APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Ludvik, inz.

The new in anodic aluminum oxidation. Tech praca 15 no. 6: 445-446 Je '63.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Ludvik, inz.

Plates. Stroj vyr 11 no.8:396-397 Ag '63.

1. Sfinx, n.p., Ceske Budejovice.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Lubomir, inz.

Cooperation between the Czechoslovak and Polish rescue teams. Uhli 7 no.3:100-101 '65.

1. Main Mine Emergency Station, Ostrava-Radvanice.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, L., inz.

The portable apparatus for respirator control MSD-9. Hutn
10 no.1:30-31 Ja '62.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

KOLAR, Otakar; MAJER, Karel

Predetermination of the covering power of white paints. Chem prum 14 no.7:362-365 Jl '64.

1. Research Institute of Synthetic Resins and Lacquers, Pardubice.

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CZECHOSLOVAKIA

HAJEK, Karol [Affiliation not given.]

"Regarding the Relationship of Biology and Philosophy."

Bratislava, Biologia, Vol 18, No 9, 1963; pp 706-710.

Abstract : Starting from Engels and Lenin and their latter-day Soviet commentators and interpreters, author discusses requirements and conditions which would most assuredly benefit biology and derive from these basic materialistic and dialectic principles. Examples: DNA, definition of life, including extraterrestrial life.

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KOLAR, Otakar; HAJEK, Karel

Coloration of white pigments. Chem prum 14 no. 3: 128-132 Mr '64.

1. Research Institute of Synthetic Resins and Lacquers, Pardubice.

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HAJEK, Karel, KOLAR, Otakar

Simple method for determining the covering capacity of coating paints. Chem prum 15 no.4:241-242 Ap '65.

1. Research Institute of Synthetic Resins and Lacquers, Pardubice. Submitted June 1, 1964.

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KOLAR, Otakar; HAJEK, Karel

Simplified methods for determining the covering power of white pigments and coating paints. Chem prum 13 no.1:41-45 Ja '63.

1. Vyzkumny ustav syntetickych pryskyric a laku, Pardubice.

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HAJEK, K.

"Water-management plan for 1950." p.145

VODNI HOSPODARSTVI (Ustredni sprava vodniho hospodarstvi) Praha, Czechoslovakia, no. 4, April, 1950.

Monthly List of East European Accessions (EEI) LC, Vol. 8 No. 6, June 1959

Uncl.

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Hadan, Z.

Soil classification according to difficulties in plowing and efficiency standards in plowing. p. 444. (MECHANISACE ZEMEDELSTVI, Vol. 6, No. 23, Dec 1956, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

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HA[illegible], [illegible].

The air [illegible] method as a means for determining the structure of fibers.

p. 2[illegible] (Veda a Vyzkum v Prumyslu Textilnim. No. 1, [illegible], [illegible], Czechoslovakia)

Monthly Index of East European Accessions ([illegible]) [illegible]. Vol. 7, no. [illegible],
February 1958

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ILLEGIBLE

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HAJEK, Jiri, inz.

"Automation of the heat conditions of industrial furnaces" by Jindrich Spal. Reviewed by Jiri Hajek. Stroj vyr 12 no.1:70 Ja'64.

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HAJEK, J.

Shortened impedance tensor in the analysis of electric circuits.
El tech cas 13 no. 3:184-187 '62.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Jaroslav, inz., dr.

One-way network for electrical repetition models. Slaboproudy obzor 22 no.7:419-423 '61.

1. Ustav pristrojove techniky Ceskoslovenske akademie ved.

(Electronics)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

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S/271/63/000/002/008/030
A060/A126

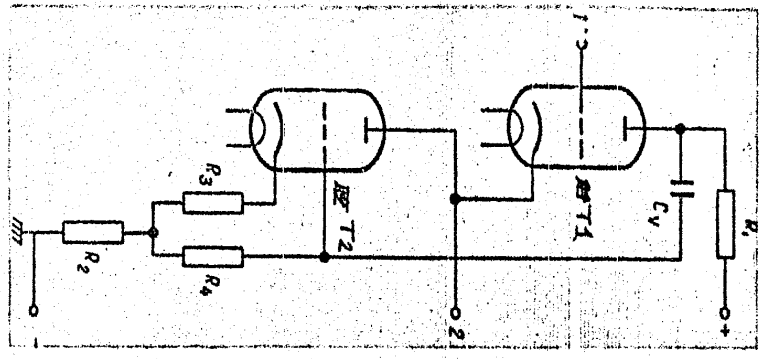
Cathode follower circuit with two electronic tubes

hard to realize under ordinary conditions on account of the great difference of potential between the plate of T1 and the grid of T2. There are 3 figures.

[Abstracter's note: Complete translation]

A. K.

Figure.



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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

S/271/63/000/002/008/030
A060/A126

AUTHOR: Hájek, Jaroslav

TITLE: Cathode follower circuit with two electronic tubes

PERIODICAL: Referativnyy zhurnal, Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, no. 2, 1963, 27, abstract 2A170P (Czech. pat. cl. 21e, 30/10; 21 a^2, 18/08, no. 97995, January 15, 1961)

TEXT: Patent is granted to the circuit of a cathode follower using two tubes connected in series anode-to-cathode (see Figure). The input signal is fed to the grid of the tube T1 and to ground, and the output voltage is taken off between the common junction of the cathode of T1 and the plate of T2, and ground. The plate of T1 is connected in the usual way through a resistor R_1 to a power source. The circuit is distinguished by the connection of an additional resistor R_2 betwen the junction point of the cathode resistor R_3 and the resistor R_4 in the grid circuit of T2 and the negative pole of the plate supply. The frequency range of the circuit is wider than that using the usual connection. The circuit amplifies a constant signal because of the insertion of R_2 which is

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HAJEK, J.

1093. MEASUREMENTS ON SINGLE PULSES. J.Hájek. [illegible]

Several methods of measurement of the amplitude and duration of the pulses of a given shape are evaluated, and the description and theory of an instrument for the measurement of microsecond pulses are given. The method of measurement is based on the principle of pulse stretching which is performed in a cathode-follower circuit, whose output is fed through a diode to a two-stage RC network. Output of this network is applied to another cathode follower and, thence, to a metering circuit. The meter circuit employs two galvanometers, one of which reads the amplitude and the other the duration of a pulse. The reading is on for about 5 secs, after which it is cancelled by means of a phantastron circuit. The instrument is capable of measuring amplitudes up to 200 V and durations from 3 to 30 μs. The slope of the measured pulses should not exceed 100 V/μs and their rise time should be less than 10 μs. Accuracy of the device is ±5%. The paper contains 27 references.

R.S.Sikorowicz

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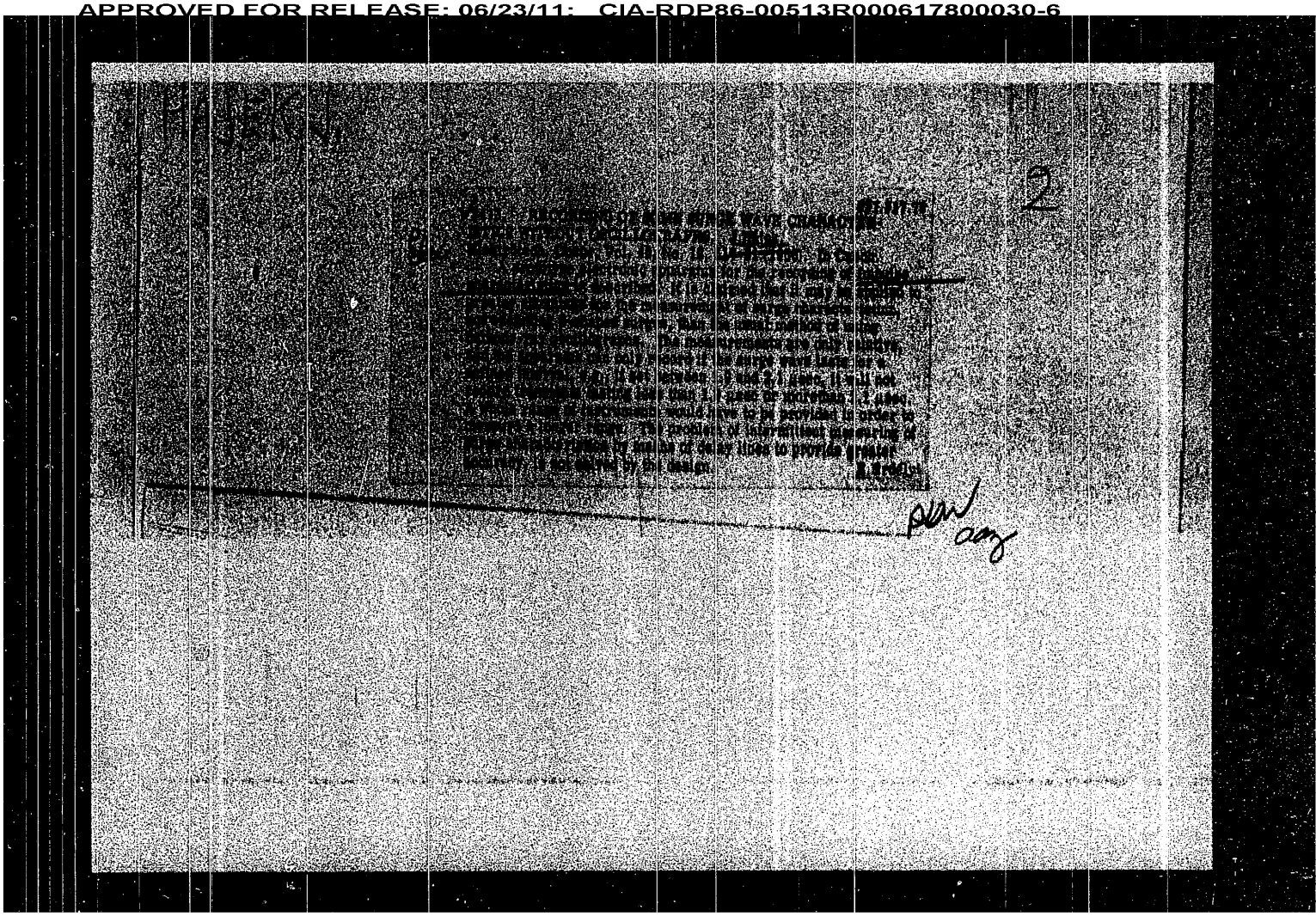

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HAJEK, JAROSLAV

CZECHOSLOVAKIA / Radiophysics. Radio Measurements. I-7

Abs Jour : Ref Zhur - Fizika, No 5, 1957, No 12597

Author : Hajek Jaroslav, Jirku Jaroslav

Inst : Power Institute, Brno, Czechoslovakia

Title : Investigation of Pulse Processes with the Aid of the "Analogon."

Orig Pub : Elektrotechn. obzor, 1956, 45, No 10, 504-510

Abstract : Description of the construction and possible application of a new generator with impact excitation, called by the author the "analogon". It is indicated that this generator is most advantageously used for the investigation of transient phenomena in power systems.

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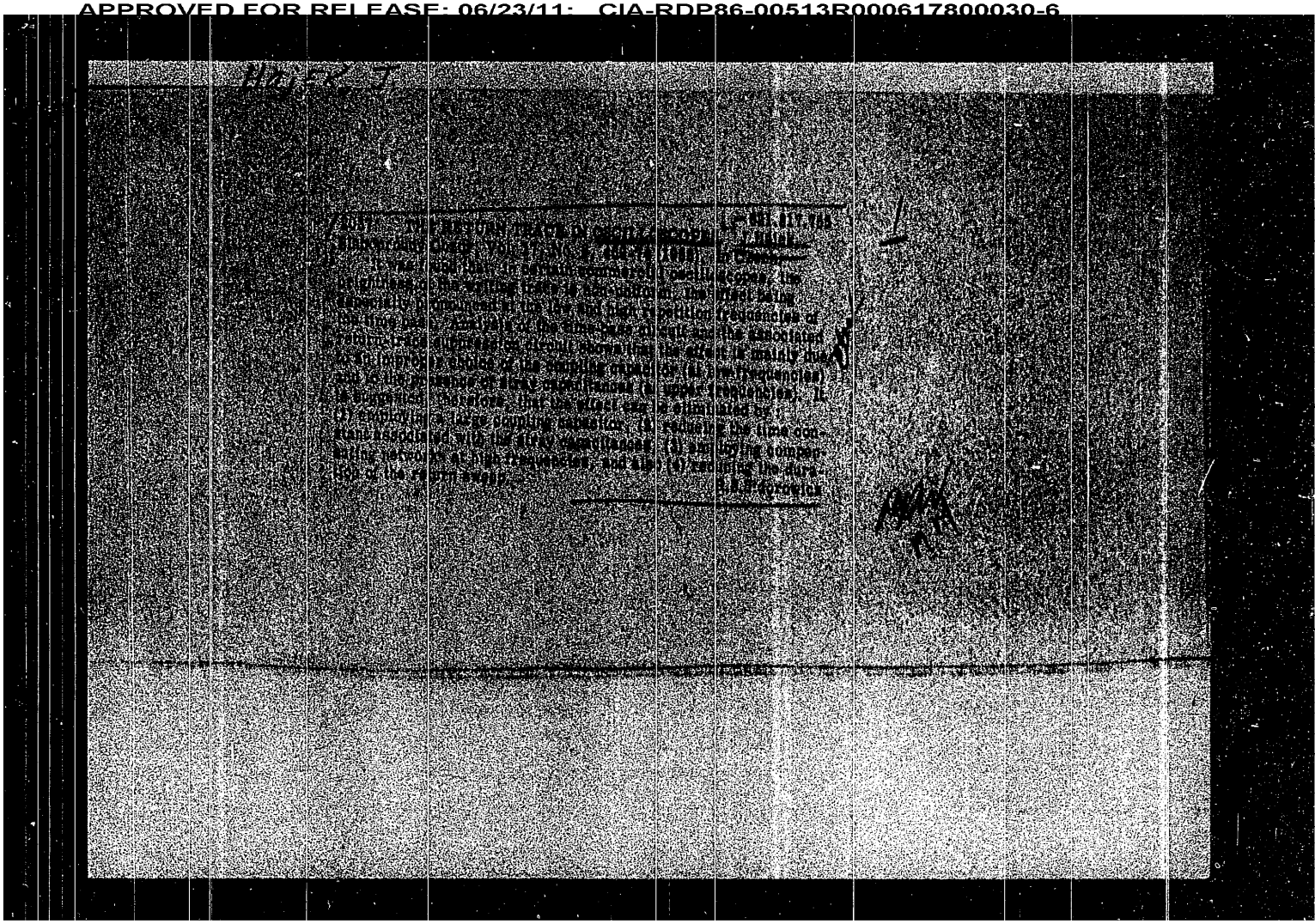

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[illegible], J.; [illegible], Z.; [illegible] A., I.

A few problems of special cathode-ray oscillographs. p. 349.
([illegible] Vol. 17, No. 6, June 19[illegible], Prahr, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 1, Jan 19[illegible]. Uncl.

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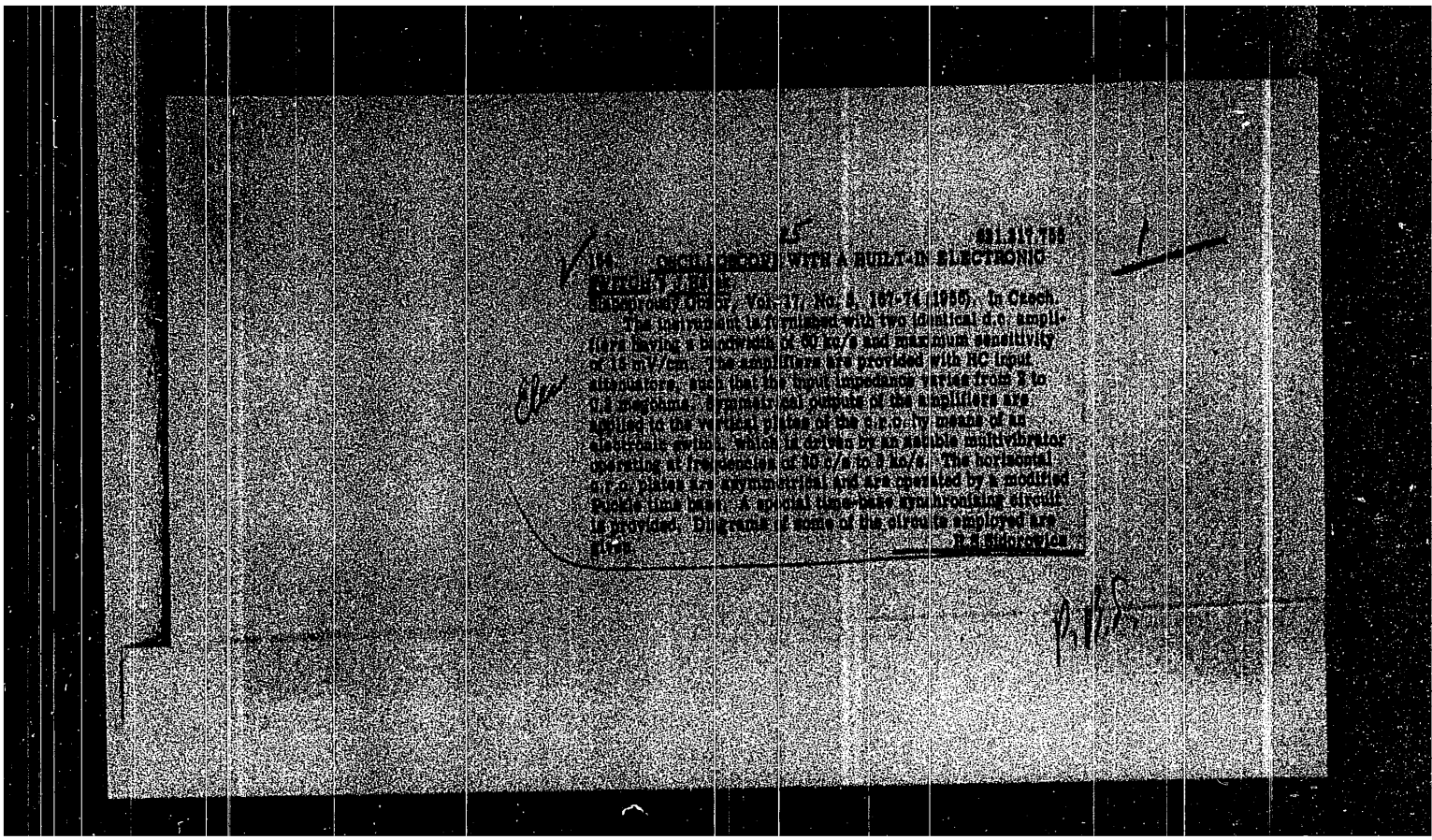

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HAJEK, J.

Voltage shock wave analogue generator. p. 579.
SLABOPROUDY OBZOR, Prague, Vol. 16, no. 11, Nov. 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

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HAJEK, J.; CHALUPA, Z.

"Measuring on the cathode-ray oscilloscope." p. 299

SDELOVACI TECHNIKA. Praha, Czechoslovakia, Vol. 3, No. 10, Oct., 1955

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September, 1959
Unclas

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[illegible], J.

[illegible] article "[illegible]" [illegible]

[illegible]. Prague.

[illegible]

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HAJEK, J.

The conditions of rectification. p. 39.
(ELEKTROTECHNICKY OBZOR., Vol. 42, no. 1, Jan. 1953, Czechoslovakia)

SO: Monthly List of East European Accessions, Vol 2 #8, Library of Congress, August 1953, Uncl.

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HAJEK, Jaroslav, DrSc.

Report on the trip of Jaroslav Hajek to the United States.
Cas pro pest mat 89 no.1:127 F '64.

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D234/D308

Minimization of costs ...

$$D_0 = \sum_{j=1}^{H} D_j = \sum_{j=1}^{H} \frac{d_j}{r_j} - d_0 \qquad (6.2)$$

is considered in detail. A numerical example is given, and connections with the theory of games are stated. A method of solution is described for the case when the costs are nonlinear in r_h. There are 2 tables.

SUBMITTED: September 30, 1961

Card 3/3

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Minimization of costs ...

$$a_{jh} = \frac{c_h d_{jh}}{b_j + d_{j0}} \quad (1 \leqq j \leqq J,\ 1 \leqq h \leqq H) \tag{3.3}$$

Then the minimizing values of $r_1, r_2 \ldots r_H$ are

$$r_h^0 = \frac{1}{c_h} \left(\sum_{j=1}^{J} a_{jh} p_j^0 \right)^{1/2} \sum_{k=1}^{H} \left(\sum_{j=1}^{J} a_{jk} p_j^0 \right)^{1/2} \quad (1 \leqq h \leqq H) \tag{3.1}$$

Conditions for determining the values of j such that $p_j = 0$ are given, The special case

$$D_j = \frac{d_j}{r_j} - d_{j0} \quad (1 \leqq j \leqq H) \tag{6.1}$$

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Z/026/62/007/006/001/005
D234/D308

AUTHOR: Hájek, Jaroslav

TITLE: Minimization of costs with desired accuracy reached simultaneously in several estimations

PERIODICAL: Aplikace matematiky, v. 7, no. 6, 1962, 405-423

TEXT: The author deals with the problem considered by T. Dalenius (Sampling in Sweden, Almqvist and Wiksell, Stockholm, 1957), and reduces it to

$$\sum_{h=1}^{H}\left(\sum_{j=1}^{J} a_{jh}p_j^o\right)^{1/2} = \max_{p_1,\ldots,p_J} \sum_{h=1}^{H}\left(\sum_{j=1}^{J} a_{jh}p_j\right)^{1/2} \qquad (3.2)$$

where

$$p_j \geqslant 0, \quad \sum p_j = 1, \text{ and}$$

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HAJEK, J. (Praha)

Concerning relative acuracy of stratified and systematic smapling in a plane. Col math 8 no.1:133-134 '61. (EEAI 10:5)
(Probabilities)
(Sampling (Statistics))
(Distribution (Probability theory))

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$$\| E_0 \hat{\alpha}_\nu \bar{\hat{\alpha}}_\mu \|_{\nu,\mu=1}^{m} = D^{-1} \qquad (4.10)$$

Best linear estimates of parameters $\theta = \sum c_\nu \alpha_\nu$ equal $\hat{\theta} = \sum c_\nu \hat{\alpha}_\nu$.

Three examples are considered. The author mentions A.M. Yaglom. He thanks Professor A.N. Kolmogorov for aid. There are 5 Soviet-bloc and 4 non-Soviet-bloc references. The references to the two English-language publications read as follows : L.A. Zadeh and J.R. Ragazzini, An extention of Wiener's theory of prediction. Journ.Appl. Physics,21 (1950), 645-655. M. Blum, Generalization of the class of nonrandom inputs of the Zadeh - Ragazzini prediction model, IRE Trans.Inform.theory, IT-2 (June 1956), 76-81.

SUBMITTED: September 19, 1960

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estimate of

$$\theta_0(\alpha) = E_\alpha(y - y_0) .$$

It holds that

$$E_0|y - y|^2 = E_0|y - y_0|^2 + E_0|\hat{\theta}_0|^2 . \qquad (4.6)$$

Theorem 4.2. Suppose that no $\alpha \neq (0, \ldots, 0)$ fulfills the relation (3.2), i.e. that the functions $\varphi_{\nu t}$, $1 \leq \nu \leq m$ are linearly independent. Introduce the matrix

$$D = \| E_0 v_{\nu 1} \bar{v}_{\mu 1} \|_{\nu,\mu=1}^{m} \qquad (4.8)$$

where $v_{\nu 1}$ are determined by (4.4), and denote the best linear estimates of $\alpha_1, \ldots, \alpha_m$ by $\hat{\alpha}_1, \ldots, \hat{\alpha}_m$.

Then

$$\begin{bmatrix} \hat{\alpha}_1 \\ \vdots \\ \hat{\alpha}_m \end{bmatrix} = D^{-1} \begin{bmatrix} v_n \\ \vdots \\ v_{m-1} \end{bmatrix} \qquad (4.9)$$

and

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$$E_{\alpha}x = E_{0}x\bar{v}_{\alpha} \quad (x \in \mathfrak{M}_{0}) \tag{4.2}$$

and the class $V = \{v_{\alpha}, \alpha \in A_{m}\}$ represents the class of all best linear unbiassed estimates of estimable parameters $\theta \in A^{+}_{m-p}$. It holds $V = W$ but in general $v_{\alpha} \neq w_{\alpha}$, $\alpha \in A_{m}$.

Theorem 4.1. If the model is regular, then a random variable $v^{\theta} \in V$ determined by (4.2) is the best linear estimate for

$$\theta = \sum_{\gamma=1}^{m} \alpha_{\gamma} E_{0}(v^{\theta}\bar{v}_{\gamma 1}) \tag{4.3}$$

where $v_{\gamma 1}$, $1 \leq \gamma \leq m$, are determined by

$$E_{\gamma 1}x = E_{0}x\bar{v}_{\gamma 1} \quad (x \in \mathfrak{M}_{0}) \tag{4.4}$$

The best linear unbiassed estimate of the random variable y, considered in theorem 3.2, equals

$$\hat{y} = y_{0} + \hat{\theta}_{0} \tag{4.5}$$

where y_{0} is the projection of y on $\mathfrak{M}_{0}$ and $\hat{\theta}_{0}$ is the best linear

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$$\hat{y} = y_1 + \hat{\theta}_1 \tag{3.18}$$

where $\hat{\theta}_1$ is the best linear unbiassed estimate of θ_1. It holds that

$$E_0|y - y|^2 = E_1|y - y_1|^2 + E_1|\theta_1|^2 \quad . \tag{3.19}$$

If (3.3) is satisfied for all $\alpha \in A_m$ (regular model) then the P_0-distribution may serve as the dominating distribution. The set of in-mean-limits via $P_0(\cdot)$ coincides with the set $\mathfrak{M}$. The set $\mathfrak{M}$ in which random variables with $P_0(x=y) = 1$ are considered as identical and the inner product

$$[x, y] = E_0 xy \tag{4.1}$$

is introduced, is a Hilbert space $\mathfrak{M}_0$. The mean values $E_\alpha x$ are linear functionals on $\mathfrak{M}_0$ so that for any $\alpha \in A_m$ there exists a $v_\alpha \in \mathfrak{M}_0$ so that

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the relations

$$E_{\alpha}x = E_1 x \bar{w}_{\alpha} \quad (x \in \mathfrak{M}_1) \quad . \tag{3.4}$$

The relation between a parameter $\theta \in A^{+}_{m-p}$ and its best linear unbiassed estimate v^{θ} is given by the equation

$$\theta = \sum_{\nu=1}^{m} \alpha_{\nu} E_1(v^{\theta} \bar{w}_{\nu 1}) \tag{3.5}$$

where $w_{\nu 1}$, $1 \leq \nu \leq m$, are uniquely determined by the relations

$$E_{\nu 1}x = E_1 x \bar{w}_{\nu 1} \ (x \in \mathfrak{M}_1) \tag{3.6}$$

Theorem 3.2. Suppose that $E_{\alpha} y = \theta(\alpha)$ is estimable and denote the projection of y on $\mathfrak{M}_1$ by y_1. Then

$$\theta_1(\alpha) = E_{\alpha}(y - y_1) \tag{3.17}$$

is also estimable and the best linear unbiassed estimate of y say $\hat{y}$, exists, is unique, and equals

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A $\theta \in A_m^+$ for which a linear unbiassed estimate exists is called estimable.
A $\theta \in A_m^+$ for which a linear unbiassed estimate with variance zero exists is called exactly estimable.

Theorem 3.1. A parameter $\theta \in A_m^+$ is estimable if, and only if, $\theta(\alpha) = 0$ for $\alpha \in A_p$, i.e. for all the α's satisfying (3.2). The estimable θ's form a linear subspace A_{m-p}^+ of dimension m-p .

A parameter $\theta \in A_{m-p}^+$ is exactly estimable if, and only if, $\theta(\alpha) = 0$ for $\alpha \in A_q$, i.e. for all the α's satisfying (3.3). The exactly estimable θ's form a linear subspace A_{m-q}^+ of dimension m-q.

Each estimable parameter θ possesses a unique best linear unbiassed estimate. The class of the best linear unbiassed estimates forms an (m-p)-dimensional linear subspace of $\mathcal{M}_1$, say W, and this subspace consists of random variables $w_\alpha \in \mathcal{M}_1$, $\alpha \in A_m$, uniquely determined by

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$\mathsf{E}_1 xy$ $(x \in \mathfrak{M})$ forms a Hilbert space $\mathfrak{M}_1$. The set $\mathfrak{M}_1$ will represent the class of admissible linear estimates.
Let A_p denote the p-dimensional linear subspace of A_m consisting of the α for which it holds

$$\sum_{\gamma=1}^{m} \alpha_\gamma \varphi_{\gamma t} = 0 \quad (t \in T) \tag{3.1}$$

(3.1) is equivalent with

$$\mathsf{E}_\alpha x = 0 \quad (x \in \mathfrak{M}_1) \quad . \tag{3.2}$$

Let A_q be a subspace of A_m consisting of those α for which there exists a finite constant K_α so that

$$\mathsf{E}_\alpha |x|^2 \leq K_\alpha \mathsf{E}_0 |x|^2 \quad (x \in \mathfrak{M}_1) \tag{3.3}$$

is valid. It holds $0 \leq p \leq q \leq m$, $A_p \subset A_q$.

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$$E_\alpha v = \theta(\alpha) , \quad (\alpha \in A_m) \qquad (2.5)$$

and a best unbiassed estimate of y if, under the restriction of (2.5), $E_0|v - y|^2$ is a minimum. The estimates are chosen in the class of statistics which either are finite linear combinations of random variables x_t, $t \in T$ or are in-mean-limits of such combinations. Let M denote the set of all finite linear combinations $x = \sum c_j x_{t_j}$. Let $P_1(\cdot)$ be a probability distribution which dominates over all the distributions $P_\alpha(\cdot)$ in the following sense: For any $\alpha \in A_m$ there exists a finite constant K_α so that

$$E_\alpha |x|^2 \leq K_\alpha E_1 |x|^2 \quad (x \in M) \qquad (2.6)$$

where K_α is independent of $x \in M$. Let $\mathfrak{M}$ be the set of in-mean-limits via $P_1(\cdot)$. The set $\mathfrak{M}$ in which the random variables with $P_1(x=y) = 1$ are considered as identical and an inner product is introduced, $[x,y] =$

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The author uses the notation $E_\alpha(\cdot) = \int(\cdot)\,d\,P_\alpha$. He seeks best linear unbiassed estimates for linear functionals θ defined on $\alpha \in A_m$:

$$\theta = \theta(\alpha) = \sum_{\nu=1}^{m} c_\nu \alpha_\nu \quad , \tag{2.3}$$

where $c_1, \ldots, c_m$ are real or complex numbers. The space of all θ (for different $c = (c_1, c_2, \ldots, c_m)$ is denoted by A_m^+. The linear functionals θ are called parameters.
The problem can be defined more general as follows: Try to estimate a random variable y so that for $\theta \in A_m^+$ it holds

$$E_\alpha y = \theta(\alpha) \quad , \quad (\alpha \in A_m) \quad , \tag{2.4}$$

and that the variance of y and the covariances of y and x_t, $t \in T$, are independent of $\alpha \in A_m$. A random variable v is called an unbiassed estimate of y if

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16.6100 25016 S/052/61/006/002/003/006
C111/C222

AUTHOR: Hajek, Jaroslav

TITLE: On linear estimation theory for an infinite number of observations

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, v.6, no.2, 1961, 182-193

TEXT: Let A_m - - m-dimensional vector space ; T - - arbitrary set ; $\alpha = (\alpha_1, \ldots, \alpha_m) \in A_m$; $\varphi_{1t}, \ldots, \varphi_{mt}$ - m - - known functions of $t \in T$. The author considers : a family of random variables $\{x_t, t \in T\}$ and the system of probability distributions of this family $P_\alpha(\cdot)$, $\alpha \in A_m$, with the following first and second moments

$$E_\alpha x_t = \sum_{\gamma=1}^{m} \alpha_\gamma \varphi_{\gamma t} \quad (\alpha \in A_m, t \in T) , \tag{2.1}$$

$$E_\alpha x_t \overline{x_s} = E_0 x_t \overline{x_s} + E_\alpha x_t \, E_\alpha \overline{x_s} \quad (\alpha \in A_m ; t, s \in T) . \tag{2.2}$$

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HAJEK, Jaroslav (Prague)

Limiting distributions in simple random sampling from a finite population. In English. Mat kut kozl MTA 5 no.3:361-374 '60.
(EEAI 10:8)

1.Mathematical Institute of the Czechoslovak Academy of Sciences, Prague.
(Distribution(Probability theory))
(Sampling(Statistics)) (Probabilities) (Convergence)

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HAJEK, Jaroslav (Praha)

Optimum strategy and other problems in probability. Cas pro pest mat 84 no.4:387-423 '59 (EEAI 9:3)
(Probabilities) (Sampling (Statistics))

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, J.

"Simple algebraic stability conditions." p. 176.

SLABOPROUDY OBZOR. (MINISTERSTVO PRESNEHO STROJIRENSTVI, MINISTERSTVO SPOJU A VEDECKA TECHNICKA SPOLECNOST PRO ELEKTROTECHNIKU PRI CSAV.) Praha, Czechoslovakia, Vol. 20, no. 3, Mar. 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959. Uncl.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

V Hájek, Jaroslav. Predicting a stationary process when the correlation function is convex. Czechoslovak Math. J. 8(83) (1958), 150–154. (Russian summary)

Let x_t, $-\infty<t<\infty$ be a wide sense stationary process with known mean μ, variance σ^2 and correlation function R_τ. Consider the linear predictor

$$\text{Pred } x_{t+\Delta} = \mu + \sum_{i=1}^{n} a_i(x_{t_i}-\mu),\ t_1<\cdots<t_n=t<t+\Delta,\ n\geq 1.$$

The author proves that if R_τ is convex then the residual variance for this predictor satisfies the inequality

$$D[x_{t+\Delta}-\text{Pred } x_{t+\Delta}]\geq\sigma^2(1-R_\Delta).$$

Since the variance for the best linear prediction based only on x_t is $\sigma^2(1-R_\Delta^2)$ this shows that in the case of a convex correlation function the relative reduction of the residual variance attainable by making use of any number of preceding observations cannot exceed 50%.

J. L. Snell (Palo Alto, Calif.)

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1-F\W

Hájek, Jaroslav. A property of J-divergences of marginal probability distributions. Czechoslovak Math. J. 8(83) (1958), 460–463. (Russian summary)

Consider two arbitrary probability distributions P and Q on a Borel field F of subsets Λ of a space $\Omega=\{\omega\}$, and let P_a and Q_a, $a\in A$, be corresponding "marginal" distributions on Borel sub-fields $F_a\subset F$, defined by $P_a(\Lambda)=P(\Lambda)$, $Q_a(\Lambda)=Q(\Lambda)$ for $\Lambda\in F_a$, $a\in A$. J-divergence J_a between distributions P and Q on the Borel field $F_a\subset F$ is the number

$$J_a=\int\left(\frac{p_a}{q_a}-1\right)\log\frac{p_a}{q_a}\,dQ \text{ if } P_a\equiv Q_a,$$

$$J_a=\infty \text{ if } P_a\not\equiv Q_a,$$

where $P_a\equiv Q_a$ denotes that $[Q(\Lambda)=0]\Leftrightarrow[P(\Lambda)=0]$ for $\Lambda\in F_a$, and $p_a/q_a=dP_a/dQ_a$ is the Radon-Nikodym derivative of P_a with respect to Q_a. This definition is that of Kullback and Leibler [Ann. Math. Statist. 22 (1951), 79–86; MR 12, 623] extended to the case when $P_a\not\equiv Q_a$ and is a form introduced by Jeffreys [Proc. Roy. Soc. London, Ser. A. 186 (1946), 453-461; MR 8, 163]. The author proves that the J-divergence of any two probability distributions of any stochastic process equals the supremum of J-divergences of finite-dimensional marginal distributions. If this supremum is finite then the distributions are absolutely continuous with respect to each other. *S. Kullback* (Washington, D.C.)

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HAJEK, J.

Theory of ratio estimates. p. 384.

APLIKACE MATEMATIKY: (Ceskoslovenska akademie ved. Matematicky ustav) Praha, Czechoslovakia. Vol. 3, no. 5, 1958.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, no. 12, December 1959 Uncla.

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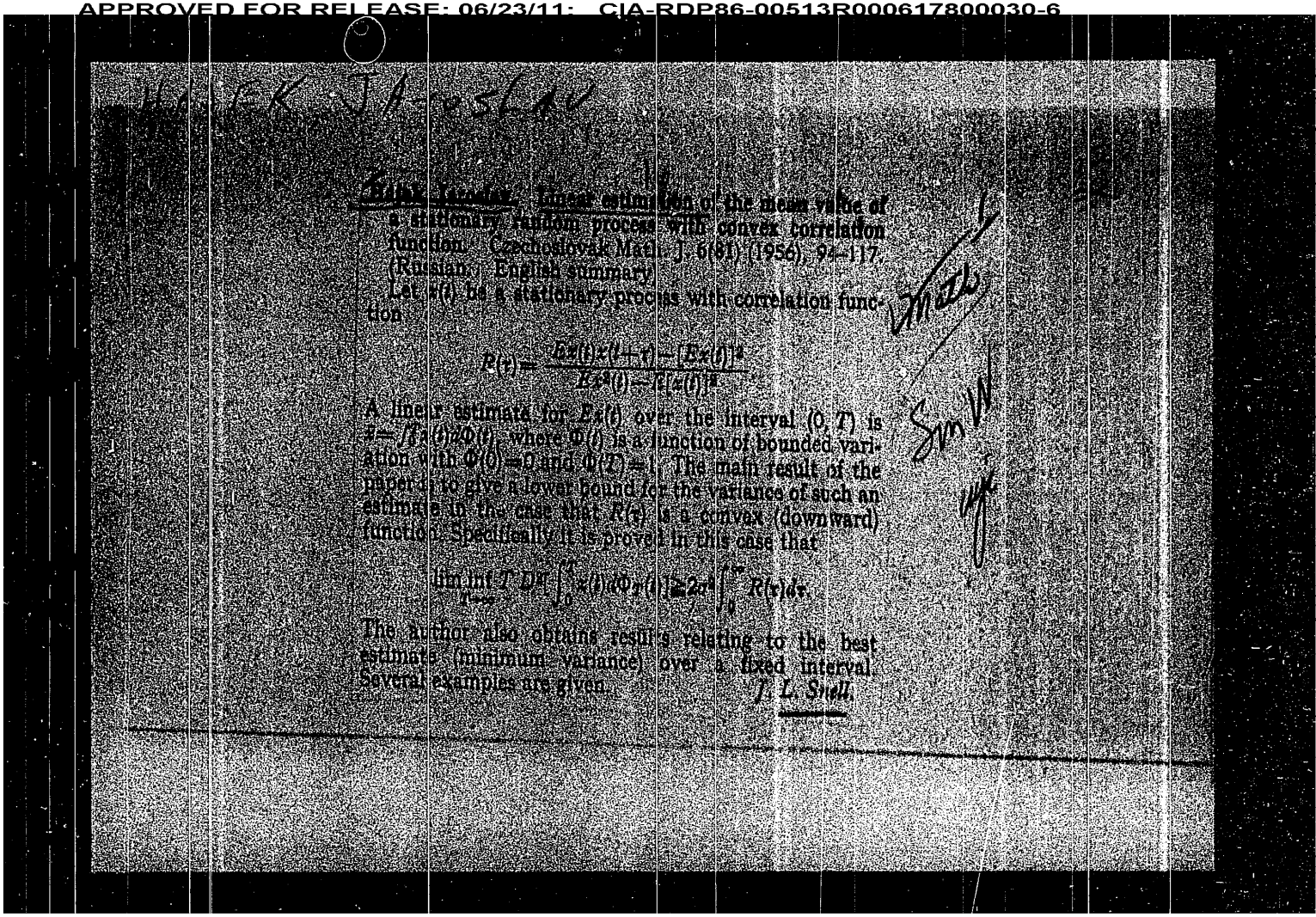

Parzen, Emanuel. Linear estimation of the mean value of a stationary random process with convex correlation function. Czechoslovak Math. J. 6(81) (1956), 94–117. (Russian. English summary)

Let $x(t)$ be a stationary process with correlation function

$$R(\tau)=\frac{Ex(t)x(t+\tau)-[Ex(t)]^2}{Ex^2(t)-[Ex(t)]^2}.$$

A linear estimate for $Ex(t)$ over the interval $(0, T)$ is $\xi=\int_0^T x(t)d\Phi(t)$, where $\Phi(t)$ is a function of bounded variation with $\Phi(0)=0$ and $\Phi(T)=1$. The main result of the paper is to give a lower bound for the variance of such an estimate in the case that $R(\tau)$ is a convex (downward) function. Specifically it is proved in this case that

$$\liminf_{T\to\infty} T\,D^2\left[\int_0^T x(t)d\Phi_T(t)\right]\geq 2\pi\int_0^\infty R(\tau)d\tau.$$

The author also obtains results relating to the best estimate (minimum variance) over a fixed interval. Several examples are given.

J. L. Snell

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Hájek, Jaroslav

Hájek, Jaroslav. Remark on the article "On certain sequences of sets of points on a circle". Časopis Pěst. Mat. 81 (1956), 77–78. (Czech)

The author gives a shorter proof of the result (i) of the paper reviewed above by showing: if $a_i^{(k)}$ $(i=0, \cdots, n-1)$ are n sequences of real numbers defined recursively by

$$a_i^{(k+1)}=(1-b)a_i^{(k)}+ba_{i+1}^{(k)},$$

where $0<b<1$ and $a_n^{(k)}=a_0^{(k)}$, then

$$\lim_{k\to\infty} a_i^{(k)}=\sum_{m=0}^{n-1} a_m^{(1)}/n.$$

The author also observes that the result follows directly from the theory of Markov chains. *F. A. Behrend.*

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HAJEK, JAROSLAV

2

Hájek, Jaroslav. The asymptotic efficiency of a certain sequence of tests. Czechoslovak Math. J. 6(81) (1956), 26–30. (Russian. English summary)

Let $X_1, \cdots, X_n$ be n identically and independently distributed chance variables and $k<n$. The α_k-test is defined by $\alpha_k = \sum_{1 \le i_1 < \cdots < i_k \le n} \varphi(X_{i_1}, \cdots, X_{i_k})$, where $\varphi(x_1, \cdots, x_k) = 1$ or 0 depending on whether $x_1 + \cdots + x_k > 0$ or not. The asymptotic efficiency (in the sense of Pitman) of the α_k-test with respect to the t-test (assuming normality) is found to be $e_k = (k \arcsin 1/k)^{-1}$. For $k=1$, we have the sign test with asymptotic efficiency $2/\pi$. Further, $e_2 = 3/\pi$. It turns out that $\alpha_1 + \alpha_2$ is Wilcoxon's signed rank test having the same asymptotic efficiency as α_2. (It would appear from the paper that the author is not aware of Wilcoxon's work.) *G. E. Noether* (Boston, Mass.).

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HAJEK, J.

Some basic problems of mathematical statistics. P. 387
CASOPIS PRO PESTOVANI MATEMATIKY Czechoslovakia Vol. 80,
No. 4, Nov. 1955

SOURCE: EEAL IC Vol. 5, no. 7, July 1956

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HÁJEK JAROSLAV

Hájek, Jaroslav. Some rank distributions and their applications. Časopis Pěst. Mat. 80 (1955), 17–31. (Czech. Russian and English summaries)

The random variables α, β, γ are defined as follows: Let A_i $(i=1, 2, \ldots, 2^N)$ be all different subsets of $\{1, 2, \ldots, N\}$, each having the same probability 2^{-N}; denoting by A one of these subsets obtained at random, define α as the sum of the numbers in A. Similarly, let P_i $(i=1, 2, \ldots, N!)$ be all permutations of $(1, 2, \ldots, N)$, each having the same probability $(N!)^{-1}$, denoting by P one of them obtained at random, define γ as the number of inversions in P. Let C_i $(i=1, 2, \ldots, \binom{N}{n})$ be all combinations of n elements from $\{1, 2, \ldots, N\}$, each having probability $\binom{N}{n}^{-1}$, denoting by C one of these combinations obtained at random, define β as the number of inversions between C and its complement in $\{1, 2, \ldots, N\}$. The probability distributions of these random variables are studied, also asymptotically for N large, and used for constructing tests of various hypotheses, some known (e.g. the Wilcoxon-Mann-Whitney test) and some new.

Z. W. Birnbaum (Seattle, Wash.)

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HAJEK, J.

Generalization of an inequality of Kolmogorov. in English. p. 281
Vol. 5, no. 3/4, 1955.

so: East European Accessions List Vol. 5, No. 7, July 1956.

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L 31234-66
ACC NR: AP6022773 SOURCE CODE: CZ/0039/66/027/001/0037/0042

AUTHOR: Hajek, Jaroslav (Doctor; Engineer); Bulka, Miroslav (Engineer)

ORG: Instrument Engineering Institute, CSAV, Brno (Ustav pristrojove techniky CSAV)

TITLE: Compensating the temperature dependence of the voltage in stabilizing glow lamps

SOURCE: Slaboproudy obzor, v. 27, no. 1, 1966, 37-42

TOPIC TAGS: temperature dependence, glow lamp, temperature stabilization, thermistor, circuit design

ABSTRACT: A theoretical analysis and experimental results are given on compensating the temperature dependence of the working voltage in a stabilizer glow lamp by means of a novel circuit using a thermistor. The influence of temperature has been lowered by one order, without the use of a thermostatic oven, and the temperature time constants of the circuit as a whole have been shortened. Graphs are presented to facilitate the designing of the circuit. Orig. art. has: 9 figures and 9 formulas. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 09, 20 / SUBM DATE: 07Jun65 / ORIG REF: 009 / OTH REF: 006

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

CERNY, O.; HAJEK, J.

Kinetics of the catalytic tetraline oxidation in the acetic acid medium. Coll Cz Chem 28 no.2:494-503 F '63.

1. Forschungsinstitut fur organische Synthesen, Pardubice - Rybitvi.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

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CERNY, O.; HAJEK, J.

Photochemical chlorination of n-hexane and 2,3 dimethylbutane with chlorine and certain chlorination reagents. Coll Cz Chem 26 no.10: O '61.

1. Forschungsinstitut fur organische Synthesen, Pardubice-Rybitvi.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

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CERNY, O.; HAJEK, J.

Relative reactivity of some alkylaromatic hydrocarbons in photochemical chlorination. Coll Cz chem 26 no.2:478-484 F '61.
(EEAI 10:9)

1. Forschungsinstitut fur organische Synthesen, Pardubice-Rybitvi.

(Hydrocarbons) (Alkyl groups) (Aromatic compounds)
(Chlorination) (Photochemistry)

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Hájek, Jaroslav,

Vapor-phase association of acetaldoxime and the energy of the hydrogen bond. Arnošt Reiser, Arnošt Klíma, and Jaroslav Hájek (Tech. Univ., Prague). *Collection Czechoslov. Chem. Communs.* 19, 4-14(1954)(in German).—See C.A. 48, 4274b. B. J. C.

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HÁJEK, J.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
General and Physical Chemistry

Vapor-phase association of acetaldoxime and the energy of the hydrogen bond. Arnošt [illegible], Arnošt Kimla, and Jaroslav Hájek (Vysoká škola chem., Prague, Czech.). Chem. Listy 47, [illegible](1953).—Mol. wts. of MeCH:NOH (I), AcOH, MeOH, and toluene were detd. by the classical Dumas method in the temp. range of 50° above the b.p. From the exptl. results, free energy, enthalpy, and entropy of assocn. of the first 2 compds. were calcd. An interpretation in terms of mol. models was attempted. I [illegible] in the gas phase almost exclusively to cyclic dimers (analogous to the dimeric form of carboxylic acids) bound by 2 hydrogen bonds O—H···N. The bond energy of the hydrogen bridge O—H···N is 5 kcal. B. Erdős

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HAJEK, Josef, inz.

Jan Kraus; obituary. Slevarenstvi 11 no.8/9:410-411 Ag '63.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Jan, inz. (Sc.

Calculation of the carrying capacity limit of a circular prestressed concrete ring subject to apex compression. Inz stavby 12 no.11:506-508 N '64.

1. Institute of Building and Architecture of the Slovak Academy of Sciences, Bratislava.

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HAJEK, J., Inz.

New technique in housebuilding in France. Pt. 2 Stavivo A3 no 2:70 .1 '65.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Jan, inz., CSc.

Solution of a circular cylindrical shell of variable thickness.
Stav cas 11 no.5:332-347 '63.

1. Ustav stavebnictva a architektury, Slovenska akademie vied, Bratislava.

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FRANCU, Dusan, inz.; HAJEK, Jan, inz., C.Sc.

Conference on reinforced concrete and prestressed bridges. Stav cas 11 no.3:245-246 '63.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, Jan, inz., C.Sc.

Numerical solution of the state of stress of a circular cylindrical shell. Stav cas 11 no.1/2:53-71 '63.

1. Ustav stavebnictva a architektury, Slovenska akademia vied, Bratislava.

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S/124/63/000/003/042/065
D234/D308

AUTHOR: Hájek, Ján

TITLE: Application of the summation method to the design of plates

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1963, 17; abstract 3V111 (Stavebn. časop. 1962, v. 10, no. 4, 213-231 (Slovak.; summaries in Rus. and Eng.))

TEXT: The author considers the bending of a rectangular plate having two opposite edges freely supported by rigid bases. The problem reduces to an integral equation which is solved numerically by the trapezium method. [Abstracter's note: Complete translation.]

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CZECHOSLOVAKIA

HAJEK, J; Physiological Institute, Medical Faculty, Comenius University (Fyziologicky Ustav Lek. Fak. Univerzity Komenskeho), Bratislava.

"Two-Phase Conditioned Reflex Changes in the Frequency of Heart Beat in Repeated Signalization of Muscle Work in Adults and Children."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 2, Feb 66, p 118

Abstract: 12 adults and 6 children were used in the investigation. Signal of heavy work evokes in adults a 2 phase reaction; for the first 3 to 5 seconds it increases the heart beat frequency; this is followed by a period of lowered frequency of the same duration. The period of lowered frequency may be extended to 20 seconds by an isolated signal action, and therefore a lower average frequency compared to original values is found. In children the higher heart beat frequency persists. 1 Russian reference. Submitted at "16 Days of Physiology" at Kosice, 29 Sep 65.

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HAJEK, J.

Run regulation of pendulum clocks. Jemna mech opt 8 no. 7: 220-222 Jl '63.

1. OUVD Polna.

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HAJEK, J.

Lubricators for watchmakers. Jemna mech opt 8 no.4:115 Ap '63.

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HAJEK, J.

A wrist alarm watch. Jemna mech opt 7 no.2:56-58 F '62.

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HAJEK, J.

An automatic winding-up of wrist watches. Jemna mech opt 7 no.1: 23-27 Ja '62.

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HAJEK, J. (Havlickuv Brod)

Watertight watch cases. Jemna mech opt 6 no.4:114-117 Ap '61.

(Clocks and watches)

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HAJEK, J. (Havlickuv Brod)

The clock mechanism Incastar. Jemna mech opt 6 no.2:65-66 F '61.

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CERNY, O., HAJEK J.

Radical formation in catalytic oxidation of tetralin in the liquid phase. Coll Cz chem 29 no.3:643-653 Mr '64.

1. Research Institute of Organic Syntheses, Pardubice-Rybitví.

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

HAJEK, J. (Havlickuv Brod)

Optimum dimensions of a substitute main-spring. Jemna mech opt 5 no.7:224-226 Jl '60.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000617800030-6

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HAJEK, J.; SEDLAK, P.

Conditioned reflex modification of energy metabolism in man following work activity changes. Bratisl. Lek. Listy 42 no.2:654-664 '62.

1. Z Katedry fyziologie Lek. fak. Univ. Komenskeho v Bratislave, veduci clen koresp. SAV J. Antal, Dr. Sc.
(REFLEX CONDITIONED) (EXERTION) (METABOLISM)

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ANTAL, J.; HAJEK, J.; SEDIAK, P.

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(RESPIRATION, physiol.
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Use of silon in some locomotive bearings. p. 9.
(ZELEZNICAR. Vol. 6, no. 1, Jan. 1956, Praha, Czechoslovakia.)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 12, Dec. 1957. Uncl.

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Example for other squads of locomotive engineers. p. 258.
ZELEZNICE, Prague, Vol. 4, no. 10, Oct. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

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CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their Application. Cellulose and Derivatives. Paper. H

Abs Jour: Ref Zhur-Khim., No 13, 1958, 45354.

Author : Hajek J.
Inst :
Title : New Procedures of Manufacturing Coated Papers.

Orig Pub: Papir a celulosa, 1957, 12, No 12, 278-282.

Abstract: A brief account of the conventional methods is followed by a description of the new procedures used in manufacturing coated papers (preparation of coating compositions, their application to the paper, finishing, drying, conditioning).

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[illegible], Praha, Czechoslovakia, Vol. [illegible], pp. [illegible], Dec. 19[illegible].

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Possibilities for the use of radioisotopes in the textile industry. p. 150.

(Textil. Vol. 12, no. 4, Apr. 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

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Causes of the breaking of crepe yarn with Z twist during the finishing of fabrics of artificial silk; also, remarks by A. Rozycki. p. 480.
(Przemysl Wlokienniczy, Vol. 10, No. 10, Oct. 1956, Krakow, Poland)

SO: Monthly List of East European Accessions (EEAL) Lc. Vol. 6, No. 8, Aug. 1957. Uncl.

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Effect of the total number of ends in the warp on shrinkage of textile fabrics; problems of stretching viscose warps in weaving. p. 82. (Textil, Praha, Vol. 9, no. 3, Mar. 1954)

SO: Monthly list of East European Accessions (EEAL), LC Vol 4, no. 6, June 1955, Uncl

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"International Glider Contest in Poland", P. 246, (KRIDLA VLASTI, No. 11, May 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

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Use of concrete in reinforcement constructions in mines. p. 33.

Vol. 4, no. 2, Feb. 1956
HUDY
Praha, Czechoslovakia

Source: East European Accession List, Library of Congress
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Deformation process in the successive thermomechanical prestressing of concrete cylindrical shells. Stav cas 13 no.2:86-107 '65.

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Influence areas of orthotropic plates.

P. 147, (Slovenska akademic vied. Ustav strvebnictva a architektury. PRACE, 1954 (Published 1956) Bratislava. Czechoslovakia)

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"Detectors of metals." p. 777.

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Metabolic differentiation of "fast" and "slow" [illegible]. Cas. lek. cesk. fysiol. 13 no.4:368-373 Jl '64.

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SYROVY, I., HAJEK, I., GUTMANN, E; Physiological Institute, Czechoslovak Academy of Sciences (Fysiologicky Ustav CSAV), Prague.

"Factors Influencing Proteolytic Activity in Denerved Muscle."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 2, Feb 66, [illegible]

Abstract: Proteolytic activity was determined by measuring the amount of substrate decomposed by muscle extract from a normal and a denerved muscle. As substrate denatured hemoglobin, glycyl-L-phenylalanyl-p-nitroanalid, leucine-p-nitroanilid and glycine-p-nitroanilid were used. The increased proteolytic activity shown by a denerved muscle is not due to a change in concentration of activators or inhibitors of proteolytic enzymes or to the release of bound lysosomal enzymes or to structural changes of muscle proteins, but probably is due to an increase in synthesis of active proteolytic enzymes. 2 Western, 3 Czech, 2 Russian references. Submitted at "16 Days of Physiology" at Kosice, 29 Sep 65.

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"Protein Synthesis in Normal and Denervated Cat Muscle."

Prague, Ceskoslovenska Fysiologie, Vol 14, No 5, Oct 1965; p 347.

Abstract: Study of incorporation of radioactive methionine into contractile proteins, albumins, globulins and stromal proteins before and 7 days after denervation revealed that denervation decreases proteosynthesis in contractile proteins in favor of globulins and stromal tissue proteins. Graph, 4 Western, 2 Soviet and 1 Czech reference. Paper presented at the 15th Physiology Days, Olomouc, 27 May 65.

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Changes in protein metabolism of peripheral nerve during functional activity. Physiol. Bohemoslov. 12 no.6:553-561 '63.

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(ELECTROPHYSIOLOGY) (SWIMMING)
(CHROMIUM ISOTOPES)

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