

88184

S/140/60/000/006/010/018
C111/C222

On Some Subclasses of Convex and Star-Shaped Conformal Mappings of an Annulus

$$(2.20) \quad f_0(z) = \int_2^z \frac{(\zeta - q^2)^{2\alpha\lambda} (\zeta + q^2)^{2\alpha(1-\lambda)}}{\zeta^{2\alpha} (1-\zeta)^{2\alpha\lambda} (1+\zeta)^{2\alpha(1-\lambda)}} d\zeta,$$

where $0 \leq \lambda \leq 1$.

Theorem 4 : For $F(z) \in u_q^0$ it holds

$$(2.35) \quad |\arg F'(z)| \leq 2\alpha \arcsin \left[r \sqrt{1 - \left(\frac{q^2}{r}\right)^2} + \frac{q^2}{r} \sqrt{1 - r^2} \right]$$

Here $z = r e^{i\theta}$, and the argument means that branch which vanishes for $z = 0$. The equal sign in (2.35) holds only for functions

$$(2.36) \quad F_0(z) = \int_2^z \frac{\left(1 - \frac{q^2}{\zeta} e^{i\theta}\right)^{2\alpha}}{(1 - \zeta e^{i\varphi})^{2\alpha}} d\zeta$$

Card 7/8

88184

S/140/60/000/006/010/018
C111/C222

On Some Subclasses of Convex and Star-Shaped Conformal Mappings of an Annulus

for $\theta = \arccos r - \varphi = \vartheta - \arccos \frac{q}{r}$ (the functions (2.36) do not belong to the class u_q^0).

Some generalizations of the classes u_q^0 , u_q^* are defined by complicated structural formulas.

The author mentions V.A. Zmorovich, I.I. Privalov, G.M. Goluzin and L.Ye. Dunduchenko.

There are 9 references : 8 Soviet and 1 American.

ASSOCIATION: Zaporozhskiy mashinostroitel'nyy institut
(Zaporozh'ye Machine-Construction Institute)

SUBMITTED: November 21, 1958

Card 8/8

28680
S/021/60/000/007/003/009
D211/D305

16.3000

AUTHOR: Dunduchenko, L.O., and Kas'yanyuk, S.A.

TITLE: Some properties of analytical functions with a positive real part in a circular ring

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 7, 1960, 878 - 882

TEXT: Definitions: $C_q^{\alpha}(h + ik)$ is the class of functions regular in $K_z(q; 1) \equiv [0 < q < |z| < 1]$ with positive real part $\operatorname{Re} f(z) > 0$, $q < |z| < 1$ and satisfying condition

$$\frac{1}{2\pi i} \cdot \int_{|z|=\rho} \frac{f(z)}{z} dz = h + ik, \quad h > 0, \quad q < \rho < 1. \quad (2)$$

$C_q^{\alpha}(h)$ is the class of function regular in $K_z(q; 1)$ for which

Card 1/5

Some properties of analytical ...

28680
S/021/60/000/007/003/009
D211/D305

$$\frac{1}{2\pi i} \cdot \int_{|z|=\rho} \frac{f(z)}{z} dz = 1, \quad q < \rho < 1 \quad (3) \quad \text{X}$$

and such that

$$\operatorname{Re} f(z) > 1 - \alpha, \quad 0 < \alpha < 1, \quad q < |z| < 1. \quad (4)$$

M is the class of real functions $\mu(\theta)$ non-decreasing on the segment $(-\pi; \pi)$ such that

$$\mu(-\pi) = \mu(-\pi + 0) = 0; \quad \int_{-\pi}^{\pi} d\mu(\theta) = 2\pi. \quad (5)$$

Using the results of work by V.A. Zmorovych (Ref. 1: Matem. Sb. 32 74; 3, 633, 1953) the two following theorems can be proved: Theorem 1: The necessary and sufficient condition that functions $f(z)$ belongs to the class $C_q^0(h + ik)$ is that the function could be represented as follows:

Card 2/5

28680

S/021/60/000/007/003/009

D211/D305

Some properties of analytical ...

$$f(z) = \frac{h}{2\pi} \int_{-\pi}^{\pi} F(ze^{-i\theta}) d\mu_1(\theta) + \tag{6}$$

$$+ \frac{h}{2\pi} \int_{-\pi}^{\pi} F\left(\frac{q}{z} e^{i\theta}\right) d\mu_2(\theta) - h + ik,$$

where $\mu_1(\theta) \in M$, $\mu_2(\theta) \in M$ and

$$F(z) = \frac{1+z}{1-z} + 2 \sum_{k=1}^{+\infty} \frac{q^{2k}}{1-q^{2k}} \left(z^k - \frac{1}{z^k}\right), \tag{7}$$

where integrals taken are in the Stieltjes sense. Corollary 1. The necessary and sufficient condition that the function $f(z)$ belongs to the class $C_q^\alpha(1)$ is that it could be expressed as follows:

$$f(z) = \frac{\alpha}{2\pi} \int_{-\pi}^{\pi} F(ze^{-i\theta}) d\mu_1(\theta) + \frac{\alpha}{2\pi} \int_{-\pi}^{\pi} F\left(\frac{q}{z} e^{i\theta}\right) d\mu_2(\theta) + 1 - 2\alpha. \tag{8}$$

Card 3/5

28680

S/021/60/000/007/003/009
D211/D305

Some properties of analytical ...

The Laurant's expansion of function $f(z)$ is then

$$f(z) = \sum_{n=-\infty}^{+\infty} a_n z^n = \dots + \frac{a_{-n}}{z^n} + \dots + \frac{a_{-1}}{z} + 1 + a_1 z + \dots + a_n z^n + \dots \quad (9)$$

41

Theorem 2: If function $f(z) \in C_q^\alpha(1)$ then the Laurant's coefficients satisfy inequalities

$$|a_\nu| \leq \frac{2\alpha}{|1 - q^\nu|}, \quad \nu = \pm 1, \pm 2, \dots \quad (10)$$

The equality holds for functions

$$f_0(z) = 1 - 2\alpha + \alpha F(z e^{-i\beta}) + \alpha F\left(\frac{\alpha}{z} e^{i\gamma}\right) \quad (11)$$

in the points $\beta = 0$ and $\gamma = \pi/n$ for $\nu = n$, $\beta = \pi/n$ and $\gamma = 0$ for $\nu = -n$ for each fixed ν . Using the variation method of V.A.

Card 4/5

28780

S/021/60/000/007/003/009
D211/D305

Some properties of analytical ...

Zmorovych (Ref. 2: Ukr. Matem. Zhurn., 4, 276, 1952) four additional theorems are proved: The author also gives the functions for which the equality holds. If q tends to infinity, all theorems pass into a well-known theorem in a region $|z| < 1$, for regular functions with a positive real part. There are 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: J.E. Littlewood, Lectures on the Theory of Functions, Oxford Univ. Press, 1944.

ASSOCIATION: Zaporiz'kyi mashynobudivnyy instytut (Institute for Machine-building, Zaporoshe)

PRESENTED: by B.V. Hnyedenko, Academician AS UkrSSR

SUBMITTED: November 23, 1959

Card 5/5

85219

S/042/60/015/005/011/016XX
C111/C222

16.3000

AUTHORS: Dunduchenko, L.Ye., and Kas'yanyuk, S.A.TITLE: On Spiral Functions Schlicht Within an Annulus

PERIODICAL: Uspekhi matematicheskikh nauk, 1960, Vol.15, No.5, pp.165-170

TEXT: Let $K_z(q;1)$ be the annulus $0 < q < |z| < 1$. A function $w = f(z)$ schlicht in $K_z(q;1)$ belongs to the class $S_{\omega}(f)$ of the spiral functions: $w \in S_{\omega}(f)$ if it maps $K_z(q;1)$ onto a doubly connected domain intersecting with every logarithmic spiral of the family

$$(1) \quad |w| = \exp \left\{ \operatorname{ctg} \omega (\arg w - \varphi_0) \right\}, \quad |\omega| < \frac{\pi}{2}, \quad 0 \leq \varphi_0 \leq 2\pi,$$

where $\omega = \text{const}$, φ_0 - parameter on an arc not containing 0 and ∞ . Let

$$\varphi_1 \left(\frac{\ln \xi}{2\pi i} \right) = A \cdot (1 - \xi) \prod_{k=1}^{+\infty} (1 - q^{2k} \xi) (1 - q^{2k} \xi^{-1})$$

$$\varphi_0 \left(\frac{\ln \xi}{2\pi i} \right) = A \prod_{k=1}^{+\infty} (1 - q^{2k-1} \xi) (1 - q^{2k-1} \xi^{-1})$$

Card 1/3

85219

S/042/60/015/005/011/016XX
 C111/C222

On Spiral Functions Schlicht Within an Annulus

$$A = \prod_{k=1}^{+\infty} (1 - q^{2k}), \quad 0 < q < |z| < 1.$$

For $|f(z)|$ and $\arg \left(\frac{f(z)}{z} \right)$, where $f(z) \in S_{\alpha}(f)$, the authors give upper and lower estimations, e.g.:

$$|f(z)| \leq r \exp \left\{ \cos 2\alpha \left[\frac{\Re_0 \left(\frac{\ln r e^{+i\beta_2'}}{2\pi i} \right)}{\Re_1 \left(\frac{\ln r e^{+i\beta_2}}{2\pi i} \right)} \right]^2 + \sin 2\alpha \arg \frac{\Im_0 \left(\frac{\ln r e^{+i\beta_2'}}{2\pi i} \right)}{\Im_1 \left(\frac{\ln r e^{+i\beta_2}}{2\pi i} \right)} \right\},$$

where $r = |z|$, $q < r < 1$, and β_2, β_2' are solutions of certain auxiliary equations.

In a theorem it is proved that the strong upper and lower estimations of

Card 2/3

S/042/60/015/005/011/016XX
C111/C222

On Spiral Functions Schlicht Within an Annulus

$\arg \left(\frac{f(z)}{z} \right)$ and $|f(z)|$ in the class $S_{\alpha}(f)$ are reached by the following schlicht spiral function:

$$(4) \quad f_0(z) = z \left\{ \vartheta_0^{-2e^{-i\alpha} \cos \alpha \left(\frac{\ln z e^{-i\delta}}{2\pi i} \right)} \cdot \tilde{\vartheta}_1^{-2e^{-i\alpha} \cos \alpha \left(\frac{\ln z e^{-i\omega}}{2\pi i} \right)} \right\}, \quad \checkmark$$

where the constants δ and ω , $-\pi < \delta, \omega \leq \pi$ must suitably be chosen. The authors mention V.A. Zmorovich. There are 6 Soviet references.

SUBMITTED: February 24, 1959

Card 3/3

16.3000

33747
S/021/62/000/002/001/010
D299/D304

AUTHORS: Dunduchenko, L. O. and Kas'yanyuk, S. A.

TITLE: On a regular function with positive real part in an ellipse

PERIODICAL: Akademiya nauk UkrRSR. Dopevidi. no. 2, 1962, 147-150

TEXT: Let E denote a univalent simply-connected region of the z-plane, bounded by the ellipse $z = a \cos \theta + ib \sin \theta$, $c^2 = a^2 - b^2$. Picard showed that the function $f(z)$, regular in E, can be expressed by the series

$$f(z) = c_0 + \sum_{n=1}^{+\infty} c_n P_n(z), \text{ Re } c_0 = 1 \tag{1}$$

where

Card 1/6

33747
S/021/62/000/002/001/010
D299/D304

On a regular function ...

$$P_n(z) = (z + \sqrt{z^2 - c^2})^n + (z - \sqrt{z^2 - c^2})^n \quad (2)$$

is a non-normalized Chebyshev polynomial. One sets

$$\xi = \frac{z + \sqrt{z^2 - c^2}}{a + b}, \quad \eta = \frac{a - b}{a + b} \quad (3)$$

Using Schwarz's formula for the ellipse, it is possible to prove the following Theorem 1: The necessary and sufficient condition for the single-valued function $f(z)$ to have a positive real part in E , is that it should be expressed by the formula

Card 2/6

33747
S/021/62/000/002/001/010
D299/D304

On a regular function ...

$$f(z) = i\beta + \frac{1}{2\pi} \int_{-\pi}^{\pi} \left[F \left(\frac{z + \sqrt{z^2 - c^2}}{a + b} e^{-i\theta} \right) + 2\bar{\Phi} \left(\frac{z + \sqrt{z^2 - c^2}}{a + b} e^{i\theta} \right) \right] d\mu(\theta) \quad (6) \quad \lambda$$

where μ and β are real constants, and

$$F(x) = \frac{1+x}{1-x} + 2 \sum_{n=1}^{+\infty} \frac{q^{2n}}{1-q^{2n}} (x^n - x^{-n}); \quad 2\bar{\Phi}(x) = F\left(\frac{q}{x}\right) - 1 \quad (7)$$

Card 3/6

33747
S/021/62/000/002/001/010
D299/D304

On a regular function ...

It is noted that if one takes in formula (6) the function $\mu(\theta)$ as a step function with a single discontinuity at $\theta = 0$, one obtains a regular normalized function which effects a univalent mapping of E on the right halfplane. Theorem 2: If $\text{Re}f(z)$ is positive in E and the regular function $f(z)$ can be expanded in Series (1), then the exact inequalities

$$|c_n| \leq \frac{2}{(a+b)^n(1-q^n)}, \quad n = 1, 2, \dots, \quad (9)$$

hold, which are only satisfied by functions of type

$$w = \frac{i}{\pi} \left[\zeta \left(u - \frac{1}{4n} \right) - \zeta \left(u + \frac{1}{4n} \right) \right], \quad n = 1, 2, \dots, \quad (10)$$

where

Card 4/6

33747
 S/021/62/000/002/001/010
 D299/D304

On a regular function ...

$$u = \frac{1}{2\pi i} \ln \left(\frac{z + \sqrt{z^2 - c^2}}{a + b} \right); \quad \zeta(u) = \frac{\sigma'(u)}{\sigma(u)}; \quad \zeta_3(u) = \frac{\sigma_3'(u)}{\sigma_3(u)}$$

A function $f(z)$ which can be expanded in Series (1) is said to be typically-real in E , if for any $z, (z \in E)$ the quantity $\text{Im}f(z) \cdot \text{Im}z$ retains its sign for $\text{Im}z \neq 0$. In the following, one sets $c_0 = 0$ in Eq. (1). Theorem 3: If $f(z)$ is regular and typically-real in E , then the regular function

$$\varphi(z) = \frac{1}{a^2 - b^2} [bz - a\sqrt{z^2 - c^2}] \cdot f(z) \quad (11)$$

Card 5/6

33747
S/021/62/000/002/001/010
D299/D304

On a regular function

has a positive real part in E. A further theorem gives inequalities related to typically-real functions. The definition is given of a regular function, convex in the direction of the imaginary axis; two theorems are stated for such functions (analogous to Theorems 1 and 2). There are 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. K

ASSOCIATION: Zaporiz'kyy mashynobudivnyy instytut (Zaporizhe Machine-Building Institute)

PRESENTED: by Academician Yu. O. Mytropol'sky of the AS UkrRSR

SUBMITTED: June 21, 1961

Card 6/6

DUNDUCHENKO, L.Ye. [Dunduchenko, L.O.]; KAS'YANYUK, S.A.

A-convolutions of Laurent series. Dop.AN URSSR no.7:845-849
'61. (MIRA 14:8)

1. Zaporozhskiy mashinostroitel'nyy institut. Predstavleno
akademikom AN USSR B.V.Gnedenko [Hniedenko, B.V.].
(Functions, Analytic) (Series, Taylor's)

DUNDUCHENKO, L.Ye. [Dunduchenko, L.O.]; KAS'YANYUK, S.A. [Kas'ianiuk, S.A.]

Regular functions with a positive real part in the ellipse [with
summary in English]. Dop. AN URSR no.2:147-150 '62. (MIRA 15:2)

1. Zaporozhskiy mashinostroitel'nyy institut. Predstavleno
akademikom AN USSR Yu.A.Mitropol'skim [Mytropol's'kyi, IU.O.]
(Functions)

KAS'YANYUK, S.A.

Interpolation problem for positive functions, harmonic in
a unitcircle. Usp. mat. nauk 20 no.6:98-101 N-D '65.
(MIRA 18:12)

1. Submitted March 16, 1965.

I 29109-66 - EWT(d)/T IJP(c)

ACC NR: AP6019392

SOURCE CODE: JR/0042/65/020/006/0098/0101

AUTHOR: Kas'yanyuk, S. A.

ORG: none

TITLE: Interpolation problem for positive functions harmonic within a unit

SOURCE: Uspekhi matematicheskikh nauk, v. 20, no. 6, 1965, 98-101

TOPIC TAGS: interpolation, harmonic function

ABSTRACT: The article considers positive harmonic functions which are the real parts of functions $w=f(z)$, regular in circle $|z| < 1$, and expressible by the Riesz-Gergolots transliterated from the Russian structural formula:

$$w=f(z)=\int_0^{2\pi} \frac{1+ze^{-it}}{1-ze^{-it}} d\mu(t), \quad \mu(t) \in M, \quad \int_0^{2\pi} d\mu(t)=1. \quad (1)$$

Each function $w=f(z)$ maps circle $|z| < 1$ onto a region situated in half-plane $\text{Re } w > 0$, translating point $z=0$ into point $w=1$. Let z_1 and z_2 be two points of circle $|z| < 1$, and let the value of the real part of function $f(z)$ in point z_1 be fixed. Question: What are the bounds of variation of the real part of such functions at point z_2 ? If the number λ is selected from segment $[0, 1]$, the question reduces to solving the connected extremum problem of finding the maximum and minimum value of $\text{Re } f(z_2)$, where $f(z)$ is defined by equation (1), provided that $\text{Re } f(z_1) = \frac{1+2|z_1|(2\lambda-1)+|z_1|^2}{1-|z_1|^2}$. The author formulates

two theorems for the solution. Orig. art. has: 16 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 16Mar65 / ORIG REF: 002

Card 1/1 (10)

AKUL'SHINA, Ye. .; BGATOV, V.I.; GURARI, F.G.; GUROVA, T.I.; DERBIKOV, I.V.;
YEGANOV, E.A.; KAZANSKIY, Yu.P.; KALUGIN, A.S.; KAS'YANOV, M.V.;
KOSOLOBOV, N.I.; KASYGIN, Yu.A.; MIKUTSKIY, S.P.; SAKS, V.N.;
TROFIMUK, A.A.; UFANTSEV, D.D.

Professor Vladimir Panteleimonovich Kazarinov; on his 50th birthday.
Geol. i geofiz. no.3:122-123 '62. (MIRA 15:7)
(Kazarinov, Vladimir Panteleimonovich, 1912-)

KASYMALIYEV, S.

Experimental work of students in animal husbandry.
Biol. v shkole no.5:51-53 S-0 '62. (MIRA 16:2)

1. Kirgizskiy nauchno-issledovatel'skiy institut pedagogiki.
(Stock and stockbreeding—Study and teaching)

TSEFT, A.L.; TARASKIN, D.A.; KASYMBEKOV, S.K.

Thermal decomposition of magnesium chloride with production
of an active product and hydrochloric acid. Trudy Inst. met.
i obog. AN Kazakh. SSR 14:62-68 '65. (MIRA 18:10)

KASYMBEKOVA, K. K.

PHASE I BOOK EXPLOITATION

SOV/5690

Akademiya nauk Kazakhskoy SSR. Institut yadernoy fiziki.

Metallovedeniye i obrabotka metallov davleniyem (Physical Metallurgy and Pressworking of Metals) Alma-Ata, 1961. 183 p. (Series: Trudy Instituta yadernoy fiziki, t. 4) 2,450 copies printed.

Resp. Eds.: I. G. Grinman and A. A. Presnyakov; Resp. Secretary: V. V. Chervyakova;
Eds.: M. Ya. Brailovskaya and T. I. Shevchuk; Tech. Ed.: Z. P. Rorokina.

PURPOSE: This book is intended for scientific research workers, technical personnel in industry, and students and aspirants interested in problems of physical metallurgy and the pressworking of metals.

COVERAGE: The book, Volume IV of the Transactions of the Institute of Nuclear Physics, Academy of Sciences Kazakh SSR, contains papers reviewing problems of physical metallurgy. Attention is given to a consideration of metal ductility, strength, phase transformation, and the ordering of various alloys, and to a discussion of the diffusion mechanism of the plasticity. Experimental findings concerning strength, deformation, and external friction in the working of non-ferrous metals and alloys are included in papers dealing with metal rolling.

Card 1/6

Physical Metallurgy and Pressworking of Metals

SOV/5690

Problems of automatic inspection and control of multidraft wire-drawing frames are also considered. Most of the papers are accompanied by references, the majority of which are Soviet.

TABLE OF CONTENTS:

Kirillov, P. G. On the Problem of the Deformation Mechanism of Metallic Solids	3
Chernousova, K. I., and A. A. Presnyakov. On the Question of the Ductility of Copper-Aluminum Alloys	9
Presnyakov, A. A., V. V. Chervyakova, and K. K. Kasymbekova. On the Problem of the Nature of Ductility Downfall in Aluminum Alloys	15
Presnyakov, A. A., and V. V. Chervyakova. On the Superductility of Eutectoid Aluminum-Zinc Alloys	23
Starikova, G. V., and A. A. Presnyakov. On the Abnormal Increase of Ductility of $\alpha + \beta$ -Brasses	33

Card 2/6

Physical Metallurgy and Pressworking of Metals

SOV/5690

- Starikova, G. V., and A. A. Presnyakov. Investigating the Ductility of β -Brass 39
- Presnyakov, A. A., and L. I. Dautova. On the Problem of Polymorphism of Zinc 42
- Presnyakov, A. A. and L. I. Dautova. On the Nature of Cold-Shortness in Metals and Alloys 48
- Presnyakov, A. A. On the Causes of the Anomalies in the Ductility of Metal Alloys 53
- Presnyakov, A. A., L. I. Dautova, and Yu. F. Klyuchnikov. Concerning Some Special Features of the Changes in the Microhardness and Crystal Structure of Brass 63
- Presnyakov, A. A., L. I. Dautova, and Yu. F. Klyuchnikov. On the Anomalies in the Electrical Resistance of Brasses and Aluminum Bronzes 69

Card 3/6

Physical Metallurgy and Pressworking of Metals

S07/5690

- Klyuchnikov, Yu. F., and A. A. Presnyakov. Anomalies in the Electrical Resistance of the Cu-Ni Alloys 74
- Nysanbayev, G. N., and A. A. Presnyakov. On the Effect of the Crystallization Rate on the Structure and Properties of Commercial-Grade Metals 78
- Presnyakov, A. A., Yu. A. Gorhan', and V. V. Chervyakova. Concerning the Equilibrium Diagram of the Al-Zn Alloy 85
- Chernousova, K. T., and A. A. Presnyakov. The Effect of Vanadium on the Structure and Properties of Copper-Base Alloys 89
- Mironenko, Yu. P. The Use of Wound Transducers in Strain Gages 95
- Presnyakov, A. A., and A. A. Vinnitskiy. On the Method of Determining the External-Friction Coefficient by Conical [Hammer] Heads 97
- Presnyakov, A. A., and A. A. Vinnitskiy. The Method of Determining the Friction Unit Forces in Metal Rolling 100

Card 4/6

Physical Metallurgy and Pressworking of Metals	80V/5690
Vinnitskiy, A. A., and A. A. Presnyakov. On the Problem of Unused Friction Forces in Metal Rolling	102
Presnyakov, A. A. Concerning the Dependence of Rupture Strength on Temperature	107
Presnyakov, A. A. On the Problem of the Diffusion Mechanism of Plastic Deformation	111
Vinnitskiy, A. A., and A. A. Presnyakov. Experimental Determination of Friction Coefficients in Flattening	116
Grinman, I. G., A. G. Yegay, L. S. Mikhaylova, and Yu. V. Ovsov. Objectives of Automatic Inspection and Control in the Wire-Drawing Process	122
Grinman, I. G., and E. K. Dzhasybekova. Investigating the Possibility of Measuring by Radioactive Radiation the Temperature of the Wire During Drawing	126

Card 5/6

Physical Metallurgy and Pressworking of Metals

86V/5690

- Grinman, I. G., and L. P. Pushkarev. On the Frequency Method of Measuring the Backpull of a Wire During Drawing 132
- Grinman, I. G., Yu. V. Ovsov, V. S. Mishchenko, and Sh. Bakhtayev. Photoelectric Micrometer for Gaging the Diameter of Moving Wires or Threads 138
- Grinman, I. G., and L. S. Mikhaylova. On the Automatic Measuring of the Wire Velocity and Footage During Drawing 147
- Yegay, A. G. Reastor Starting [and Acceleration] of the Wound-Rotor Electric Motor With Up to 100 kw Capacity by Using Electromagnets of the MD 300B FV 40% 220v Type 151
- Malakhov, Yu. I., Study of the Automatic Electronic Drive of a Wire-Drawing Frame 158
- Grinman, I. G., and N. I. Sakhipov. On the Automatic Electric-Simulator Control of Wire-Drawing Frames 172

AVAILABLE: Library of Congress

Card 6/6

VK/wrc/mas
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28877

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2408 1530

S/180/61/000/004/015/020
E073/E535

AUTHORS: Kasymbekova, K.K. and Presnyakov, A.A. (Alma-Ata)

TITLE: On the plasticity of ordering alloys of the system magnesium-cadmium

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1961, No.4, pp.101-102

TEXT: By numerous investigations of the Mg-Cd system the existence of the following three compounds, forming from the solid solution as a result of ordering during lowering of the temperature, was established: Mg₂Cd, MgCd, MgCd₃. Ye. M. Savitskiy and V. V. Baron (Ref.1: Izv.AN SSSR, OKhN, 1952, No.3, 392-396) found that all the three compounds form considerable ranges of homogeneity and have a high ductility combined with a low hardness. However, these authors did not carry out a systematic investigation of the properties of these compounds with changing temperatures. This paper is devoted to studying the mechanical properties of the above mentioned compounds, which form during the process of ordering and are nearest in structure to solid solutions. All the three compounds were studied in the as-cast state and the compound MgCd was also investigated in the homogenized state. The alloys

Card 1/5

28877

On the plasticity of ordering ...

S/180/61/000/004/015/020
E073/E535

were melted in a graphite crucible using a carnallite flux. Magnesium and cadmium were used as charge materials. From the cast blanks specimens for tensile tests were machined with a gauge length of 20 mm and a diameter of 5 mm; the tests were made with a loading speed of 1 to 2 mm/min. Specimens from an alloy with a composition approaching the stoichiometric MgCd composition were homogenized for 145 hours at 210°C. The test technique was the same for all the specimens: heating to the desired temperature in 10 min, holding at that temperature for 30 min, fracturing. The contraction was taken as a measure of the plasticity. The Mg₃Cd compound was most thoroughly investigated in the temperature range 125-400°C; the compound MgCd in the temperature range 225-400°C in the as-cast state and in the temperature range 20-400°C in the homogenized state; the compound MgCd₃ in the temperature range 20-175°C. Analysis of the obtained data (Fig.1) shows that the Mg₃Cd and MgCd₃ compounds in the as-cast state show two contraction minima, one at the ordering temperature and the other slightly above that temperature; the plasticity increases on further increase in the temperature. For the compound MgCd in the as-cast state a contraction minimum was also observed at the

Card 2/6
5

On the plasticity of ordering ...

28877
S/180/61/000/004/015/020
E073/E535

ordering temperature and a sharp increase in plasticity followed with a slight drop in plasticity at about 300°C. In testing homogenized specimens of the compound MgCd (Fig.2) the authors observed only a uniform increase of the contraction with temperature. Above 150°C the plasticity remained constant and no anomalies were observed in the contraction curve. However, the elongation determined in the same tests showed an appreciable maximum (up to 165%) at about 280°C within a very narrow range of temperatures slightly above the temperature of complete disordering (250°C). It is known that such unusual effects, referred to as "super-plasticity", are observed in the case of intensive diffusion during the stabilization of metastable specimens. Obviously, the process of establishing complete disorder during the heating is delayed somewhat and develops extensively in a narrow temperature range slightly above the point of order-disorder transition. The difference in the change in the plasticity of alloys with temperature in the as-cast and the homogenized states can be explained as follows: in as-cast alloys a certain degree of long-range order occurs which appears on the X-ray diffraction patterns in the form of super-structure lines;

Card 3/6
5

On the plasticity of ordering ...

28877
S/180/61/000/004/015/020
E073/E535

on increasing the temperature the degree of ordering increases. The process of ordering has the highest speed at temperatures slightly below the order-disorder transition temperature, which also manifests itself by a maximum in the plasticity of the $MgCd_3$ compound at $75^\circ C$ and the Mg_3Cd compound at $140^\circ C$ and the $MgCd_3$ compound at $220^\circ C$. If the temperature increases further, the kinetics of the process of ordering becomes less intensive and the plasticity indices decrease accordingly. At higher temperatures the reverse process takes place, namely, disordering, which yields a maximum plasticity: at $140^\circ C$ for $MgCd_3$, at $280^\circ C$ for $MgCd$ and at $200^\circ C$ for Mg_3Cd . In investigating ordered specimens of $MgCd$ the high degree of ordering leads to intensive disordering, even in the temperature range $100-150^\circ C$, as a result of which there will be an appreciable increase in the contraction; this process is most intensive at about $280^\circ C$ and manifests itself by the effect of super-plasticity. Thus, experimental data on the plasticity of the compounds Mg_3Cd , $MgCd$ and $MgCd_3$, formed by the process of ordering, indicates that their dissociation (disordering) on increasing the temperature is

Card 4/6

On the plasticity of ordering ...

28877
S/180/61/000/004/015/020
E073/E535

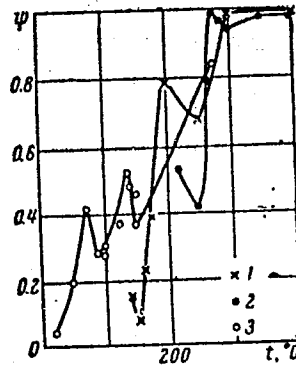
accompanied, firstly, by a considerable general increase in the plastic properties and, secondly, by an anomalous increase in plasticity at certain temperatures. There are 2 figures and 3 Soviet references.

[Abstractor's Note: Complete translation.]

SUBMITTED: January 24, 1961

Fig. 1. Legend.

Temperature dependence of the plasticity in the as-cast state of the alloys Mg_3Cd (1), $MgCd$ (2) and $MgCd_3$ (3).



Card 5/6
5

1401

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E075/E555

18 1210

AUTHORS: Kasymbekova, K.K. and Presnyakov, A.A.
 TITLE: Causes of concentration non-uniformities in solid solutions
 SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No.7, pp.20-22

ABSTRACT: In earlier work of the authors relating to X-ray structural investigations of coarse grain brasses, a considerable scatter in the lattice parameter was observed. Analogous phenomena were observed in studying aluminium bronzes, aluminium-copper and aluminium-zinc alloys. In all cases the scatter of the parameter increased sharply near the line of phase transformations (Fig.1). In this paper the authors investigated a number of alloys of the Cu-Al system by the method of micro-hardness and by X-ray analysis. It was found that the concentration non-uniformity of the alloys belonging to the continuous series of solid solutions is associated with their concentration and increases with increasing concentration. The concentration

Card 1/4

X

24191

Causes of concentration

S/129/61/000/007/005/016
E073/E535

non-uniformity is particularly pronounced in the case of long duration annealing and quenching (1000°C, 10 hours). Slow cooling after annealing leads to a decrease in the non-uniformities. The highest non-uniformity in the microhardness as well as in the lattice parameter was observed on quenching from temperatures which are near to the solidus temperature (Fig. 2). If the annealing temperatures are not high enough, the non-uniformities of alloys with various nickel contents remain unchanged. The results have shown the following:

1. Concentration non-uniformities in solid solutions can be observed also in alloys belonging to the continuous series of solid solutions where there is no possibility of formation of particles of the second phase in the interdendrite spaces.
 2. The non-uniformity depends on the composition of the alloy, increasing with increasing degree of alloying.
 3. The non-uniformity increases with increasing annealing temperature.
- Thus, the non-uniformity has nothing to do with dendritic liquation but is due to a stable enrichment of individual areas with one of

Card 2/4

Causes of concentration ...

24191
S/129/61/000/007/005/016
E073/E535

the components of the alloy at elevated temperatures. Such a phenomenon is referred to as type III heterogeneity. The following conclusions are arrived at:

1. In solid solutions considerable discrete concentration non-uniformities are observed which prepare phase transformations in temperature ranges which are sufficiently distant from the line of equilibrium of the diagram of state.
2. The cause of occurrence of such type III heterogeneity is the diffusion which precedes the reconstruction of a crystal lattice at temperatures and concentrations at which phase transformations occur. There are 2 figures and 8 Soviet references.

ASSOCIATION: Institut yadernoy fiziki AN Kazakhskoy SSR
(Institute of Nuclear Physics Kazakh SSR)

X

Card 3/4

36809
S/135/62/000/004/095/201
A052/A101

18.1210 (2408)
AUTHORS: Presnyakov, A. A., Chervyakova, V. V., Kasymbekova, K. K.

TITLE: On the problem of the nature of ductility dips with aluminum alloys

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 4, 1962, 25, abstract 41146
("Tr. In-ta yadern. fiz. AN KazSSR, no. 4, 1961, 15-22)

TEXT: In order to establish a connection of ductility dips with diffusion processes, alloys of Al with 0.8, 2.6 and 4% Cu were investigated. The samples were subjected to static tension and ψ was determined as a function of the time of diffusion annealing, hardening temperature, duration of the exposure to different testing temperatures and the rate of heating. It is established that the aging causes the appearance of dips on the ductility curve. Only in the case of diffusion-annealed samples (during 168 hours at 520°C) and cooled at a rate of 3 degree/min no ductility dip was observed. Thus the disappearance of the dip is connected with the absence of aging with an alloy in the state of maximum equilibrium. In a hardened state the alloys prove to be most ductile and the dip in the region of 100°C is the least developed. An increase of hardening temperature from 250 to 350°C causes a sharp increase of ψ . On transition to

Card 1/2

On the problem of the nature ...

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A052/A101

hardening temperatures of 500 - 570°C a further increase of ductility is observed. The effect of recrystallization was studied on Al-Cu alloys with 0.8, 2.0, 6.1% Cu and on silumins with 0.45, 1.1, 3.3, 6.7, 11.7 and 18% Si and also on commercial Al. After a cold deformation by 50%, hollow cylinders for X-ray diffraction study were turned of blanks. The back radiography was performed in the temperature chamber. The experiments were carried out up to 200 and > 300°C every 50° and in the range of 200 - 300°C every 20°. The radiograms were processed photometrically to determine the width and intensity of the lines. The beginning of recrystallization was determined from the emergence of isolated spots. In Al-Cu alloys the beginning of recrystallization was registered at 220 - 260°C, in the Al-Si system the beginning of recrystallization spreads over the range of 220 - 350°C. An increase of the Si content to 3.3% reduces sharply the number of spots. In the Al-Cu system a fairly good coincidence between the maximum intensity temperature of development of recrystallization processes with the zone of a sharp decrease of ductility characteristics is observed. In the case of silumins a shift over the temperature scale of the range of the most intensive development of the recrystallization process is observed depending on the composition. There are 11 references.

[Abstracter's note: Complete translation]

M. Matveyeva

Card 2/2

KASYMBEKOVA, K.K. (Alma-Ata); PRESNYAKOV, A.A. (Alma-Ata)

Plasticity of ordered alloys in the system magnesium-cadmium.
Izv. AN SSSR. Otd. tekhn. nauk. Met. i topl. no.4:101-102
Jl-Ag '61. (MIRA 14:8)
(Magnesium-cadmium alloys--Testing)

DUDAREV, V.Ya.; ZHDANOV, G.S.; ALEKSEYEV, B.A.; KASYMBEKOVA, K.K.

Products of graphite sputtering when bombarded with Sn^- , V^+ ,
 Mo^+ ions. Atom. energ. 13 no.2:184-186 Ag '62. (MIRA 15:8)
(Sputtering (Physics)) (Graphite) (Ion beams)

KASYMBEKOVA, K.K.; MELIKHOV, V.D.; PRESNYAKOV, A.A.

Changes in the structure of magnesium-cadmium alloys during
ordering. Trudy Inst. met. i obog. AN Kazakh. SSR 7:30-35 '63.
(MIRA 17:6)

S/126/63/015/001/019/029
E073/E151

AUTHORS: Kasymbekova, K.K., and Presnyakov, A.A.

TITLE: Physical properties of γ -phase Cu-Zn

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.1, 1963,
134-137

TEXT: Published information on the γ -phase is scanty. Specimens were prepared by casting and by hot-pressing at 700 °C, with a load of 30 tons giving 80% reduction, using alloy made from 99.997% purity Cu and 99.99% purity Zn, either under air or under argon. Deformation of the hot-pressings was carried out by bending through a large angle over a small radius. This was readily carried out shortly after removal from the mould, but if allowed to cool by 20-60° before testing the specimens became extremely brittle. The brittle-ductile transition temperature was found to be 650-670 °C. Equilibrium was achieved by annealing the hot-pressed specimens for 90 hours, made up of 2 hours at 750°, 4 hours at 650°, 12 hours at 500°, 12 hours at 400°, 20 hours at 300°, 20 hours at 200°, and 20 hours at 100°. Determinations were made of the hot hardness, and microhardness after quenching, and bend ductility, and the
Card 1/2

Physical properties of γ -phase Cu-Zn S/126/63/015/001/019/029
E073/E151

structure of the fracture was analysed. Conclusions. Several transformations were observed over a wide temperature range, confirming previous data on transformations at 280 and 500°, and revealing a new transformation at 700°. This transformation influences the γ -phase, leading to a fall in ductility similar to that in solid solutions. Further work is required to clarify the transformations in the γ -phase. Ductility does not increase uniformly with temperature; there is transition to brittleness at 600-650° in cast specimens and at 500-600° in equilibrium annealed. In both cases there was an increase to maximum ductility at 700°, followed by a sudden fall to zero at 725° and 750° respectively. At still higher temperatures ductility increased uniformly. γ -phase Cu-Zn can be deformed by hot-pressing in a closed die. There are 3 figures and 1 table. ✓

ASSOCIATION: Institut metallurgii i obogashcheniya AN Kaz SSR
(Institute of Metallurgy and Beneficiation,

Card 2/2 AS Kaz.SSR)

SUBMITTED: May 21, 1962

KASYMBEKOVA, K.K.; PRESNYAKOV, A.A.

Certain properties of the β' -phase in the system Cu - Zn.
Fiz.met.i metalloved. 15 no.1:134-137 Ja '63. (MIRA 16:2)

1. Institut metallurgii i obogashcheniya AN KazSSR.
(Copper-zinc alloys—Metallography)
(Phase rule and equilibrium)

MELIKHOV, V.D.; KASYMBEKOVA, K.K.; POLYAKOVA, T.P.; PRESNYAKOV, A.A.

Transformation in -brass. Fiz. met. i metalloved. 16 no.5:700-
702 N '63. (MIRA 17:2)

1. Institut metallurgii obogashcheniya AN KazSSR.

ACCESSION NR: AP4040686

S/0129/64/000/006/0009/0011

TITLE: Changes in the structure of Mg-Cd alloys in the ordered state

AUTHOR: Kasy*mbekova, K. K. ; Melikhov, V. D. ; Presnyakov, A. A.

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 6, 1964, 9-11

TOPIC TAGS: ordered state, Mg Cd alloy, plasticity, microhardness, alloy structure

ABSTRACT: So far, there has not been any data available concerned with the effect of the ordered state on plasticity and strength of Mg₂Cd, MgCd and MgCd₃ alloys. In earlier work, the authors discovered² the anomalous effects that occur in the changes of plastic properties of alloys in a near-ordered state. In Mg-Cd specimens having a stoichiometric composition, plasticity rose sharply. Now, the authors attempt to verify earlier investigations by submitting cast Mg-Cd specimens in an ordered state to hardening at different temperatures. X-ray examinations showed that the heat-treated specimens subjected to tensile tests consist of a rhombic and a metastable phase. The ordered rhombic phase has the following

Card

1/2

ACCESSION NR: AP4040686

parameters: $a = 4,993 \text{ kX}$; $b = 3,216 \text{ kX}$ and $c = 5,256 \text{ kKh}$ and the intermediary metastable phase has $a = 6,072 \text{ kKh}$; $c = 10.018 \text{ kX}$ and $c/a = 1,65$. Maximum microhardness and the greatest changes in lattice parameters were observed at 250C . At this temperature, deformation releases an intensified order-disorder diffusion process that results in high plasticity provided the transformation and deformation processes stand in a favorable kinetic relationship. The orig. art. has: 2 figures.

ASSOCIATION: Institut metallurgii i obogashcheniya AN Kaz. SSR
(Institute of Metallurgy and Beneficiation, Ac. of Sci. Kazakh SSR)

SUBMITTED: 00

DATE ACC:

ENCL: 00

SUB CODE: MM

NR REF SOV: 006

OTHER: 001

Card 2/2

KASYMIN, Yu.A.

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/1 PG - 827
 AUTHOR KASJMIN Ju.A.
 TITLE On the completeness of the function systems $\{f(z + \alpha_n)\}$ and $\{f^{(n)}(z)\}$.
 PERIODICAL Uspechi mat.Nauk 12, 2, 151-154 (1957)
 reviewed 6/1957

Theorem 1: Let the function $f(z)$ be analytic in $|z| < R$ and $\{\alpha_n\}$ ($n=0,1,2,\dots$) be an infinite sequence of different points, where $\sup_n |\alpha_n| = \alpha$, $\alpha < R$. Then

the function systems $\{f(z + \alpha_n)\}$ and $\{f^{(n)}(z)\}$ ($n=0,1,2,\dots$) are at the same time complete in $|z| < r$, $r = R - \alpha$ or not.

Theorem 2: If the system $\{f^{(n)}(z)\}$ is complete in $|z - \gamma_0| < r$, $|\gamma_0| + r \leq R$, then this system is complete in every circle $|z - \gamma| < \rho$, $\rho \leq r$, $|\gamma| + \rho \leq R$.
 The proofs are given with the aid of infinite systems of linear equations.

KASYMKHODZHAYEV, E.S.

Cases of intracranial lipoma. Med. zhur. Uzb. no.10:69 '61.
(MIRA 14:10)
1. Iz kafedry patologicheskoy anatomii (zav. - prof. G.N.Terekhov)
Tashkentskogo gosudarstvennogo meditsinskogo instituta.
(BRAIN--TUMORS)

MAGRUFOV, A.I.; KASYMKHODZHAYEV, E.S.; ALIMOV, V.A.

Clinical and anatomical characteristics of poliomyelitis. Sbor.nauch.
trud.TashGMI 22:360-370 '62.

(MIRA 18:10)

1. Kafedra patologicheskoy anatomii (zav. - prof. G.N.Terekhov)
Tashkentskogo gosudarstvennogo medits'nskogo instituta i 3 detskiy
infektsionnoy bol'nitsy Tashkentskogo gorodskogo otdela zdravookh-
raneniya (glavnyy vrach A.P.Udalova).

KASYMKHODZHAYEV, I.

Projection anatomy of the anterior transitional margins of the pleural sacs in fetuses and newborn infants. Trudy KirgNOAGE no.2:176-179 '65.

Projection anatomy of the anterior transitional pleural sacs in adults. Ibid.:179-181

Age-related projection anatomy of the pleural sacs in fetuses, newborn infants and adults. Ibid.:182-184

(MIRA 18:11)

1. Iz kafedry normal'noy anatomii Andizhanskogo gosudarstvennogo meditsinskogo instituta (zav. - prof. I.G.Mardershteyn) i kafedry normal'noy anatomii domashnikh zivotnykh (zav. - prof. A.F. Khanzhin) Kirgizskogo sel'skokhozyaystvennogo instituta imeni Skryabina.

MIRSAGATOV, M.U.; POGORELKO, I.P.; KASYMKHODZHAYEV, I.S.

Innervation of the seminal vesicles in man. Med. zhur. Uzb. no.6:
59-62 Je '61. (MIRA 15:1)

1. Iz gonoroynogo otdeleniya Uzbekistanskogo kozhno-venerologicheskogo
instituta i urologicheskoy kliniki Tashkentskogo gosudarstvennogo
meditsinskogo instituta.
(SEMINAL VESICLES—INNERVATION)

KASYMKHODZHAYEV, S.; SIDOROV, K., starshiy instruktor; SHABAYEV, V.

Inspection of red corners is in progress. Sov. profsoiuzy 18 no.
11:34-35 Je '62. (MIRA 15:6)

1. Zaveduyushchiy kul'turno-massovym otde~~lom~~ Uzbekskogo respublikanskogo soveta profsoyuzov, g. Tashkent (for Kasymkhodzhayev).
2. Gor'kovskiy oblastnoy sovet professional'nykh soyuzov (for Sidorov).
3. Rostovskiy zavod sel'skokhozyaystvennogo mashinostroyeniya (for Shabayev)

(Community centers)

ERESLAVETS, L.P.; KASYMOV, A.; FILIPPOVA, N.F.

Changes in the process of cell division and nuclear structure
under the effect of irradiation and radiotoxins. Radio-
biologia 5 no.5:735-737 '65. (MIRA 18:11)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

ARIFOV, U. A.; KASYMOV, A. Kh.

Methodology for studying the energy distribution of the secondary electrons during the bombardment of metals by electrons. Radiotekh. i elektron. 8 no.1:138-144 Ja '63.
(MIRA 16:1)

(Secondary electron emission)

KUZIN, A.M.; KASYMOV, A.; KRYUKOVA, L.M.

Mechanism of stimulating and inhibiting action of radiation on
potato tubers. Radiobiologia 4 no.1:144-149 '64. (MIRA 17:4)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

KRYUKOVA, L.M.; KASYMOV, A.

Role of radiotoxins in the disturbance of structural formation
in irradiated plants. Dokl. AN SSSR 156 no. 5:1204-1206 Je '64.
(MIRA 17:6)

1. Institut biologicheskoy fiziki AN SSSR. Predstavleno
akademikom A.L.Kursanovym.

BRESLAVETS, L.P.; KRYUKOVA, L.M.; KASYMOV, A.

Changes in the organelles of plant cells induced by extracts
from irradiated potato tubers. Fiziol. rast. 11 no.5:848-
852 S-O '64. (MIRA 17:10)

1. Institute of Biological Physics, U.S.S.R. Academy of Sciences,
Moscow.

KRYUKOVA, L.M.; KASYMOV, A.

Effect of ionizing radiation on the initial phases of growth
of thermophilic rice and mung bean plants. Uzb. biol. zhur.
8 no.6:5-7 '64. (MIRA 18:3)

1. Institut biofiziki AN SSSR.

L. 7765-66

ACC NR: AP5025927

SOURCE CODE: UR/0205/65/005/005/0735/0737

AUTHOR: Breslavets, L. P.; Kasymov, A.; Filippova, N. F.

ORG: Institute of Biological Physics AN SSSR, Moscow (Institut biologicheskoy fiziki AN SSSR)

TITLE: Cell division and structure of nuclei changes induced by irradiation and radiotoxin action

SOURCE: Radiobiologiya, v. 5, no. 5, 1965, 735-737

TOPIC TAGS: plant growth, radiation plant effect, mitosis, plant genetics, toxicology

ABSTRACT: Rye seeds (Vyatka variety) and 5 day old pea sprouts (Pobeditel' variety) were soaked for 24 hrs in extracts prepared from irradiated (Cs^{137} gamma-rays, 70 r/min, 50 kr dose) and nonirradiated potato tubers and also in water to investigate radiotoxin effects. After rye seeds and pea sprouts were washed off with water, they were allowed to germinate for 43 hrs and 24 hrs respectively. Then the rye and pea sprouts were fixed to determine mitotic indices and structural changes of nuclei. Results show that the effects of radiotoxins extracted from irradiated potato tubers are similar to those of direct irradiation: inhibition of cell mitosis, chromosome aberrations, and

Card 1/2

UDC: 58.039.1

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ACC NR: AP5025927

partial pyknosis of nuclei ("unilateral pyknosis"). The only difference is that the cell changes produced by radiotoxins are several times weaker than those produced by direct irradiation. This circumstance makes it possible to study in greater detail cellular changes that take place under radiation action. Orig. art. has: 3 tables.

SUB CODE: 06/ SUBM DATE: 17Jul64/ ORIG REF: 006/ OTH REF: 003

nw
Card 2/2

KASYMOV, A.G.

Larvae of Tendipedidae in some water basins of Azerbaijan. Dokl. AN Azerb. SSR 12 no. 5: 347-351. 1966. (MIRA 9:9)

1. Predstavleno akademikom AN Azerbaydzhanskoj SSR A.N. Derzhavinym. .
(Azerbaijan--Diptera) (Azerbaijan--Larvae)

KASUMOV, A.G.

Nutrition and speed of growth of the young of *Vimba vimba natio carinata* Pallas and *Chalcalburnus chalcoides schischkovi* Drensky in ponds [in Azerbaijani with summary in Russian]. Dokl. AN Azerb. SSR 12 no.10:723-730 '56. (MIRA 10:1)
(Krasnodar Territory--Fishes--Food)

KASYMOV, A.G.

KASYMOV, A.G.

Some data on the biology of the mollusk *Lymnaea stagnalis* L. [in
Azerbaijani with summary in Russian]. izv.AN Azerb.SSR no.1:91-99 Ja. '57.
(Krasnodar Territory--Snails)

KASYNOV, A.G.

Nutrition of the larvae of some Tendipedidae [in Azerbaijani with
summary in Russian]. Dokl. AN Azerb. SSR 13 no.2:209-213 '57.

(MLRA 10:7)

(Kura Valley--Chironomidae) (Larvae)

KASYMOV, A.G.

Studying the life cycle of the mollusk *Sphaerium (musculium)*
lacustre (Müll.); Dokl. AN Azerb.SSR 13 no.3:325-327 '57. (MIRA 10:7)

1. Institut zoologii Akademii nauk Azerbaydzhanskoy SSR. Predstavleno
akademikom Akademii nauk Azerbaydzhanskoy SSR A.N. Dershevinyam.
(Lamellibranchiata)

KASYNOV, A.G.

Tendipedid larvae (Tendipedidae) in the fresh waters of Azerbaijan.
Dokl. AN Azerb. SSR 14 no.5:401-405 '58. (MIRA 11:5)

1. Institut zoologii AN AzerSSR. Predstavleno akademikom AN AzerSSR
A.N. Derzhavinym.

(Azerbaijan--Chironomidae)

KASYMOV, A.G.

Benthos in the pond of a viaba and bleak hatchery. Izv. AN Azerb.
SSR, Ser. biol. i sel'khoz. nauk no. 2:49-54 '59. (MIRA 12:8)
(Psekups Valley--Fresh-water fauna) (Fishes--Food)
(Carp)

KASYMOV, A.G..

Azerbaijani species of water mites (Hydracarina) [in Azerbaijani
with summary in Russian]. Dokl. AN Azerb. SSR 15 no.4:345-346 '59.
(MIRA 12:6)

1. Institut zoologii AN Azerbaydzhanskoy SSR.
(Azerbaijan--Water mites)

DERZHAVIN, A.N.; KASYMOV, A.G.; ZHURAVLEV, M.V.; LIKHODEYEVA, N.F.

Materials on the hydrobiology of lakes in the mountain forest
zone of Azerbaijan. Trudy Inst.zool.AN Azerb.SSR 20:139-189
159.

(Azerbaijan--Fresh-water biology)

(MIRA 12:10)

KASYMOV, A.G.

Study of the flora and fauna of Varvara Reservoir. Izv. AN Azerb.
SSR. Ser. biol. i med. nauk no.5:103-108 '60. (MIRA 14:9)
(VAPVARA RESERVOIR--FRESH-WATER BIOLOGY)

KASYMOV, A.S.

Biology of the amphipod *Pontogammarus robustoides* (Grimm). Zool.
zhur. 39 no.8:1151-1155 Ag '60. (MIRA 13:8)

1. Institute of Zoology, Academy of Sciences of the Azerbaijan
S.S.R. (Baku).
(Azerbaijan--Amphipoda)

KASYMOV, A.G.; BABAYEV, G.B.

Bottom fauna of the tail waters of the Mingechaur Reservoir. Dokl.
AN Azerb. SSR 17 no. 2:147-150 '61. (MIRA 14:4)
(Mingechaur Reservoir--Fresh-water fauna)

KASYMOV, A.G.

Study of the feeding habits of larvae of *Procladius choreus* Meigen
(Diptera, Tendipedidae). Dokl. AN Azerb. SSR 17 no. 4: 341-344 '61.
(MIRA 14:6)
(Chironomidae)

KASYMOV, A.G.

Ecologic characteristics of the amphipod *Pontogammarus robustoides*
(Grimm) Mart. introduced into Mingechaur Reservoir. Vop. ekol.
5:92-93 '62. (MIRA 16:6)

1. Institut zoologii AN Azerbaydzhanskoy SSR, Baku.
(Mingechaur Reservoir--Gammaridae)
(Mingechaur Reservoir--Animal introduction)

KASYMOV, A.G.; KHALILOV, A.R.

Studying the metamorphosis of Tanytarsus lauterborni Kieffer in
Varvara Reservoir. Dokl. AN Azerb. SSR 18 no.1:89-91 '62.

(MIRA 15:3)

1. Institut zoologii AN AzSSR. Predstavleno akademikom AN AzSSR
A.N. Derzhavinym.

(Varvara Reservoir--Chironomidae) (Insects--Development)

DERZHAVIN, A.N.; KASYMOV, A.G.; ZHURAVLEV, M.V.; LIKHODEYEVA, N.F.

Hydrobiological investigation of the lower Kura River. Trudy Inst.
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[Hydrobiological and ichthyological studies in the southern Caspian Sea and inland bodies of water of Azerbaijan] Gidrobiologicheskie i ikhtiologicheskie issledovaniia na Iuzhnom Kaspii i vnutrennikh vodoemakh Azerbaidzhana. Baku, Izd-vo AN Azerbaidzhanskoi SSR, 1965. 168 p. (MIRA 18:6)

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SO: Sum 432, 29 Mar 55

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Pediatria no.2:32-36 Mr-Apr '54. (MLRA 7:6)

1. Iz kliniki gospiatal'noy pediatrii (zav. zasluzhennyi deyatel' nauki, prof. R.S.Gershenovich) pediatricheskogo fakul'teta Tashkentskogo meditsinskogo instituta.

(GASTROINTESTINAL DISEASES, in infant and child,

*with scurvy)

(SCURVY, in infant and child,

*in gastrointestinal dis.)

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D266/D308

26.2322

AUTHORS: Arifov, U. A. and Kasymov, A. Kh.

TITLE: A method of investigating the energy distribution of secondary electrons in electron bombardment of a metal

PERIODICAL: Radiotekhnika i elektronika, v. 8, no.1, 1963, 138-144

TEXT: The main advantage of the method is the simultaneous measurement of both the integral and the differential distribution. The scheme of the experimental apparatus can be seen in Fig. 1. The primary electron beam is accelerated by the electrodes 2 and while passing through the condenser 3 obtains a square wave modulation of 100 - 1000 cycles. The sample is located at 8, the induced secondary electrons are collected on 5 and the purpose of the grid 6 is to prevent ternary electron emission. The potential of the collector is modulated by the saw tooth generator 15 which at the same time controls the horizontal scale of the oscillograph 20 (collector current is on the vertical scale). At a different position of the switches 17 and 18 the sample is negatively biased in

Card 1/4

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D266/D308

A method of investigation ...

respect to the collector and the saw-tooth voltage is fed to the analyzer 11. The electrons of a selected velocity reach the photomultiplier 13 and the amplified current is displayed on the oscillograph 14 (horizontal scale controlled again by the saw-tooth voltage). Thus oscillograph 14 shows the number of electrons at a certain velocity v whilst the ordinate on oscillograph 20 is proportional to the total number of electrons which have a velocity larger than the corresponding potential difference between collector and sample. Measurements were carried out on specially prepared tantalum and molybdenum samples and the peaks of the results were in good agreement with previously reported measurements (O. W. Richardson, Proc. Roy. Soc. A., 1930, 128, 63, and Chorower, Phys. Rev., 1956, 102, 340). There are 6 figures.

SUBMITTED: March 19, 1962

Card 2/4

A method of investigating ...

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D266/D308

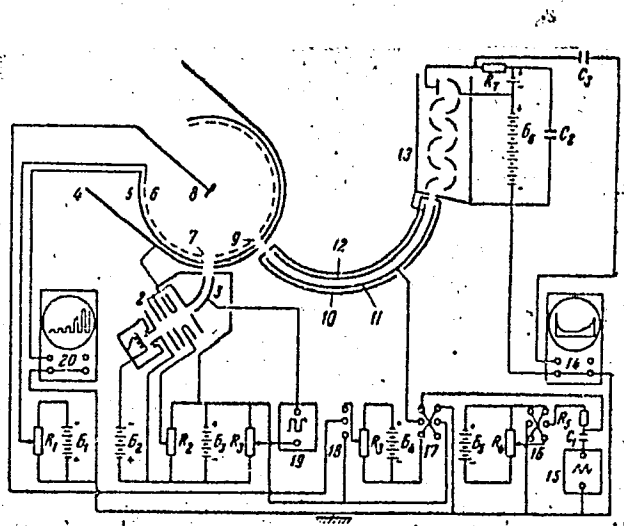


Fig. 1

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A method of investigating ...

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D266/D308

Figure caption:

Apparatus and measurement scheme: 1 - heating coil; 2 - electrostatic lenses; 3 - cylindrical condenser; 4 - shielding cylinder; 5 - collector; 6 - grid; 7 - slot; 8 - sample; 9 - slot; 10 - shield; 11, 12 - cylindrical condenser; 13 - photomultiplier; 14, 20 - oscillographs; 15 - saw-tooth generator; 16, 17, 18 - switches; 19 - square wave generator. 1 to 6 - batteries. ✓

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Pathophysiology of the Nervous System, Institute of Normal and Pathological
Physiology, and essay

J. 8/18-65 EPA(s)-2/EWP(m)/EPP(n)-2/EPA(ss)-2/EWP(q)/EWP(b) Pt-10/Pub. IIP(o)/
ESD(ss)/ESD(L)/RAM(L) WW/JD/JD
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~~... previously established. This confirms the fact previously expressed by the author that the complete spectrum of the procedure~~

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ENCLOSURE 01

KUZIN, A.M.; KASYMOV, A.K.

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