blades in a non-uniform-temperature gas flow has been studied analytically. A differential equation for calculating the temperature distribution along the length of a thin-walled blade is derived on the basis of the heat balance relationship for a blade element $d\bar{x}$ and the equation of heat transfer to cooling air passing near the element. The effect of centrifugal forces is taken into account. No exact general solution of the equation is presented. However, a procedure is given to solve the equation for some special cases in which certain simplified assumptions are introduced. Under the conditions of nonuniform gas temperature around the turbine wheel caused by an increase in temperature in one or more combustion

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L 14424-63
ACCESSION NR: AP3004725

chambers, the rotating blades are subjected to periodically repeated heating and cooling fluxes. Since the temperature field oscillation is high (100—200 cps) as compared to the heat transfer coefficient and thermal conductivity, a mean steady temperature of the blade is established. This temperature can be calculated by a method similar to that used previously by the author (K voprosu ob effektivnosti gazoturbinny*kh ustanovok s periodicheskim sgoraniem v kamerakh. Tr. 1-y mezhvuzovskoy konferentsii po aviatsionny*m lopotochny*m mashinam. Oborongiz, 1958). Orig. art. has: 2 figures and 35 formulas.

ASSOCIATION: none

SUBMITTED: 17Aug62 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: PR NO REF SOV: 006 OTHER: 000

Card 2/2

AM4008915 BOOK EXPLOITATION S/

Zhiritskiy, Georgiy Sergeyevich (Professor); Lokay, Viktor Iosifovich; Maksutova, Makhfuzya Karimovna; Strunkin, Valentin Aleksandrovich

Gas turbines of aircraft engines (Gazovy*ye turbiny* aviatsionny*kh dvigateley) Moscow, Oborongiz, 63. 0608 p. illus., biblio., graphs. 9,000 copies printed.

TOPIC TAGS: gas turbine, aviation turbine, gas turbine aerodynamics, gas turbine thermodynamics, gas turbine design, gas turbine construction, gas turbine strength calculation, gas turbine operation

PURPOSE AND COVERAGE: This is a systematized textbook on gas turbines for aviation higher technical institutions and can be used at the same time by gas-turbine designers. It contains the theory, methods of calculations, and a review of constructions of gas turbines employed in aviation gas-turbine and liquid-fuel-jet engines, and also in auxiliary aircraft engines. It deals with the working

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AM4008915

processes in gas turbines (different modifications), thermodynamic and gas dynamic calculations for nominal and variable operating conditions, cooling systems used for the hot parts of the turbine, turbine design and construction, and strength calculations. The book is based on a 1950 text "Aviation Gas Turbines" by Professor G. S. Zhiritskiy, on work by Soviet and other scientists, and on findings of the Turbine-Machinery staff of the Kazan Aviation Institute, who rendered great help in planning the book. The authors are also grateful to Professors A. F. Gurov, I. I. Kulagin, and K. V. Kholshchevnikov for many useful hints during the review of the book.

TABLE OF CONTENTS [abridged]:

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

ACCESSION NR: AP4009651 S/0147/63/000/004/0117/0125

AUTHOR: Lokay, V. I.

TITLE: The problem of calculating the spatial flow in a turbine stage with non-uniform gas temperature at the input

SOURCE: Izvestiya vy*sshikh uchebny*kh zavedeniy. Aviatsionnaya tekhnika, no. 4, 1963, 117-125

TOPIC TAGS: turbine, turbine spatial flow, high temperature gas turbine, gas turbine design, turbine blade design, gas flow

ABSTRACT: The author presents the formulas necessary for the design calculations of the stage parameters and blade configuration (twisting) when the gas temperature is non-uniform at the input to the stage. The full gas pressure at input (p_0^*) is generally constant along the radius vector, or else changes only to a very negligible degree. In high-temperature gas turbines, it is advisable to have a non-uniform temperature field along the radius vector at the input to the turbine stage. By special profiling of the gas temperature at the input to the stage, it is possible to provide the same margin of safety in almost all sections of the working blade and consequently, all other conditions being equal, to achieve either a higher mean-mass temperature of the gas before entering the stage (as opposed to

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

ACCESSION NR: AP4009651

a case where the temperature of the gas is constant along the radius vector) or greater service life. It has been found that the gas temperature field, in this case, can be very accurately described by a polynomial of the following type

$$\bar{T}_0^* = \sum_{i=0}^{i=n} B_i \bar{x}^i. \qquad (1)$$

where $\bar{x} = \frac{x}{X}$ is a relative coordinate (see Fig. 1 in the Enclosure),

$\bar{T}^* = \frac{T_0^*}{T_{0m}^*}$ is the relative temperature of the gas at input,

T_{0m} is the temperature of the gas at input to the stage at mean radius, and $n = 3 \div 5$.

On the basis of the equations for the motion of a gas, with steady axio-symmetrical cylindrical flow of the gas after the nozzle array, the following equation is derived:

$$\frac{dc_1}{c_1} + \varphi^2 \varepsilon_c^{\frac{k-1}{k}} \cos^2 \alpha_1 \frac{dr}{r} - \frac{d\varphi}{\varphi} - \frac{dT_0^*}{2T_0^*} = 0 \qquad (2)$$

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ACCESSION NR: AP4009651

where c_1 is the velocity of the gas once past the nozzle, φ is the factor for velocity loss in the nozzle, and σ_c is the factor for full pressure restoration in the nozzle. This radial equilibrium equation takes into account the compressibility of the gas, losses in the nozzle,and non-uniformity of the full temperature of the gas along the radius vector at the input to the stage. The equation may also be used in the case of turbine stages having small gas flow conicity along the axis. Formulas are also given for radius calculations of stage parameters, including: velocity on leaving the nozzle, reactance (ρ), pressure p_1 and temperature T_1 past the nozzle, relative velocity w_1 and gas entry angle to the working blades β_1, gas temperature in the boundary layer near the working blades T_g^*, gas flow through stage G, working of the gas on the stage blades, isoentropic , thermal gradient of the stage, and others. Original article has: 39 formulas and 2 figures.

ASSOCIATION: none

SUBMITTED: 17Nov62 DATE ACQ: 12Feb64 ENCL: 01

SUB CODE: AP, AI NO REF SOV: 004 OTHER: 000

Card. 3/4

ACCESSION NR: AP4009651

ENCLOSURE: 01

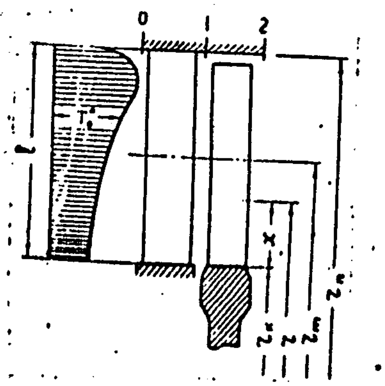

Fig. 1. Calculation diagram

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LOKAY, V.I.

Optimum gas temperature field before a turbine. Izv.vys.ucheb.zav.; av.tekh. 6 no.3:70-77 '63. (MIRA 16:10) [illegible], V. I.

Calculating [illegible] with nonuniform inlet-gas temperature [illegible] tekh. 6 no.4:[illegible] [illegible] (MIRA [illegible])

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

ACCESSION NR: AP4031620 S/0281/64/000/002/0248/0254

AUTHOR: Lokay, V. I. (Kazan')

TITLE: The problem of a gas turbine with blades having uniform strength

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 2, 1964, 248-254

TOPIC TAGS: turbine, gas turbine, turbine blade strength, turbine blade temperature

ABSTRACT: Under normal conditions, the strength of the rotor blades of turbines varies with their height (see Figure 1 of the Enclosure), as a result of which there is total utilization of the mechanical properties of the blade material only in a small area in the vicinity of the "dangerous cross-section." In the remaining areas, the blade material is substantially underloaded. The author states that by specially distributing the temperature field of the gas ensuing a stage, the requirement of equal strength over the height of the blade can be approached; in other words, it is possible to fulfill approximately the requirement that over the entire length of the blade (i.e., in an interval $\bar{x} = 0$ to $\bar{x} = 1$ ($\bar{x} = x/\ell$)) $\frac{\sigma_{per.x}}{\sigma_{\Sigma x}}$ = const = K (K > 1), where $\sigma_{per.}$ are the permissible stresses; σ_{Σ} - the total

ACCESSION NR: AP4031620

stresses. It is to this condition that curve 1 in Figure 1 corresponds. In this article, the author considers the problems of profiling the gas-temperature field in some detail, analyzing the temperature of rotor blades with uniform strength determining the gas temperature in the boundary layer of the rotor blades and finding the inlet-gas temperature field and deriving an equation for radial flow equilibrium with nonuniform gas temperature at the inlet to the turbine stage. With regard to the inlet temperature, curve 6 in Figure 1 indicates the character of the change of the unknown temperature T^* for $\bar{x}$ (the figure shows a value of $\theta^* = T^*/1000C$). It is also clear from the figure that at the root, and particularly at the apex of the blade, a considerably higher temperature might be permitted than in the version with a uniform gas field (curve 5). In actual practice, however, the author notes that not only the blade temperature, but also the temperature of the frame (shroud) and turbine disc must be considered. In the light of this fact, the gas-temperature field takes on the form shown by curve 7. Finally, considering that the temperature peak in the lower portion of the blade is normally small, it is possible to limit oneself to the temperature-field profile [illegible]cated by curve 8 in Figure 1. This is the theoretically advisable inlet tempera-[illegible] field which should be sought in combustion-chamber design. Computations made for turbines with real parameters show that in a turbine stage having an inlet gas-temperature field corresponding to a condition of uniform strength of the rotor blades, the increase in temperature drop, all other conditions being equal,

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ACCESSION NR: AP4031620

may reach 10 - 15%. Orig. art. has: 2 figures and 33 formulas.

ASSOCIATION: None

SUBMITTED: 29Nov62 ATD PRESS: 3058 ENCL: 01

SUB CODE: PR NO REF SOV: 006 OTHER: 000

Card 3/4

ACCESSION NR: AP4043420 S/0147/64/000/003/0058/0066

AUTHOR: Lokay, V. I.

TITLE: Temperature distribution along the profile of a cooled turbine blade with heat-insulated edges

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 3, 1964, 58-66

TOPIC TAGS: turbine blade, gas turbine, air cooled blade, heat insulated blade, turbine blade temperature

ABSTRACT: A method was developed for the approximate determination of the temperature distribution along the profile of a thin-walled, internally cooled turbine blade. In the analysis, particular emphasis was placed on the temperature distribution in the vicinity of the leading and trailing edges. Procedures are given for calculating the temperatures of the leading and trailing edges of a blade, the temperature distribution along the convex and concave parts of the blade profile, and the maximum temperatures of blades with triangular or trapezoidal edges. Temperature equalization is

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

ACCESSION NR: AP4043420

considered by use of an optimum blade geometry and by application of heat-insulating material in the regions of the trailing and leading edges. Fig. 1 of the Enclosure shows the temperature distribution in an internally cooled blade of the RD-20 turbine. Orig. art. has: 6 figures and 27 formulas.

ASSOCIATION: none

SUBMITTED: 03Jul63 ATD PRESS: 3074 ENCL: 01

SUB CODE: PR NO REF SOV: 005 OTHER: 000

ACCESSION NR: AP4043420

ENCLOSURE: 01

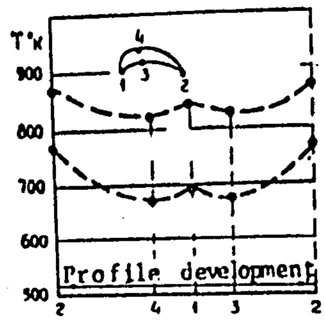

Fig. 1. Temperature distribution along a blade profile according to measurements on a test stand, at T_{gas} = 1063K, T_{air} = 375K, and at flow rates of cooling air G_{air} = 3.59 x 10^{-4} kg/sec, and 16.5 x 10^{-4} kg/sec

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S/0096/64/000/008/0023/0027

ACCESSION NR: AP4042615

AUTHOR: Lokay, V. I. (Candidate of technical sciences)

TITLE: On the air-cooled turbine problem

SOURCE: Teploenergetika, no. 8, 1964, 23-27

TOPIC TAGS: heat removal, nozzle, rotor blade, gas turbine, specific heat, heat transfer, gas temperature, entropy, enthalpy

ABSTRACT: The problem of calculating the quantity of air as coolant required for heat removal from nozzles and rotor blades of a gas turbine was studied in detail. For a given internal design (see Fig. 1 on the Enclosure), under no end-losses and a nearly constant parameter $\mu = \frac{\alpha_B F_B}{G'_B c_{pB}}$, ($G'_B$ - air flow per blade, c_{pB} - heat capacity, F_B - surface area), an expression is derived for the quantity of air $\bar{G}_B$ necessary to cool the blade walls down to a given temperature, or

$$\bar{G}_B = \varepsilon_G \frac{T^*_r - T}{T - T^{*\prime}_B},$$

where the dimensionless coefficient ε_G is given by $\varepsilon_G = \frac{A_r a \frac{c_{pr}}{c_{pB}} \left(\frac{T}{T^*_r}\right)^p}{Re_r^{1-m_r} Pr_r \left(\frac{l}{b}\right)^{1-m} (1 - e^{-\mu}) \sin \beta_1 e}$

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ACCESSION NR: AP4042615

A similar analysis is made to determine the amount of heat removal from the blades. This is found to be a function of specific heat of blades, heat transfer coefficient of coolant, initial gas temperature, and its expansion in the rotor blades. A detailed analysis is also made of heat losses during an expansion process within the blades or nozzles, using an entropy-enthalpy diagram, which leads to an expression in enthalpy change H, $(\Delta H_0)_{p^*_0 = const} = \frac{H_0}{i^*_0} \bar{q}$ coolant. Numerical estimates indicate that this loss cannot exceed 250 kilojoules/kg for an initial gas temperature of 1400K. Orig. art. has: 22 formulas and 4 figures.

ASSOCIATION: Kazanskiy aviatsionny*y institut (Kazan Aviation Institute)

SUBMITTED: 00 ENCL: 01

SUB CODE: PR NO REF SOV: 006 OTHER: 001

Card 2/3

ACCESSION NR: AP4042615

ENCLOSURE: 01

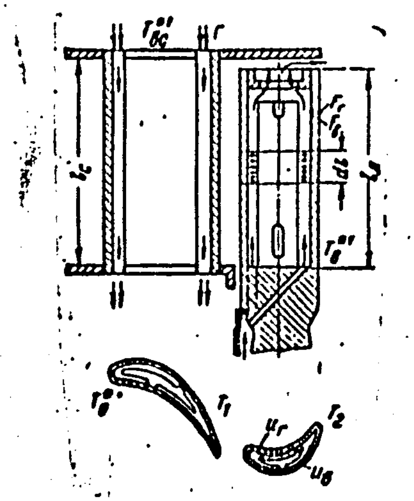

Fig. 1. Schematic of internal design.

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ACCESSION NR: AP5012098 UR/0147/65/000/002/0152/0158

AUTHOR: Lokay, V. I.; Khayrullin, R. G.

TITLE: Additional energy losses in cooled gas-turbine installations and their effect on the specific parameters of the cycle

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 2, 1965, 152-158

TOPIC TAGS: gas turbine, gas turbine cooling, turbine energy loss, turbine liquid cooling, turbine air cooling, turbojet engine

ABSTRACT: When cooling is introduced into a gas-turbine installation, additional energy losses develop which are not found in the non-cooled ... [illegible] In the present ... [illegible]

[illegible]

... of the parameters ... [illegible]

[illegible]

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...20-65

ACCESSION NR: AP5012098

... due to the removal of a ... through ...

...ation of the additional thermodynamic losses based on a uniform distribution ... of ...

Card 2/3

-65

ACCESSION NR: AP5012098

compressor pressure is raised for non-cooled, air-cooled and liquid-cooled equipment. graphic data make clear the effect of cooling both on the specific operating

ASSOCIATION: None

SUBMITTED: 10Jan65 ENCL: 00 SUB CODE: PR, TD

NO REF SOV: 004 OTHER: 000

Card 3/3

LOKAY, V.I., KHAYRULLIN, R.G.

Additional energy losses in cooled gas-turbine units and their effect on the relative parameters of the cycle. Izv. vys. ucheb. zav.; av. tekh. 8 no.2:152-158 '65. (MIRA 18:5)

ACC NR: AP036861 SOURCE CODE: UR/0147/66/000/004/0096/0106

AUTHOR: Lokay, V. I., Khayrullin, R. G.

ORG: none

TITLE: On the selection of basic parameters and calculation of specific characteristics of cooled aviation engines

SOURCE: IVUZ. Aviatsionnaya tekhnika, no.4, 1966,96-106

TOPIC TAGS: turbojet engine, turboprop engine, engine performance characteristic, cooled aviation engine, turbojet specific thrust, specific fuel consumption, cooling

ABSTRACT: The adverse effect of engine cooling, e.g., associated hydraulic and thermodynamic losses, was analyzed for turboprop and turbojet engines. The calculated performance characteristics of cooled and uncooled turbojet engines at both startup and flight regimes are shown in Figs.1 and 2. The derived formulas can be used for determining optimal compression ratios for cooled engines and are recommended for comparative analysis of engine performance.

UDC: 621.454

ACC NR: AP6036861

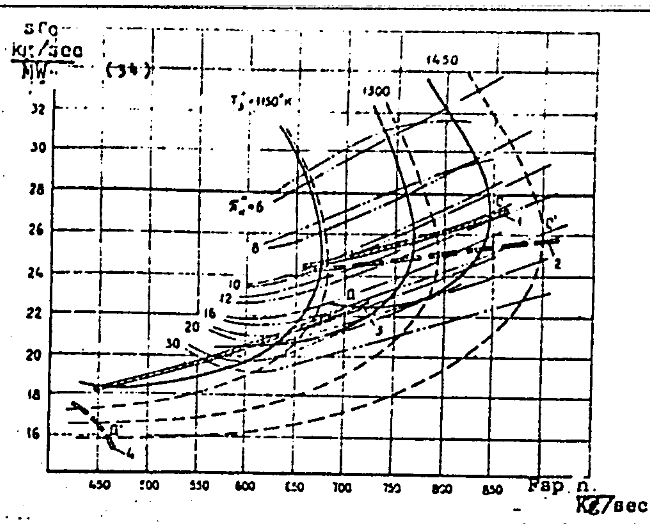

Fig.1. Effect of cooling losses on turbojet engine performance characteristics at sea level during startup. 1 and 3- optimal compression ratios (π_k) resulting in maximal specific thrust (Fsp) minimal specific fuel consumption (sfc) (cooled engine); 2 and 4-uncooled engine; H=0; V=0.

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ACC NR: AP6036861

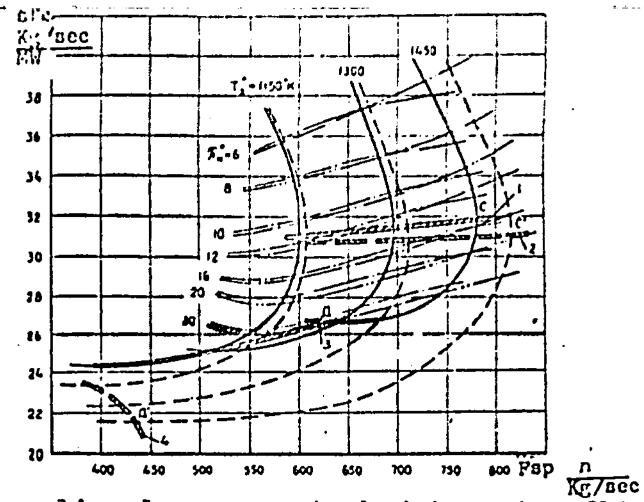

Fig.2. Effect of cooling losses on turbojet engine flight performance characteristics. 1 and 3-optimal compression ratios (π_k) resulting in maximal specific thrust (Fsp) and minimal specific fuel consumption (sfc) (cooled engine); 2 and 4-uncooled engine.

Orig.art.has: 4 figures and 25 formulas. [WA-76]

SUB CODE: 21/ DATE SUBM: 16Oct65/ ORIG REF: 009

Card 3/3

LOKE, Endre

Manufacture of stressed roof purlins for standard industrial halls. Magy ep ipar 13 no. 5:289-290 '64.

LOKE, Endre, okleveles epiteszmernok, tervezo

Flexural elasticity of prestressed concrete beams and its calculation based on the steel wire stress. Melyepitestud szemle 14 no. 3:118-127 Mr '64.

1. Architectural Designing Enterprise for Industry and Agriculture, Budapest.

LOKENBAHA, A.

Academician L. Liepina; on her 70th birthday. Izv.AN Latv. SSR no.4:137-142 '61. (MIRA 16:1)

(Liepina, Lidija, 1891-)

LEPIN', L. [Liepins, L.], akademik; LOKENBAKH, A. [Lokenbahs, A.]

Role of the primary protective film in the process of oxidation of metals in aqueous solutions. Dokl. AN SSSR 148 no.1:148-151 Ja '63. (MIRA 16:2)

1. Institut khimii AN Latviyskoy SSR. 2. AN Latviyskoy SSR (for Lepin').
(Metallic oxides) (Protective coatings)

Influence of carbon in steel on the rate of steel corrosion in chloride solutions (KCl). L. Liepina and A. Lokenbacha (Inst. Chem., Acad. Latv. S.S.R., Riga). Latvijas PSR Zinātņu Akad. Vēstis 1955, No. 6 (Whole No. 95), 111-18 (in Russian; Latvian summary).—In short expts. (15 days), the rate of corrosion of steels with 0.02-1.03% C was independent of concn. of KCl between 0.001*N* and *N* KCl at 20° at static conditions; the rate in distd. H_2O was slightly higher, but at higher KCl concn. it was slower. In long expts. (100 days), a weak max. in the rate *vs.* concn. curve was observed at approx. 0.1*N* KCl, mainly because the corrosion at higher dilns. slowed down slightly with time. The slowdown may be caused by a somewhat higher iron ferrite content in the reaction products, with the result that the deposits are dehydrated and densified faster, and block corrosion processes more efficiently. In 1.0*N* KCl, the corrosion rate increased moderately with increase in % C in the steels. At other concns. of KCl, the rate had a slight min. at 0.2% C and a slight max. in the eutectoid 0.9% C steel; the maximal rate differences were approx. 10%. The corrosion was approx. linear with time, except in 4.0*N* KCl, where it slowed down with time considerably. The corrosion rates were of order of 0.1-0.13 mg. Fe/sq. cm./day. Orange corrosion products, ferric hydroxide, were observed essentially only at 0.05-0.23% C. At higher percentage C, bluish and greenish yellow mixts. of Fe(II) and Fe(III) hydroxides were observed. Corrosion products on Armco iron were thin adherent bluish films and a black ppt., somewhat similar in appearance to the corrosion products on 0.89 and 1.03% C steels.

Andrew Dravnieks

LORENTSBERG, A. V. Colloid-chemical phenomena at surfaces of metals and retardation of corrosion in salt solutions. XVI. Initial [illegible]

LOKENBAKH, A.K., Cand Chem Sci--(diss) "Effect of temperature on the kinetics of iron oxidation in water and aqueous solutions of potassium chloride." Mos, 1958. 16 pp with graphs (Latvian State U im P. Stuchka), 175 copies (KL,30-58,123)

SOV/137-58-11-23024

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 170 (USSR)

AUTHORS: Vayvade, A. Ya., Lokenbakh, A. K., Lepin', L. K.

TITLE: Apparatus for Investigating Corrosion in Aqueous Solutions of Salts at Elevated Temperatures (Ustanovka dlya issledovaniya korrozii v vodnykh rastvorakh soley pri povyshennykh temperaturakh)

PERIODICAL: Izv. AN LatvSSR, 1958, Nr 2, pp 111-114

ABSTRACT: Existing apparatus accomplished the regulation of temperature with a ± 1°C precision but did not ensure natural access of O_2. The authors propose to use a thermostat consisting of a cylinder with an outer container of steel bronze and an inner one of Cu. Between them is a layer of asbestos fiber 50 mm thick. A double water-cooled lid acts as a cooling element and prevents evaporation of the heat carrier (water). Heating is achieved by a 4.5-kw tubular electric heater; the temperature is regulated by a magnetic contact thermometer and an electromagnetic relay with a ± 0.15°C precision in the 20-95° range; the heat carrier is stirred with a centrifugal pump. Graduates serving as corrosion-testing devices are inserted into openings in the lid of the thermostat. To prevent evaporation of the solution a finger-shaped

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SOV/137-58-11-23024

Apparatus for Investigating Corrosion in Aqueous Solutions of Salts (cont.)

water-cooled cooling element is used which rests on the graduate by means of four pins. This ensures a free access of O_2. The specimen is suspended by a glass hook from the end of the finger-shaped cooling element. The area of the specimen is 7 cm^2, the volume of the solution is 50 mℓ. The thermostat has 260 points.

A. A.

Card 2/2

LOKENBAHA, A.

GENERAL

PERIODICALS: VESTIS, No. 5, 1958

LOKENPAHA, A. Kinetic regularity of iron oxidation in water and in water soltions of neutral salts (KCI) in different temperatures. In Russian. p. 101

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2, February 1959, Unclass.

BANKOVSKIY, Yu. (Riga); Ievin'sh, A. [Ievins,A.] (Riga); LOKENBAKH, A. (Riga); ZARUMA, D. (Riga)

Zinc thiooxinate. Vestis Latv ak no.10:115-121 '59. (EEAI 9:10)
(Zinc)

LOKENBAKH, A. [Lokenbaha, A.] (Riga); LEPIN', L. [Liepina, L.] (Riga)

Effect of temperature on iron oxidation in the solutions of monosubstituted potassium phosphate. In Russian. Vestis Latv ak no.3:107-112 '60. (EEAI 10:7)

1. Akademiya nauk Latviyskoy SSR, Institut khimii.
(Potassium phosphate) (Iron)

LOKENBAHA, A. (Riga)

70th birthday of Academician L. Liepina. Vestis Latv ak no.4: 137-142 '61. (EEAI 10:9)

1. Prezidium Akademii nauk Latviyskoy SSR, Otdeleniye fizicheskikh i tekhnicheskikh nauk.

(Liepina, Lidija) (Chemists)

S/076/61/035/003/023/023
B121/B206

AUTHORS: Groskaufmanis, A. Kadek, V., Lokenbakh, A.

TITLE: Lidiya Karlovna Lepin' (on the occasion of her 70th birthday)

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 3, 1961, 699-701

TEXT: Lidiya Karlovna Lepin' celebrated her 70th birthday and the 45th anniversary of her scientific and pedagogical activities on April 4, 1961. Her scientific work is linked mainly with problems of adsorption and reactions on the surface of solid bodies. In 1916 she began her scientific work under the guidance of Professor Nikolay Aleksandrovich Shilov. In 1920 she published comprehensive studies on the distribution of components among two solvents. During the following years she worked together with G. V. Strakhova on problems of the formation of surface compounds. Taking into consideration interfacial phenomena and assuming that higher oxides are formed on the surface, she explained the passivity of metals and the stability of noble metals in acid solutions. Together with A. V. Bromberg she studied the mechanism of the coagulation of hydrophobic sols by mixtures of electrolytes. A new method for determining the deviation from additivity in the coagulation of

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Lidiya Karlovna ... S/076/61/035/003/023/023
B121/B206

soles by binary electrolyte mixtures was elaborrted. At the Voyennaya akademiya khimicheskoy zashchity im. K. Ye. Voroshilova (Military Academy of Chemical Defense imeni K. Ye. Voroshilov) where she was Head of the Department of Colloid Chemistry, she worked on the synthesis of some inorganic compounds, especially in the field of the chemistry of peroxides. These studies were compiled in 1932 in the book "Neorganicheskiy sintez" ("Inorganic Synthesis"). In 1946 she was appointed Head of the Laboratory of Physical and Colloid Chemistry at the Institut khimii Akademii nauk Latviyskoy SSR (Institute of Chemistry of the Academy of Sciences Latviyskaya SSR). There she studied mainly the oxidation of metals in aqueous electrolyte solutions. She developed the hydride theory which offers an explanation of the reactions between metal and water. Jointly with A. P. Tetere and A. Shmit she formulated a kinetic equation for the determination of the reaction rate of metals with water. In collaboration with A. Ya. Vayvade, A. Stiprays, A. K. Lokenbakh, V. M. Kadek, and B. A. Purin she conducted systematic investigations on the oxidation kinetics of numerous metals as well as on their electrochemical behavior and changes in solutions. The oxidation of metals in neutral electrolyte solutions obeys the diffusion kinetics, and depends on composition and properties of the resulting insoluble oxidation products.

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S/076/61/035/003/023/023
B121/B206

Lidiya Karlovna ...

L. K. Lepin' jointly with Z. F. Oshis has found that by changing the temperature and the composition and concentration of the electrolyte, the chemical and phase compositions of the oxidation products of Fe and Al can be altered. With her collaborators A. Ya. Groskaufmanis, A. Ya. Vayvade, and A. R. Veys she conducted detailed studies on the basic salts of aluminum and iron, and on the sorptive properties of hydroxides and oxides of iron and aluminum. Jointly with B. P. Matsiyevskiy she studied the kinetics of the oxidation of divalent iron by oxygen in electrolyte solutions. In collaboration with N. P. Myagkov she conducted studies on the colloid-chemical properties of corrosion-resistant plastic coatings on metals. L. K. Lepin' worked in both scientific and pedagogical respect. She delivered lectures at the Institut narodnogo khozyaystva im. G. V. Plekhanova (Institute of National Economy imeni G. V. Plekhanov), and was the first female teacher at the Moscow School of Higher Technical Education. For some time she was also Head of the Department of General Chemistry at Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov). In 1934 L. K. Lepin' became a professor, and in 1937 the Presidium of the Academy of Sciences USSR made her a Doctor of Chemical Sciences. In 1945 she became Head of the Department of Physical Chemistry at the Chemical Division of

S/076/61/035/003/023/023
B121/B206

Lidiya Karlovna ...

Latviyskiy gosudarstvennyy universitet (Latviyskaya State University) and subsequently at the Rizhskiy politekhnicheskiy Institut (Riga Polytechnic Institute). At present, she is Head of the Commission for Corrosion Protection at the Scientific and Technical Committee of the Council of Ministers of the Latviyskaya SSR. She also works actively at the Vsesoyuznoye khimicheskoye obshchestvo im. D. I. Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev) and for many years has been Chairman of the Presidium of the Latviyskoye SSR Branch of this Society. Academician L. K. Lepin' was decorated with the Order of the Red Banner of Labor in 1960. Academician V. A. Kistyakovskiy is mentioned. There is 1 figure.

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LOKENBAKH A. [Lokenbaha, A.]; LEPIN', L. [Liepina, L.]

Regularities in the kinetics of the oxidation of iron in monopotassium phosphate solutions. Vestis Latv ak no.9:75-79 '61.

1. Akademiya nauk Latviyskoy SSR, Institut khimii.

S/020/63/148/001/030/032
B107/B186

AUTHORS: Lepin', L. Member AS LatSSR, Lokenbakh, A.

TITLE: The role of the primary protective layer during the oxidation process of metals in aqueous solutions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 1, 1963, 148-151

TEXT: The kinetics of the surface oxidation of iron (steel) in water containing air and in aqueous KCl solution is investigated at temperatures of from 0 to 90°C and at time intervals up to 180 min. The reaction was traced by means of colorimetric, volumetric and, later, also gravimetric determination of the oxidized metal. Evaluation of g-t diagrams (g - loss in weight, t - time) showed that the reaction in solutions of $<$2.0 N KCl proceeds, during the first 60 min, according to the law $g^2 = kt$, and at higher concentrations according to the law $g^3 = kt$. The rate constant k rises with the temperature. The oxidation rate passes through a minimum after about 20-30 min. Explanation: One part (S_2) of the metal surface is covered by an initial protective layer. At the beginning, oxidation

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The role of the primary ... S/020/63/148/001/030/032
B107/B186

takes place only at the free surface (S_1); then, the protective layer is dissolved. The total amount of oxidized metal is then given by $g = g_1 + g_2 = k_1S_1t^{1/n} + k_2S(t)t^{1/n}$. k_1 and k_2 are kinetic constants, related to the unit of surface. The function S(t) is given by the reaction between electrolyte and initial protective layer. When the protective layer is totally dissolved, S(t) must be of hyperbolic shape, e.g. $S = S_2 \frac{t-t'}{a\pm(t-t')}$. a is the rate constant of the chemisorption process, t' is the time during which the protective layer is not affected. This formula was brought into the linear form:

$$\frac{(t-t')^{1+1/n}}{g-g_1} = \frac{1}{k_2S_2a} + \frac{1}{k_2S_2}(t-t').$$

Its validity was graphically demonstrated for the oxidation of iron in aqueous solution at 20 and 40°C. The protective layer was found to dissolve in a period of 1/4 - 2 hr at temperatures below 50°C and under the conditions mentioned. Complete decomposition occurs in 6 - 8 hrs at 0°C and in 2 - 3 hrs at higher

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temperatures. The difference in results is caused by insufficiently uniform surface treatment. There are 3 figures.

ASSOCIATION: Institut khimii Akademii nauk LatvSSR (Institute of Chemistry of the Academy of Sciences LatSSR)

SUBMITTED: July 12, 1962

LOKERMAN, A.A.

Plan for improving geocryological terminology. Geol. sbor. [Lvov] no.4:367-371 '57. (MIRA 13:2)

1.Geologicheskoye upravleniye, Chita.
(Frozen ground--Terminology)

LOKERMAN, A.A.

Find of Permian sediments in the Argun Valley. Geol. sbor. [Lvov] no.5/6:314-320 '58. (MIRA 12:10)

1. Geologicheskoye upravleniye, Chita.
(Argun Valley--Sediments (Geology))

3(0) SOV/20-123-6-38/50

AUTHORS: Kozerenko, V. N., Lokerman, A. A.

TITLE: On Ordovician Deposits in South-Eastern Transbaykal (Ob ordovichskikh otlozheniyakh Yugo-Vostochnogo Zabaykal'ya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 1096-1099 (USSR)

ABSTRACT: The polymetallic ore deposits in the eastern Transbaykal are connected with Lower Paleozoic rocks. This fact makes the study of this complex particularly important. According to the geological fieldwork 1946-1951 (done by D. I. Gorzhevskiy, N. S. Gorshkov, V. N. Kozerenko, Ye. M. Laz'ko, G. V. Mitich, A. F. Mushnikov, a.o.), the Ordovician series in the mentioned area was divided into the following concordant lying suites (Ref 1): 1) Bystrinskaya (1000 - 1200 m thick); 2) Altachinskaya (about 2000 m thick); 3) Nerchinskozavodskaya (up to 1500 m thick after new reports) and 4) Blagodatskaya (600 m thick). The last one was put into the Silur and marked as concordant lying on the Nerchinskozavodskaya (error by N. S. Gorshkov, who collected fossils out of the rubble, instead of in situ). In 1956 the authors determined a discordance and an interrup-

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tion between the two suites (4th and 3rd). According to the determination of the fauna (by I. P. Morozova, Ye. A. Ivanova, and N. Ya. Spasskiy), the Blagodatskaya suite has a Middle Devon age (perhaps the upper part of the Lower Devon included). A. A. Lokerman in 1957 found a fauna, which characterized the Nerchinskozavodskaya suite as belonging to the Ordovician. The suites 1 - 3 in the title mentioned area have neither a fauna nor reliable marker-horizons. The existence of overturned strata caused considerable difficulties in the mapping and often drew necessary information from the assumed stratigraphical scheme. So the existence of suite 3 was either denied by certain research workers or it was put together with suite 4. The reports of the recent years (G. I. Knyazev, S. P. Kruzin (1957), Yu. A. Alyushinskiy, Ye. Z. Isagulova) proved the correctness of the assumed scheme, but brought a few corrections to it. The Nerchinskozavodskaya suite is put into the Venlok stage of the Ordovician according to the fauna found (determinations by Ye. A. Ivanova, O. N. Nikiforova, and V. E. Kyrvel). A spores complex (determination by Ye. Z. Isagulova, proved by S. N. Naumova) dates as Upper Ordovician - Lower Silur (against B. V. Timofeyev, who puts these spores into Sinium - Lower

On Ordovician Deposits in South-Eastern Transbaykal SOV/20-123-6-38/50

Cambrium). There are 2 Soviet references.

ASSOCIATION: Chitinskoye geologicheskoye upravleniye (Chita Geological Administration)

PRESENTED: July 9, 1958, by N. S. Shatskiy, Academician

SUBMITTED: July 5, 1958

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3(5) SOV/11-59-8-9/17

AUTHORS: Kozerenko, V.N. and Lokerman, A.A.

TITLE: On Lower Silurian Deposits of the South-Eastern Transbaykal Region

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1959, Nr 8, pp 100 - 104 (USSR)

ABSTRACT: The finding of numerous remains of fauna in the Lower Paleozoic strata of the Eastern Transbaykal region permitted the authors of this article to prove that the 3 suites of strata composing the Lower Paleozoic series were formed in the interval of time between the Lower Cambrian and the Upper Silurian periods. Most ore deposits of the polymetallic belt of the Eastern Transbaykal region are associated with the Lower Paleozoic strata of rocks. As a result of a geological survey by D.I. Gorzhevskiy, N.S. Gorshkov, V.N. Kozerenko, Ye.M. Laz'ko, G.B. Mitich and A.F. Mushnikov, the Lower Paleozoic strata were divided into 4 suites: 1) the Bystrinskaya suite, composed of limestones and

Card 1/5

LOKERMAN, A. A., Cand Geolog-Mineralog Sci (diss) -- "The basic features of the geology of the Argun' area (eastern Transbaykalia)". L'vov, 1960. 19 pp (Min Higher Educ Ukr SSR, L'vov State U im Ivan Franko), 150 copies (KL, No 14, 1960, 129)

LAVRENKO, Ye.I.; LOKERMAN, A.A.

New data on phases of the Jurassic magmatic activity in southeastern Transbaikalia. Geol.sbor. [Lvov] no.7/8:393-402 '61. (MIRA 14:12)

1. Gosudarstvennyy universitet imeni Ivana Franko, L'vov, i Geologicheskoye upravleniye, Chita.
(Transbaikalia--Rocks, Igneous)

KOLTUN, L.I.; LOKERMAN, A.A.

Some results of the mineralogic and thermometric study of complex metal deposits in eastern Transbaikalia. Visnyk L'viv.un. Ser.geol. no.1:107-114 '62. (MIRA 16:7)

(Transbaikalia--Ore deposits)

LOKERMAN, A.A.

Possibility of studying the relationship between dikes and mineralization based on mineral inclusions. Min. sbor. no.16: 312-317 '62. (MIRA 16:10)

1. Gosudarstvennyy universitet imeni Ivana Franko, L'vov.
(Ore deposits) (Dikes (Geology))

LOKERMAN, A.A.

Lower Paleozoic stratigraphy of eastern Transbaikalia. Mat. po geol. i pol. iskop. Chit. obl. no.1:27-31 '63. (MIRA 17:6)

KOLTUN, L.I.; LOKERMAN, A.A.

Temperature of the formation of the Novo-Shirokinskoye complex metal deposit (eastern Transbaikalia). Vest. L'vov. un. Ser. geol. no.2:89-93 '64. (MIRA 19:1)

KUZENKO, V.N.; LOKERMAN, A.A.

Characteristics of the fracture tectonics of the complex-metal belt in eastern Transbaikalia. Geol.sbor. [Lvov] no.9:114-118 '65. (MIRA 18:12)

LOKES, D.; [redacted]

TECHNOLOGY

periodicals: KOZARSTVI Vol. 8, no. 5, July 1958

LANGMAIER, F.; LOKES, D.; SLOVACKOVA Z. Simultaneous clorimetric dtertmination of lauminum and chromium in leather, p. 198.

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 5
May 1959, Unclass.

LOKH, I.A., inzh.

Production of fluxed sinter with a high content of lime in the charge mixture. Met. i gornorud. prom. no.1:8-11 Ja-F '62. (MIRA 16:6)

1. Zavod "Azovstal'". (Sintering)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

32648

1.1110 only 3008, 3108

26.2351

S/105/62/000/001/006/006
E194/E455

AUTHORS: Lange, F.F., Lokhanin, A.K.

TITLE: A compact impulse-generator

PERIODICAL: Elektrichestvo, no.1, 1962, 58-60

TEXT: Impulse generators having unusually small overall dimensions have been constructed using cheap, small, highly-stressed capacitors (having a volume of about 0.046 dm^3/joule) in containers made of vinyl plastic. The low capacitor replacement and repair costs compensate for their shorter life. The present plastic containers are not really strong enough but this will be corrected. Generator ГИН-1 (GIN-1) with an output voltage of 1 MV and energy of 5000 joules is built on a stack of laminated plastic shelves with vertical insulating supports. The capacitors are insulated from one another only by the shelves. Mechanical switching arrangements are used to charge and discharge the generator. There are no charging resistors, so that there is no need to limit the numbers of stages (there are 60) and the charging losses are low. Generator ГИН-3 (GIN-3) of mobile construction, has an output voltage of 1 to 1.5 MV; it uses a normal voltage-multiplier circuit with water-column charging resistor and the

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A compact impulse-generator E194/E455

number of stages is 30. It consists of two vinyl plastic tubes with terminals brought out from the capacitors. The damping resistor is of 520 ohms/MV and the charging voltage is 50 to 100 kV. The first triggering arrangement consisted of insulated point-electrodes located in the main spark gaps and charged from a neighbouring plate-electrode. With this arrangement, all the gaps broke down simultaneously and the wave-front was not distorted. To increase the range of control, the 1.5 MV generator was provided with mechanically-driven main gaps with built-in triggering electrodes; this system has proved accurate and reliable. The heights of the generators were governed by the vertical arrangement of the capacitors and were 3.6 m for 1 MV in the case of GIN-1 and 2 m for 1 MV in GIN-2. Generator GIN-3 was made of low height (1.3 m for 1 MV) by placing three stages side by side on a shelf; it is otherwise generally similar to GIN-1. The internal insulation is satisfactory, self-inductance is low (18 to 30 microHenries) and so is stray capacitance (60 to 80 pf); accordingly wave fronts of 0.15 to 0.2 microseconds can be obtained. High discharge powers can be obtained because of the low internal resistance. There are 3 figures and 2 tables.

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32648

A compact impulse-generator

S/105/62/000/001/006/006
E194/E455

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut im. Lenina (All-Union Electrotechnical Institute im. Lenin)

SUBMITTED: March 21, 1961

Card 3/3

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

LOKHANIN, A.K., inzh.; POGOSTIN, V.M., inzh.; Prinimali uchastiye: [illegible]ROSKI[illegible], L.M., laborant; DUR'YE, I.I., inzh.

Calculation of the capacitance of high-voltage transformers windings. Elektrotekhnika 35 no.7:36-38 '64. (MIRA 17:11)

LOKHANIN, A.K., inzh.; POGOSTIN, V.M., inzh.

Longitudinal capacitance of transformer coil windings. Elektrotekhnika 36 no.12:33-35 D '65.

(MIRA 19:1)

LOKHANIN, F.

Highly organized state. Voen. znan. 39 no.5:38 My '63.
(MIRA 16:5)

1. Nachal'nik shkoly grazhdanskoy oborony, Demidov, Smolenskoy oblasti.
(Demidov (Smolensk Province)—Civil defense)

L'VOV, D. K.; LOKHMAN, F. S.; ANYAKINA, V. A.

Immunological condition of children delivered from mothers immune to tick encephalitis. Med. paraz. i paraz. bol. no.4:406-408 '61. (MIRA 14:12)

1. Iz otdela epidemiologii Instituta meditsinskoy parazitologii i tropicheskoy meditsiny imeni Ye. I. Martsinovskogo Ministerstva zdravookhraneniya SSSR (dir. instituta - prof. P. G. Sergiyev, zav. otdelom M. G. Rashina), otdela entsefalitov Instituta poliomiolita i virusnykh entsefalitov AMN SSSR (dir. instituta - prof. M. P. Chumakov, zav. otdelom - prof. Ye. N. Levkovich) i Kozul'skoy rayonnoy bol'nitsy Krasnoyarskogo kraya (glavnyy vrach F. S. Lokhman).

(ENCEPHALITIS) (IMMUNITY)

84237

S/089/60/009/004/017/020
B006/B070

21.8300

AUTHORS: Lokhanin, G., Sinitsyn, V.

TITLE: A Wash Cabinet

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 4, pp. 341 - 344

TEXT: The authors describe here a type of washing machine that is used for cleaning vessels, instruments, and small appliances which are radioactively contaminated and show α-, β-, or γ-activity. Photographs of the machine are shown in Figs. 1 and 2; the machine is manufactured in the Soviet Union, and is designated as type ШМ (ShM) - "Shkaf moyechnyy". The cabinet consists of three separate chambers connected by flanges. It is 3,580 mm long, 825 mm broad, 2,320 mm high, and weighs in all 860 kg. Each chamber has a capacity of 0.4 m^3. The cabinet is made of stainless steel. The contaminated vessels and instruments are introduced into the first chamber (on the left in the photograph) through an antechamber, and are washed with special deactivating solutions (acids, lyes, etc.). Another washing with cold water is done in the second chamber. The waste water comes into a receptacle which can be hermetically sealed (Fig. 3).

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A Wash Cabinet

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B006/B070

Each time the washing is done in three tanks (two round, and one rectangular, 8 and 12 l in capacity). The vessels and instruments to be cleaned are brought from one chamber to another through doors. They are dried in the third chamber, and their radioactivity is checked with a "Tiss" dosimeter; they are then taken out of the wash cabinet through an antechamber. Ventilators remove the contaminated air in the chambers and bring in fresh air. The air removal is checked by a draft gauge of the type ТИМ-890 (TIM-890). The filter system, which has ФПП (FPP) filter material in the second stage, is described. The sump for waste water has a capacity of 10 liters and weighs 8 kg; it is designated as type 10КЖО (10KZhO). The used washing liquids are partly collected in it, and partly they get in the sewage through an overflow arrangement. For collecting solid waste material a container of the type КТО (KTO) of 10 l capacity and 8 kg weight is used (Fig. 4). There are 4 figures.

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S/089/60/009/004/018/020
B006/B070

21.4100

AUTHORS: Lokhanin, G. N., Sinitsyn, V. I.

TITLE: New Hermetic Chambers for Working With α- and β-Active Substances 19

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 4, pp. 344 - 347

TEXT: The authors give a detailed description of the chamber 1КНЖ (1KNZh), mass-produced in the USSR, in which it is possible to work with α- and β-active substances. In this chamber, which has one working place, it is possible to work at high temperatures, and also with acids and lyes. (A similar chamber of the type 2КНЖ (2KNZh) with two working places is shown in Figs. 4 and 5). The chamber is made of 3 mm thick stainless steel, and is 2320 mm high, 875 mm broad, and, including the antechamber, 1270 mm long. The hermetically sealed space in the chamber is 0.4 m^3. The chamber itself stands on a foundation made of carbon steel. Figs. 1 and 2 show the front and the back of the chamber. Chambers of this type are produced with one or two antechambers which are used for introducing and removing the radioactive materials, the vessels, reagents, etc. The

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New Hermetic Chambers for Working With α- and β-Active Substances

S/089/60/009/004/018/020
B006/B070

inside of the chamber is lighted with a three-tube lamp (45 w) of the type СДС-45 (SDS-45). For protection against radioactive aerosols, gases, and other substances in the air, the chamber is equipped with a special two-stage filter system, which is described. A receptacle is inserted in the foundation of the chamber (Fig. 2) to receive solid contaminated waste matter. The solid radioactive waste matter is packed inside the chamber in a plastic material and sealed hermetically. It then comes to the receptacle which is put on a small hand-cart (Figs. 2 and 3). This process is described in detail. The waste container is made of carbon steel and has a capacity of 10 liters. A container of the type 10КЖО (10KZhO) is used for contaminated water and liquids. It is described in the preceding paper on a wash cabinet (pp. 341 - 344, Fig. 3). It is briefly described also here. There are 5 figures.

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LOKHANIN, G.N.; SINITSYN, V.I.; SHTAN', A.S.; MATVEYEVA, A.V., red.; BOKSHA, R.V., red.; MAZEL', Ye.I., tekhn. red.

[Protective equipment and devices for working with radioactive substances] Zashchitnoe oborudovanie i prisposobleniia dlia raboty s radioaktivnymi veshchestvami. Moskva, Gos. izd-vo lit-ry v oblasti atomnoi nauki i tekhniki, 1961. 129 p. (MIRA 14:11)
(Radiation protection)

S/089/61/010/004/027/027
B102/B205

21.4150

AUTHORS: Lokhanin, G. N., Sinitsyn, V. I.

TITLE: New universal chamber for handling α-, β-, and γ-active materials

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 420-421

TEXT: A brief description is given of a new Russian universal chamber designed for handling hot substances. It consists of two chambers, one of type 1-КНЖ (1-KNZh) and the other of type КШ (KSh), which are connected by a pre-chamber. The first chamber is used to handle α- and β-active materials, while the second one serves for work with γ-active materials of up to 50 mg-equiv. Ra; it has a biological shield. The first chamber has a volume of 0.4 m^3, and the second chamber has one of 0.6 m^3. Air can be fully exchanged 25 times per hour. The filter areas of the two chambers are 0.11 and 0.25 m^2, respectively. Dimensions of the universal chamber: 2970 × 2560 × 2320 mm; weight: 5700 kg (450 kg + 5250 kg). The 1-KNZh chamber has already been described in Ref. 1 (Lokhanin, Sinitsyn.

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B102/B205

New universal chamber...

Atomnaya energiya, 9, vyp. 4, str 344 (1960)). Radioactive material is transferred from one chamber into the other through the pre-chamber. The KSh chamber is equipped with manipulators of the type МШЛ-05 (MShL-05), an instrument box, daylight lamps, a manometer of the type ТНМ-890 (TNM-890), two-stage filters, several vessels and containers, power supply lines, pipes for hot and cold water, sewers, and waste cans. The KSh chamber has a size of 1700 x 2540 x 2485 mm. Its biological shield consists of cast-iron plates having a thickness of 100 mm (front), 80 mm (sides and bottom), and 50 mm (top, back, and in between), and of several lead glasses (total thickness: 150 mm). The base of the chamber is made of carbon steel and has a size of 1700 x 980 x 940 mm. The two-stage filter used for air cleaning consists of a glass fabric 200 mm thick and four layers of the fabric ФПП-15-1,7 (FPP-15-1.7). The filter cleans 25 m^3 of air per hour. The pre-chamber is made of stainless steel of the type 1Х18Н9Т (1Kh18N9T) and 450 x 706 x 732 mm large. The operating part of the chamber is made of stainless steel 3 mm thick and has a size of 900 x 706 x 725 mm. The waste containers are of the type 10 КЖО (10 KZhO). There are 2 figures and 2 Soviet-bloc references.

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24245

S/193/61/000/006/006/007
A004/A104

21.5740

AUTHORS: Lokhanin, G. N., and Polkovskiy, M. A.

TITLE: Trucks for the removal of radioactive waste

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 6, 1961, 68-71

TEXT: The authors report on some pilot models of trucks for the removal of radioactive waste developed by the Konstruktorskoye byuro Upravleniya blagoustroistva Moskvy (Designing Office of the Moscow Administration of Public Services and Amenities). The OT2 truck is intended for the transportation of solid alpha- and beta-active waste and consists of the following units: chassis of the ГАЗ-93 (GAZ-93) truck, superstructure with dumping mechanism, body with lateral and rear doors and the hydraulic power system. The body is an all-metal welded structure of stainless steel reinforced by special sections and with six charging hatches. The front wall of the body is equipped with a 15 mm lead screen sheathed from two sides by stainless steel to protect the driver. The truck is unloaded by tipping the body over to the rear. The ОЖ1 (OZh1) truck is intended for the mechanized loading, transportion and unloading of liquid alpha- and beta-active waste, and is built on the base of the ГАЗ-51 (GAZ-51A) chassis.

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A004/A104

Trucks for the removal of radioactive waste

A tank of 1.75 m3 holding capacity is mounted on the truck at an angle of 4° to ensure a complete unloading of the liquid. The tank is loaded by producing a rarefied atmosphere in its interior. For the visual control of the tank filling two observation windows are fitted to the rear of the tank. The tank is emptied by a drain valve located at the rear. For the decontamination of the tank two sprayers are provided for in the tank interior. Tank, pipings and valves are made from stainless steel, while the suction and drain hoses are of acid and alkali-resistant rubber. A 15 mm lead screen protects the driver from radiation. The OЖ2 (OZh2) truck is intended for the transportation of liquid gamma-active waste. It is built on the base of the ЗИЛ-164 (ZIL-164) chassis and fitted with a cylindrical tank of 1 m3 holding capacity made of stainless steel. To protect the driver from radiation the tank is placed in a cast iron jacket. A safety valve, signalling device, suction and flushing pipes are mounted on the tank manhole cover. The safety valve cuts off the suction line when the tank is filled so as to prevent the liquid from getting into the engine. The signalling device sounds a signal and cuts off the engine simultaneously when the tank is filled up to a given level. Drain and shut-off valves and the suction rubber hose are placed in a heat-insulated box mounted on the chassis at the truck rear end. The table shows the technical specifications of the above trucks. There are 2 figures and 1 table.

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A004/A104

Trucks for the removal of radioactive waste

Table:
1) indices; 2) truck model; 3) load capacity, kg; 4) loading height of the lateral hatches, mm; 5) angle of inclination during dumping, degrees; 6) total and useful holding capacity of the body (flush with the side walls) m^3; 7) tank holding capacity, m^3; 8) maximum rarefication produced in the tank, %; 9) overall dimensions, mm; a) length; b) width; c) height; 10) weight (loaded), kg.

1) Показатели	2) Типы автомобилей		
	ОТ2	ОЖ1	ОЖ2
3) Грузоподъемность, кг	1600	1500	1000
4) Высота загрузки в боковые люки, мм	1550	—	—
5) Угол наклона кузова при разгрузке, град.	50	—	—
6) Емкость кузова полная и полезная (вровень с бортами), м³	3,3 и 2,4	—	—
7) Емкость цистерны, м³	—	1,75	1,0
8) Максимальное разрежение, создаваемое в цистерне, %	—	50	50
9) Габаритные размеры, мм:			
a) длина	5050	5850	6060
b) ширина	2140	2240	2410
c) высота	2000	2510	2630
10) Вес (с грузом), кг	4870	5115	9170

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LOKHANIN, G.N.; POLKOVSKIY, M.A.

Motortrucks for radioactive waste transportation. Biul. tekh.-ekon.inform. no.6:68-71 '61. (MIRA 14:6)
(Radioactive waste disposal)

LOKHANIN, G N

PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

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Transactions of the Tashkent (Cont.) SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

TABLE OF CONTENTS:

LOKHANIN, K. A.

Hoisting Machinery

"Electric drive in a loader with revolving shaft." Reviewed by K. A. Lokhanin. Gor. zhur. no. 4, 1952.

Monthly List of Russian Accessions, Library of Congres , April 1952. UNCLASSIFIED.

1. LOKHANIN, K. A.

2. USSR (600)

4. Loading and Unloading

7. EPM-1 electric rock-loading machine. Gor. zhur. no. 11, '52.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

LOKHANIN, K.A., inzhener; ABMORSHEV, V.I., inzhener.

Loading machine for work in inclined mine stopes. Mekh.trud.rab. 7 no.9:22-26 S '53. (MLRA 6:9)
(Coal-mining machinery)

LOKHANIN K. A.

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000930420009-4"

LOKHANIN, K. A.

USSR/Mining - Coal Excavating Machinery

Card 1/1

Authors : Lokhanin, K. A.

Title : Cutting and Loading Machine, Type PKS-1.

Periodical : Meckh. Trud. Rab. Ed. 3, 23 - 25, Apr - May 1954

Abstract : A cutting and loading machine, type PKS-1, for excavating stratum coal deposits is described. Also mentioned are machine specifications and methods for its operation. This machine was extensively tested in Voroshilov's mine of Kuzbas coal district, and it is expected that in 1954, the experimental series of these machines will be put in operation. Diagrams; illustration.

Institution : ....

Submitted : ....

Lokhanin, Konstantin Anatol'yevich

BOBROV, Vasiliy Nikolayevich; DANCHICH, Valeriy Valeryanovich; KUZNETSOV, Aleksandr Aleksandrovich; LOKHANIN, Konstantin Anatol'yevich; SAVIN, M.M., redaktor; SABITOV, A., tekhnicheskiy redaktor

[Work practice with the mining grab-loader] Opyt primeneniia prokhodcheskogo greifernogo agregata. [Moskva] Ugletekhizdat, 1955. 36 p. (MIRA 9:3)

(Mining machinery)