the brain. In modern calculators, the occurrence of accidental signal combinations is avoided. But it is not impossible that such "senseless" combinations play an important part in the activity of thoughts by supplying material for intelligent constructions. If all remembrance cells of the calculator are filled with signals it cannot receive any more informations. A quite specific property of the brain, however, is the ability of comparing the signal combinations stored up at any time, creating economical connections between them and thus making the remembrance susceptible for new informations. Man receives during his life such an abundance of signals that billions of cells would not suffice to keep them in their original form. A generalization of the connections between signals, and the removal of superfluous repetitions, is the aim of the logical function of the brain. A machine capable of removing superfluous repetitions from the stored-up signal combinations without interrupting the connections between them, cannot be designed yet. Besides, the brain can remember its own actions which cannot be achieved by the most perfect machine. The opinion that the principal difference between brain and machine is the fact that the machine works according to a

Brain and Machine SOV/29-59-2-4/41

program is not correct. Also the brain receives orders and instructions from the body and subordinate parts of the nervous system. The statement that the brain is a machine and that the machine is capable of thinking has to be rejected too. Such statement is an unpardonable depreciation of mental qualities. It justifies imbecility and mental poverty, cruelty and heartlessness toward other people by insisting that there are only reflexes instead of a soul. There are 6 figures.

Card 3/3

29(0) SOV/29-59-3-8/23

AUTHORS: Gushchev, S., Teplov, L.

TITLE: How Was It ...? (Kak eto bylo ...?)

PERIODICAL: Tekhnika molodezhi, 1959, Nr 3, pp 14-17 (USSR)

ABSTRACT: In this article the authors report on the successful launching of the space rocket on January 2, 1959. Before the rocket was launched, accurate computations of the proper time of launching and the trajectory had to be made with complicated electronic computers. The rocket could not be seen when it took off and only a weak earthquake was noticed. Its flight was watched by locators and in the middle of the screen there was a small bright spot to be seen. After leaving the troposphere the top of the rocket inclined toward the east and the first stage was detached. After the first thirty minutes the rocket had also crossed the ionosphere. Now it was difficult to determine the motion of the rocket from the earth curvature. The computers now did not calculate the trajectory with respect to the earth's surface but with respect to the orbit of the earth. The trajectory of the rocket somewhat declined below this plane. In this moment the next stage was detached and the rocket lost its flashing

Card 1/3

tail. It had attained the parabolic speed of 11.2 km/sec. When the motors stopped, also the last stage weighing 1 1/2 t had reached its trajectory. The top was detached and a rotating ball with aerials and a magnetic feeler on a long rod was hurled out. Each part of the disassembling rocket had the same speed and therefore they flew side by side. Suddenly a seeming deviation from the trajectory was observed on the projection set up according to data calculated by the computers. Yet this was again a paradox of space travelling. Due to the different directions of motion, the projection of the rocket lagged behind the rotation of the earth. After one hour of flight the rocket had already covered a distance of more than 10000 km from the earth. The data of the magnetometer gradually became inaccurate and the magnetic field of the earth became weaker. At a distance of more than 30000 km the rocket had already left the magnetic field of the earth. The instruments in the rocket could only measure cosmic radiation in its original state. Two counters recorded the number of charged particles hitting the rocket, while two photomultipliers analyzed the composition of radiation. After eight hours the rocket had already covered a distance of more than 100000 km. At a distance of 113000 km the quartz clock had released the fuse of the vaporizer in the right moment, whereby the metallic sodium evaporated in the space as a yellowish cloud several 100 km long. Although radio locators can record the distance from the earth every second, it is yet very difficult to determine the accurate position by radio location. The flash of the sodium cloud that was observed for several minutes permitted a precise determination of the trajectory. Meanwhile the precision instruments in the rocket communicated their observations to the earth. They served the purpose of measuring the degree of density of cosmic gases, and should answer the question whether they are less dense farther from the sun. Further, they recorded the number of corpuscules emitted by the sun. A man, whatever his intelligence, health and reactivity, could never observe and record everything as precisely as these instruments. Therefore, it is unnecessary to risk casualties. At a distance of about 40000km the attractive force of the moon becomes effective. If this line were crossed, the rocket would fall on the moon. The Soviet rocket had another program, however. The instruments communicated the size of the magnetic field and the radioactive intensity of the moon. Communications of the rocket were received still for a long time until it was fully integrated by the solar sphere and became an artificial planet. There are 8 figures.

TEPLOV, L.

Invisible printing plants. Tekh.mol. 28 no.4:25-26 '60. (MIRA 13:11)

(Russia--Underground literature) (Printing plants)

TEPLOV, L.

Twenty-four hours in space. Zn. nat. no.10:2 0 '61.
(MIRA 14:10)

(Astronautics)

TEPLOV, L.

Dreaming about a selftyping typewriter. Znan. sila 36 no. 4:26-29 Ap '61. (MIRA 14:4)

(Cybernetics) (Typewriters)

TEPLOV, L.

The seeing machine. Tekh.mol. 30 no.10:5-6 '62. (MIRA 15:12)
(Perceptrons)

TEPLOV, Lev

Information, life, death, immortality. Nauka i tekh mladezh 15 no. 11: 3-6 N '63.

ABDULIN, A.; ALEKSEYEV, I.; BANTLE, O.; BOBROV, L.; BOZHANOV, B.; BOYKO, V.; BONDAREV, K.; BORZOV, V.; VERKHOVSKIY, N.; GUBAREV, V.; GUSHCHEV, S.; DEBABOV, V.; DIKS, R.; DMITRIYEV, A.; ZHIGAREV, A.; ZEL'DOVICH, Ya.; ZUBKOV, B.; IRININ, A.; IORDANSKIY, A.; KITAYGORODSKIY, P.; KLYUYEV, Ye.: KLYACHKO, V.; KOVALEVSKIY, V.; KNORRE, Ye.; KONSTANTINOVSKIY, M.; LADIN, V.; LITVIN-SEDOY, M.; MALEVANCHIK, B.; MANICHEV, G.; MEDVEDEV, Yu.; MEL'NIKOV, I.; MUSLIN, Ye.; NATARIUS Ya.; NEYFAKH, A.; NIKOLAYEV, G.; NOVOMEYSKIY, A.; OL'SHANSKIY, N.; OS'MIN, S.; PODOL'NYY, R.; RAKHMANOV, N.; REPIN. L.; RESHETOV, Yu.; RYBCHINSKIY, Yu.; SVOREN', R.; SIFOROV, V.; SOKOL'SKIY, A.; SPITSYN, V.; TEREKHOV, V.; TEPLOV, L.; KHAR'KOVSKIY, A.; CHERNYAYEV, I.; SHAROL', L.; SHIBANOV, A.; SHIBNEV, V.; SHUYKIN, N.; SHCHUKIN, O.; EL'SHANSKIY, I.; YUR'YEV, A.; IVANOV, N.; LIVANOV, A.; FEDCHENKO, V.; DANIN, D., red.

[Eureka] Evrika. Moskva, Molodaia gvardiia, 1964. 278 p.
(MIRA 18:3)

TEPLOV, L.P. (Moscow).

History of Russian printing and publishing; 120 years from the discovery of multicolor planography. Poligr.proizv. no.7:23-24 Jl-Ag '53. (MLRA 6:9)
(Printing-press--History)

TEPLOV, L., inzhener.

Together forever. Tekh.mol. 22 no.5:12-13 My '54. (MLRA 7:6)

(Printing--History)

TEPLOV, L.

TEPLOV, L., inzhener.

The machine writes letters. Tekh.mol. 22 no.6:33-35 Je '54. (MLRA 7:6)
(Typewriters)

TEPLOV, L.

Science and technology in countries of people's democracy.
Tekh. nol. 23 no.4:26-27 Ap '55. (MLRA 8:6)
(Europe, Eastern--Technology) (China--Nuclear physics)

TEPLOV, L., inzhener

Electronic photography. Tekh.mol.23 no.7:12-15 Jl'55. (MIRA 8:10)
(Printing) (Photography)

TEPLOV, L.

Cybernetics. (To be contd.) Nauka i tekh mladezh no.3:25-26 Mr '57.

TEPLOV, L., inzhener

Inventors and inventions. Tekh.mo.23 no.9:8-10 S'55. (MLRA 8:12)
(Inventions)

TEPLOV, L., inzhener.

Telelibrary. Tekh.mol.24 no.6:13 Ja '56. (MIRA 9:9)
(Science fiction)

TEPLOV, L.

From goose quill to charactron. Tekh.mol. 24 no.11:26-28 N '56.
(Typesetting machines) (MLRA 9:12)

TEPLOV, L.

What is cybernetics? Tekh. mol. 24 no.12:30-32 D '56. (MLRA 10:2)

(Cybernetics)

TEPLOV, L.

TEPLOV, L.

Reading machines. Tekh.mol. 25 no.8:24 Ag '57. (MIRA 10:9)
(Reading machines)

6(0); 27(0) PHASE I BOOK EXPLOITATION SOV/3464

Teplov, Lev Pavlovich

Ocherki o kibernetike (Essays On Cybernetics) [Moscow] Moskovskiy rabochiy, 1959. 229 p. 30,000 copies printed.

Ed.: S.Gurov

PURPOSE: This book is intended for the layman interested in the science of cybernetics.

COVERAGE: The book discusses such subjects as the theory of signals, probability theory, biology, physiology of the nervous system, psychology, theory of automatic control, and theory of automatic machines, all of which contribute to the new field of science known as cybernetics. No personalities are mentioned. There are no references.

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755310019-9"

Essays On Cybernetics SOV/3464

"Higher" Automatons 198

Cybernetics and Humanity 216

AVAILABLE: Library of Congress (Q315.T4)

AC/gmp
4-26-60

Card 3/3

Teplov, Lev Pavlovich

Ocherki o kibernetike. Moskva, Moskovskiy Rabochiy, 1959-
v. illus.

Bibliographical footnotes.

FOR COMPLETE HOLDINGS CONSULT SHEIF LIST

1. Cybernetics. 2. Russia - Cybernetics. 1. Title.

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SOV/6484

PHASE I BOOK EXPLOITATION

Teplov, Lev Pavlovich

Ocherki o kibernetike (Essays on Cybernetics). 2d ed., rev. [Moscow] Moskovskiy rabochiy, 1963. 413 p. 50,000 copies printed.

Ed.: S. Gurov; Tech. Ed.: Ye. Yakovleva

PURPOSE: This book is intended for the general reader.

COVERAGE: A popular-style description is given of the origin, history, and present state-of-the-art of cybernetics. Various automatic machines are described, with emphasis on similarities between them and things in nature, and various methods of using, controlling, and accumulating information are outlined. References and recommended reading are given for each chapter and are more or less evenly divided between Soviet and non-Soviet sources.

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AL'PEROVICH, Yu.I.; GUTCHIN, I.B.; KAYBYSHEVA, L.S.; TEPLOV, L.P.; BOGDANOV, G.G.; DROBYSHEV, Yu.G.; SMIRNOV, G.V.; TRET'YAKOV, V.S.; BREYDO, M.I.; YEVSEYEV, L.A.; STEBAKOV, S.A.; FEDCHENKO, V., red.

[The ABC's of automation; collected articles] Azbuka avtomatiki; sbornik. Moskva, Molodaia gvardiia, 1964. 349 p. (MIRA 17:7)

TEPLOV, M.M.

Practical experience in the control of rabies in Stalino Province, Ukrainian S.S.R. Veterinariia 36 no.11:20-21 N '59 (MIRA 13:3)

1. Glavnyy vetvrach Stalinskogo oblastnogo upravleniya sel'skogo khozyaystva.
(Stalino Province--Rabies)

TEPLOV, N.L.

AUTHOR: TEPLOV, N.L.

TITLE: A-U Sci Conf dedicated to "Radio Day", Moscow, 20-25 May 1957. "Basic Correlations in SignalIntegration and Fluctuating Interference in the Radio Receiver Channel."

PERIODICAL: Radiotekhnik i Elektronika, Vol. 2, No. 9, pp. 1221-1224, 1957, * (USSR).

For abstract see L.G. Stolyarov.

TEPLOV, N.L.

108-9-1/11

AUTHOR: Teplov, N. L.

TITLE: On the Evaluation of the Noise Strength of the Radio Reception Methods Based upon the Means of Signal- and Noise Functions (K otsenke pomekhoustoychivosti metodov radiopriyema, osnovannykh na usrednenii funktsiy signala i pomekhi)

PERIODICAL: Radiotekhnika, 1957, Vol. 12, Nr 9, pp. 3-11 (USSR)

ABSTRACT: The investigation of the question is here restricted to the general case of an averaging linear on principle as the result of a summation of the values (discrete and continuous) of the input function signal noise with the weight function of the adding (averaging) device, whereby the latter has a constant value which is here assumed to be equal to 1. The physical supposition for a yield with regard to noise strength when the mean of the signal and the chance noise is taken is practically the complete coherence of the signal and an essentially lower coherence of the noise which degree, however, is determined by the selectivity of the total receiver-tract. The preponderating of the signal over the noise which is guaranteed by a concrete receiver scheme at the input of the recording device is used as the most general criterion for the evaluation of the different methods of re-

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On the Evaluation of the Noise Strength of the Radio Reception Methods Based upon the Means of Signal- and Noise Functions. 108-9-1/11

ception from the point of view of reliability. Following methods are discussed:

1) Method of repeated repetition realizes the idea of accumulation in the most simple way. The single measurements or the readings of every mixture of signal and noise at all which repeat with a period T are added and the mean is teaken. It is shown that the yield in the case of a reponderance of the signal over the noise is equal to the number of the repetitions n.

2) The integrating of the signal and the noise can from the physical point of view be described as a continuous summation of all instantaneous values of the function signal noise within the effective range of the signal. A formula is derivated which explains the physically obvious result: the relative yield with regard to the noise strength in the case of integrating is directly proportional to the ratio between the signal duration and the noise correlation interval which is determined by the breadth of the band of the total receiver tract.

3) Discrete taking of the mean of the signal and the chance noise. The investigation is restricted here to the case of a constant signal level.

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On the Evaluation of the Noise Strength of the Radio Reception Methods Based upon the Means of Signal- and Noise Functions. 108-9-1/11

4) Method of accumulation. This is considered as a pairing of the repeated repetition with the integrating of the signal and the noise within the effective range of the single-signal. It is shown that in the case of broad bands the efficiency of the method of taking the mean in a concrete apparatus is determined only by the total signal effective time T_N and does not depend practically upon the fact wether the signal is transmitted discretely or continuously. There are 8 figures and 2 Slavic references.

SUBMITTED: October 31, 1956 (initially) and January 17, 1957 (after revision)

AVAILABLE: Library of Congress

Card 3/3

TEPLOV, N. L.

N. L. Teplov, "Certain questions of the theory and computation of the interference immunity of impulse radio reception." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep 58.

Questions of the maximum approximation of interference-immunity of the radio reception of impulse signals to the potential interference immunity are analyzed as is also a general method to analyze and compute the interference immunity of impulse radio reception circuits.

TEPLOV, N.L.

Fundamental relationships during the integration and filtration of a signal and fluctuation noise in the channel of a radio receiving system. Sbor. trud. NTORiE no.2:35-55 '58 (MIRA 16:6)

(Radio--Interference)
(Radio--Receivers and reception)

N. L. Teplov

В. С. Цыбаков

О пропускной способности многолучевых каналов связи.

Ю. И. Мартынов

К теории корректирующих кодов

10 июня

(с 10 до 16 часов)

А. Е. Башаринов,
Б. С. Флейшман,
Г. С. Тихомиров

Метод последовательного анализа в задачах обнаружения сигнала в многоканальных системах

Я. Л. Теплов

Элементы теории максимальной помехоустойчивости систем с дискретными сигналами.

В. И. Митяшев

О помехоустойчивости одного способа определения временного положения импульсов

Г. А. Сергеев

К вопросу об оптимальной обработке экспериментальных данных

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10 июня

(с 18 до 22 часов)

Ю. С. Лезин

О пороговых сигналах при некогерентном накоплении с экспоненциальной весовой функцией

В. Е. Муравьев

Новые принципы анализа спектров

Г. А. Медведев

Помехоустойчивость приемника с [illegible] Случай [illegible] сигнала

Н. И. Цуккерман

О помехоустойчивости координатно-кодового метода передачи телевизионных сообщений

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А. Е. Башаринов

Нарастающая вероятность обнаружения импульсного пакета переменной длительности

Л. Н. Филиппов

Идеальные радиоприемные устройства импульсных сигналов.

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report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June. 1959

SOV/106-59-1-4/12

AUTHOR: Teplov, N.L.

TITLE: The Maximum Noise Stability of Radio Reception of Signals with Amplitude, Frequency and Phase Keying (Maksimal'naya pomekhoustoychivost' radiopriyema signalov s amplitudnoy, chastotnoy i fazovoy manipulyatsiyey)

PERIODICAL: Elektrosvyaz', 1959, Nr 1, pp 28-37 (USSR)

ABSTRACT: Fig 1 shows a typical AM receiver, while (1) are equations for the mark and space versions of the signal. The receiver is working correctly when its output is greater than a certain threshold value during the signal period and less during the space period. Errors occur when the situation is reversed. The probability density of the envelope of the sum of sinusoidal signal of fluctuation noise is given by (2). The mean square value of the noise in the effective receiver bandwidth is (3) and the probability density of the noise in the absence of signal is given by (4). For equal a priori probabilities of mark and space the probability of error during reception is given by (5). Combining (3) and (4) into this last equation gives (6). The error probability is reduced by increasing the signal/noise ratio at the input to the detector and for a given signal/noise ratio the

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probability of error depends on the threshold value. A study of the minima of the function in (6) reveals an optimum value for the threshold (8) for a sufficiently large signal/noise ratio. This gives the commonly used design value in (10) (limiting level equal to one half expected signal level). Eq (8) is plotted in Fig 2. The minimum probability of error when receiving AM signals with an optimum threshold value is given by (11). It will be seen that this probability is uniquely determined by the signal/noise ratio at the input to the detector. The action of frequency shift keying is defined in (12) and a block diagram of a suitable receiving system is in Fig 3. Errors occur in the system when the value of the noise envelope coming out of one separating filter through which there is no signal exceeds the value of the total envelope for signal-plus-noise coming out of the filter in which there is a signal. The analysis proceeds as before and the probability of error is given by (16). Frequency shift keying is defined in (17) and a block diagram of a suitable receiver is in Fig 4. The

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fluctuation noise at the input to the separating circuit takes the form of a sinusoidal oscillation whose envelope and phase are slowly varying functions of time. The corresponding probability of error is given by (24). It is stated by the author that the formulae (11), (16) and (24) were obtained by him in 1954 in fulfilment of his dissertation work. The penultimate section is devoted to a calculation of the maximum noise stability of radio reception of signals with these various forms of keying. Eq (27) is the expression of the square of the signal/noise ratio. The optimum bandwidth of the filter for passing a rectangular pulse has been found by Siforov (Ref 4) as (30), while the optimum bandwidth for a single tuned circuit is given by Teplov (Ref 5) as (31). The corresponding maximum signal/noise ratios are (32) and (33). The formulae are repeated in (34) and (35) in terms of Q^2, which is the ratio of the energy in an elementary signal to the noise density at the input. A useful concept is introduced which is the limiting signal/noise ratio in reception obtained by integrating

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for the duration of the signal. It is shown in the simple analysis in the top half of page 34 that the limiting signal/noise ratio is in fact equal to Q^2 (Eq 42). Applying this last expression to the three particular cases the noise stability for each is given by (43), (44) and (45) for AM, FM and PM respectively. The last section gives formal solutions to the problem of radio reception in such a way as to realise the potential noise stability as defined by Kotel'nikov (Ref 6). Block diagrams for PM, FM and AM are Figs 5, 6 and 7 respectively. Corresponding expressions for potential noise stability are (46), (52) and (56). Graph of Fig 8 shows the dependence of the probability of error on Q when receiving the three kinds of signal with synchronous

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The Maximum Noise Stability of Radio Reception of Signals with Amplitude, Frequency and Phase Keying

and amplitude detectors. By using coherent detection the maximum noise stability equals the so called potential value.
There are 8 figures and 6 Soviet references.

SUBMITTED: June 30, 1958

Card 5/5

20475
S/106/61/000/004/002/004
A055/A133

9.3275 (also 1031, 1067)
6.4400

AUTHOR: Teplov, N. L.

TITLE: The noiseproof feature of integrated reception of signals in the case of fluctuation noises and of sinusoidal interferences

PERIODICAL: Elektrosvyaz', 15, no. 4, 1961, 9-18

TEXT: Integrated reception is compared, as a rule, to the usual narrow-band reception. Such a comparison is natural enough, since integration (averaging), considered as a physical process, is equivalent to filtration (smoothing). By narrow-band reception is usually understood the reception with the most advantageous pass-bands corresponding to the optimum noiseproof feature of reception. As to fluctuation noises, the most advantageous pass-bands, for reception of single pulses, are the so-called optimum frequency-bands (V. I. Siforov - Ref. 1: "Influence of Noises on the Reception of Pulse-Signals", Radiotekhnika, 1946, no. 1). The author of the present article begins with some general considerations regarding the main features of the integrated reception, as compared to the usual narrow-band reception. He points out that: 1) the noises exert an effect upon the integrating circuit only

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The noiseproof feature of integrated...

within the duration of the signal, which is not the case in the usual narrow-band reception, where filters are "static" or permanently switched on; 2) in integrated reception, the superposition of adjacent pulses, due to residual oscillations, is eliminated; 3) the salient difference between the two reception methods is the fact that, in the integrated reception, the frequency selectivity is determined, not by "static", but by "dynamic" resonance characteristics and pass-bands of the integrating circuits. After these general considerations, the author proceeds to a comparative theoretical analysis of the noiseproof feature in both reception methods. He first examines the case of fluctuation noises. The principal formula used by him is the formula giving the ratio of the signal-power to the noise-power at the output of the integrating circuit:

$$h_*^2 = \frac{a_\tau^2}{b_\tau^2} = \frac{a^2\tau}{2\nu_0^2} \qquad (14)$$

where a_τ is the amplitude of the signal at the output of the circuit, τ is the duration of the signal, ν_0^2 is the intensity of the noise in the 1-cycle band (specific intensity), and b_τ expresses quantitatively the amplitude of

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the noise. For the usual narrow-band reception, the corresponding formula is

$$h^2_{opt} = 0.82\frac{a^2\tau}{2\nu_0^2} \qquad (16)$$

This formula (16) is valid for the reception of single pulses and for any filter with the optimum frequency-band. For the extreme cases of an ideal filter and of a single oscillating circuit, formula (16) becomes

$$h^2_{opt.id.f.} = 0.825\frac{a^2\tau}{2\nu_0^2} \qquad (21)$$

and

$$h^2_{opt.single\ osc.} = 0.815\frac{a^2\tau}{2\nu_0^2} \qquad (19)$$

respectively. Taking the ratio of (14) to (16), the author finds:

$$\left(\frac{h_*}{h_{opt.}}\right)^2_{fluct.} = 1.22 \qquad (22)$$

For the reception of single, widely spaced pulses, the integrating reception method is, therefore, almost equivalent to the usual narrow-band method with optimum frequency-bands. But the advantage offered by the integrating method proves more substantial in the case of an uninterrupted sequence of signal-pulses (for instance, in radiotelegraphy). In this case, a short mathematical demonstration shows that:

$$h^2_{opt.'} \approx 0.5 \frac{a^2 \tau}{2 v_0^2} \qquad (26)$$

The ratio of (14) to (26) is:

$$\left(\frac{h*}{h_{opt.}}\right)^2_{fluct.} \approx 2 \qquad (27)$$

As to the ratio of signal-power to noise-power, the integrated reception of an uninterrupted train of pulses ensures thus a gain practically equal to two, in comparison with the usual narrow-band reception. This gain proves still greater in the case of signals subject to fading. In the last part of the article, the author examines the noiseproof feature of both reception methods in the case of sinusoidal interferences. Here also, he deduces formulae giving h^2_*, h^2_{opt}, and $h^2_{opt'}$, and finds that:

$$\left(\frac{h_*}{h_{opt}}\right)^2_{sin} = 1.22 \qquad (39)$$

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and

$$(\frac{h_*}{h_{opt'}})^2_{sin} \approx 2 \qquad (40)$$

There are 6 figures and 5 Soviet-bloc references.

SUBMITTED: April 12, 1960

80162

S/108/60/015/04/04/007
B014/B014

6.9000

AUTHOR: Teplov, N. L., Member of the Society

TITLE: The Maximum Noiseproof Feature in Systems With Discrete Signals

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 4, pp. 27 - 35

TEXT: In the article under review, the author studies the maximum noiseproof feature of systems having discrete signals in the case of coherent and incoherent reception. Formula (2) is written down for the probability of regular signal detection. The fluctuating noise is expressed by formula (3) which is split up into its components according to (4). Then, the author gives formula (8) for the correlation function between the amplitudes of formula (4). Formula (8) is used to determine the energy spectrum of the fluctuating noise. The relation between the signal expressed by (1) and the fluctuating noise may be represented by the vector diagram shown in Fig. 2. Next, the author carries out a general estimation of the noiseproof features of systems with discrete signals in the case of coherent and incoherent reception. In both cases he proceeds from the probability that the amplitude of the noise in branches without signals is not larger than the amplitude of signal plus noise in branches with signals. This is described by

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The Maximum Noiseproof Feature in Systems With Discrete Signals

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B014/B014

formulas (13) and (20). Subsequently, he develops formulas (18) and (24) for the probability of regular signal detection for the two cases under consideration. The two formulas assume their definite form with formulas (27) and (28). When investigating the maximum noiseproof feature the author first studies the maximum surpassing of the signal over the noise. Integrals (43) and (44) are given for the determination of the maximum noiseproof feature. Formula (47) is used to determine the relative error arising in the estimation of the noiseproof feature. In conclusion, the author compares the noiseproof features in systems with discrete signals in the case of coherent and incoherent reception. Table 2 indicates that the greatest difference in the noiseproof features of the two modes of reception is obtained in the range of the highest values of error probability. As compared to incoherent reception, the greatest gain of signal power in the case of coherent reception is equal to 2. Hence, when signals with a given error probability are received, the signal voltage at the input of an incoherent receiver must be higher than that at the input of a coherent receiver. The respective factor between the two input voltages varies from 1 to $\sqrt{2}$. In conclusion, the author gives the formulas for the maximum noiseproof feature and those for the probability of detecting signals for the case in which fluctuating noise occurs only in one part of the branches of this system: formulas (56), (58), and (60).

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80162

The Maximum Noiseproof Feature in Systems With Discrete Signals

S/108/60/015/04/04/007
B014/B014

This article was read at the All-Union Anniversary Session of the NTORiE imeni A. S. Popov in June 1959. There are 5 figures, 2 tables, and 3 Soviet references.

SUBMITTED: March 6, 1958 (initially) and July 24, 1959 (after revision)

Card 3/3

31197
S/106/61/000/012/001/010
A055/A127

6.9400

AUTHOR: Teplov, N. L.

TITLE: Noise immunity in integrated reception of signals in the presence of impulse or transient sinusoidal interferences

PERIODICAL: Elektrosvyaz', 15 no. 12, 1961, 3 - 12

TEXT: This article is a theoretical comparison of the noise immunity of the integrated reception method and the usual narrow-band reception method in the case of: 1) impulse interferences, 2) transient (short-term) sinusoidal interferences. 1) Impulse interferences. a) Narrow-band reception. - The impulse interferences at the filter output are given by the expression:

$$C(t) = c(t)\cos(\omega_0 t + \varphi_0). \quad (1)$$

ω_0 is here the angular frequency of the tuned filter; φ_0 is determined by the moment when interferences appear; c(t) is the amplitude (envelope) of the oscillations, whose time-variation determines the shape of the impulse interference at the filter output. Starting from this formula, the author finds the ratio between the maximum amplitudes of the signal and the impulse interference single pulses at

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the output of the narrow-band filter. In the case of a single oscillating circuit, this ratio is:

$$\left(\frac{a_{outp\ max}}{c_{outp\ max}}\right)_{single\ circ} = \frac{a(1-e^{-2\Delta f_{eff}\tau})}{2\,S_o\Delta f_{eff}}, \qquad (5)$$

where S_o is the modulus of the spectral density of the impulse interference at the filter input; Δf_{eff} is the effective frequency-band of the filter; τ is the duration of the signal pulse. At $\Delta f_{eff.opt.} = \frac{0.65}{\tau}$ (for single signal pulses):

$$\left(\frac{a_{outp\ max}}{c_{outp\ max}}\right)_{opt.\ single\ circ.} = \frac{a}{S_o}\tau\frac{(1-e^{-1.3})}{2\cdot 0.65} = 0.56\,\frac{a\tau}{S_o}. \qquad (7)$$

At $\Delta f'_{eff\ opt} = \frac{1.1}{\tau}$ (for reception of an uninterrupted train of pulses):

$$\left(\frac{a_{outp\ max}}{c_{outp\ max}}\right)_{opt'single\ circ.} = 0.36\,\frac{a\tau}{S_o}. \qquad (8)$$

Analogous formulae are then derived for ideal band-filters. In the general and average case, it can be assumed that:

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$$\left(\frac{a_{outp\ max}}{c_{outp\ max}}\right)_{opt} \approx 0.5\,\frac{a\tau}{S_o}. \qquad (12)$$

$$\left(\frac{a_{outp\ max}}{c_{outp\ max}}\right)_{opt} \approx 0.3\,\frac{a\tau}{S_o}. \qquad (13)$$

b) Integrated reception: Δf_{eff} being here the effective static band of the integrator filter, the author shows that the maximum ratio between the signal and the impulse interference is determined by the formula:

$$\left(\frac{a}{c}\right)_{integr.} = \frac{a\tau}{S_o}, \qquad (14)$$

Comparing (14) with (12) and (13), the author obtains: for the reception of single pulses:

$$\frac{\left(\frac{a}{c}\right)_{integr}}{\left(\frac{a}{c}\right)_{opt}} = 2; \qquad (20)$$

for the reception of an uninterrupted train of pulses:

$$\frac{\left(\frac{a}{c}\right)_{integr}}{\left(\frac{a}{c}\right)_{opt}} \approx 3. \qquad (21)$$

This comparison shows the advantage of using the integrated reception. 2) Transient (short-term) sinusoidal interferences. a) Integrated reception: The average statistical amplitude of the interference is assumed to be the same and equal to e_{interf}. The ratio between the signal and the transient sinusoidal interference is given by:

$$h_*^2 = \frac{a^2_{integr}}{\bar{e}^2_{interf}} = \frac{a^2\tau}{e'^2_{interf}} \frac{\tau}{\tau_{interf}} = \frac{a^2\tau}{2\xi_o^2} \frac{\tau}{\tau_{interf}}, \qquad (23)$$

where τ_{interf} is the duration of each interference and ξ_o^2 is the square of the effective value of the interference, assumed to be the same at any frequency. b) Narrow-band reception: The signal-to-interference ratio at the output of the narrow-band resonance circuit is determined by:

$$\left(\frac{a^2}{\overline{e^2_{interf}}}\right)_{outp} = \frac{a^2(1-e^{-2\Delta f_{eff}\tau})^2}{e'^2_{interf}\,\Delta f_{eff}(1-e^{-4\Delta f_{eff}\tau_{interf}})} \quad (29)$$

where Δf_{eff} is the effective frequency-band of the circuit. If $\Delta f_{eff.opt} = \frac{0.65}{\tau}$,

$$\left(\frac{a^2_{outp}}{\overline{e}_{interf\ outp}}\right)_{opt} = \frac{a^2(1-e^{-1.3})^2}{e'^2_{interf}\frac{0.65}{\tau}(1-e^{-2.6\tau_{interf}/\tau})} = \frac{a^2\tau}{e'^2_{interf}}\,\frac{0.82}{1-e^{-2.6\tau_{interf}/\tau}}. \quad (31)$$

Comparing formulae (23) and (31), the author writes:

$$A = \frac{(23)}{(31)} = 1.22(1-e^{-2.6p})\frac{1}{p}, \quad (33)$$

where $p = \tau_{interf}/\tau$. Formula (33) permits to rate the advantages of the integrated reception. After examining the effect of the irregular variations of the signal pulse amplitude, the author draws the following conclusions: The noise immunity of the integrated reception, as compared to the narrow-band reception, is the greatest in the case of impulse interferences and transient sinusoidal interferen-

31197
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Noise immunity in integrated reception of...

ces. In the reception of single signal pulses, the immunity of the integrated reception as regards fluctuation and "undamped" sinusoidal interferences is but little different from that of the usual narrow-band reception with optimum frequency-bands. The integrated reception noise immunity for each kind of interferences is determined by the magnitude of the signal-to-interference ratio; these magnitudes, such as computed by the author, are listed in two tables. There are 2 figures, 2 tables and 3 Soviet-bloc references. The names of Soviet scientists mentioned in the article are Kotel'nikov and Gonorovskiy.

4

SUBMITTED: April 18th, 1960

Card 6/6

TEPLOV, N.L.

Determination of the functions of an ideal receiver. Radiotekhnika 16 no.3:31-39 Mr '61. (MIRA 14:2)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im. A.S.Popova.
(Radio—Recievers and reception) (Information theory)

39466
S/106/62/000/008/001/009
A055/A101

9.3280

AUTHORS: Teplov, N.L., Shmatchenko, V.F.

TITLE: Analysis of the integrator of rectangular radio pulses

PERIODICAL: Elektrosvyaz', 16, no. 8, 1962, 3 - 12

TEXT: The authors determine the parameters of the ideal integrator (with linear integration) and of the integrator with a single oscillating circuit. Ideal integrator: The equation of the integrator resonance characteristic is:

$$y(\Delta f)_\tau = \frac{a(\Delta f)_\tau}{a(0)_\tau} = \frac{\sin \pi \Delta f \tau}{\pi \Delta f \tau}, \tag{9}$$

where $\Delta f = \frac{\Delta \omega}{2\pi}$ and $\Delta\omega = \omega - \omega_0$, τ is the duration of the integration. The effective frequency-band of the integrator is

$$\Delta f_{eff\,\tau} = \int_{-\infty}^{\infty} y^2(\Delta f)_\tau \, d\Delta f = 2\int_0^{\infty} \frac{\sin^2 \pi \Delta f \tau}{(\pi \Delta f \tau)^2} d\Delta f = \frac{1}{\tau}. \tag{12}$$

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Assuming that the signal is $A(t) = a_0 \sin \omega_0 t$ at $0 \leqslant t \leqslant \tau$, (13)
(τ being the duration of the signal), the excess of the signal over the interference at the output of the integrator will be

$$h^2_{id\ integr} = \frac{\frac{a_0^2}{2}}{\nu_0^2 \Delta f_{eff} \tau} = \frac{a_0^2 \tau}{2 \nu_0^2}, \qquad (14)$$

where ν_0^2 is the specific intensity of the interferences (in the 1-cycle-band). Integrator with a single oscillating circuit: The authors obtain the dynamic resonance characteristic of the intergrating circuit:

$$y(\Delta f)_\tau = \frac{a(\tau, \Delta f)}{a(\tau, \Delta f = 0)} = \frac{\sqrt{1 - 2e^{-2\gamma} \cos 2\pi x + e^{-4\gamma}}}{\sqrt{1 + (\pi \frac{x}{\gamma})^2} (1 - e^{-2\gamma})}, \qquad (21)$$

where $\gamma = \tau \Delta f_{eff}$; $x = \Delta f \tau$. At $\tau \to \infty$,

$$\lim_{\tau \to \infty} y(\Delta f)_\tau = y(\Delta f) = \frac{1}{\sqrt{1 + (\pi \frac{x}{\gamma})^2}}, \qquad (22)$$

which is the equation of the static resonance characteristic. On the basis of (21), the authors calculate the ordinates corresponding to the minima and maxima of the dynamic characteristic. They next give the formula for the effective dynamic frequency-band of the integrator:

$$\Delta f_{eff\,\tau} = \int_{-\infty}^{\infty} y^2 (\Delta f)_\tau \, d\Delta f = \int_{-\infty}^{\infty} \frac{1 - 2e^{-2\gamma}\cos 2\pi\Delta f\tau + e^{-4\gamma}}{\left[1 + \left(\pi\frac{\Delta f\tau}{\gamma}\right)^2\right](1 - e^{-2\gamma})^2} d\Delta f \,. \quad (28)$$

This formula shows that, at an unlimited narrowing of the static band, the dynamic frequency-band of the integrating circuit tends towards the effective frequency-band of the ideal integrator. The excess of the signal over the interferences at the output of the integrating circuit is:

$$h^2_{integr} = \frac{a_0^2}{2\nu_0^2 \Delta f_{eff\,\tau}} = \frac{a_0^2\tau}{2\nu_0^2}\frac{1}{\gamma}\frac{1 - e^{-2\gamma}}{1 + e^{-2\gamma}} = Q^2 \frac{1}{\gamma}\frac{1 - e^{-2\gamma}}{1 + e^{-2\gamma}}, \quad (32)$$

where $Q^2 \doteq h^2$ is the limit-value of the excess, and a_0 is the input signal ampli-

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A055/A101

Analysis of the integrator of rectangular ....

tude. The analysis of the curve showing the dependence of $\frac{h^2_{integr}}{h^2}$ on γ permits formulating the requirements set upon the parameters of the single oscillating circuit. The ratio of the amplitudes at the beginning and the end of the damping of the oscillations is $k = e^{\alpha_\Sigma \Delta\tau_{damp}}$, where $\alpha_\Sigma = \alpha_1 + \alpha_2$ (α_1 being the attenuation of the circuit in the integration period, and α_2 the additional attenuation for the damping of the oscillations), and $\Delta\tau_{damp}$ is the damping time. Designating by $\Delta f_{eff\,\Sigma}$ the effective frequency-band of the circuit in damping operation, the authors write: $\ln k = 2\Delta f_{eff\,\Sigma}\Delta\tau_{damp}$, or (replacing $\Delta f_{eff\,\Sigma}\Delta\tau_{damp}$ by $\Delta\gamma_\Sigma$):

$$\Delta\gamma_\Sigma = \frac{\ln k}{2}. \quad (36)$$

A graph illustrates the dependence (36). The Soviet personalities mentioned in the article are: V.A. Kotel'nikov, I.S. Gonorovskiy. There are 11 figures.

SUBMITTED: January 13, 1962

Card 4/4

transmission system, interference resi

[illegible] almost optimal signal reception systems [illegible] of signals with fre-

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755310019-9"

L 7646-66 EWT(1)/EWA(h)

ACC NR: AP5024996 SOURCE CODE: UR/0286/65/000/016/0059/0060

AUTHOR: Teplov, N. L. 19

ORG: none B

TITLE: Kinematic filter. Class 21, No. 173857

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 59-60

TOPIC TAGS: filter circuit, resonator

ABSTRACT: This Author Certificate presents a kinematic filter made of a quartz resonator connected to the load and provided with an active resistance for suppressing residual oscillations. To increase the effectiveness of residual oscillation suppression, the active resistance is connected in series with a switching unit and in parallel with the load resistance (see Fig. 1). A negative feedback circuit is connected between the output and input of the filter.

Card 1/2 UDC: 621.372.543.2

L 7646-66

ACC NR: AP5024996

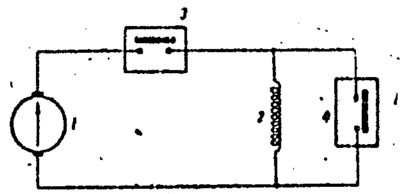


Fig. 1. 1- active resistance; 2- switching unit; 3- load resistance; 4- filter input terminals; 5- negative feedback circuit

Orig. art. has: 1 diagram.

SUB CODE: EC/ SUBM DATE: 01Aug60

Card 2/2

ACC NR: AT6022363 SOURCE CODE: UR/0000/66/000/000/0012/0016

AUTHOR: Teplov, N. L.

ORG: none

TITLE: Potential noise rejection ability and methods of realization of optimal codes

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya teorii informatsii. Doklady. Moscow, 1966, 12-16

TOPIC TAGS: signal noise separation, signal coding

ABSTRACT: Examination of known theoretical formulas for errors in code-transmission systems shows that: (1) The noise-rejection ability of an optimal (equidistant) binary code is determined only by its base m and is independent of the number n of digits used; (2) Within acceptable error-probability values (10^{-3}--10^{-6}), the orthogonal code having m_{max} ensures a probability of information-transmission error by three orders of magnitude lower than that of the optimal binary code. Methods of constructing orthogonal codes are briefly discussed in general terms. Orig. art. has: 1 figure and 12 formulas.

SUB CODE: 17, 09 / SUBM DATE: 28Apr66 / ORIG REF: 004 / OTH REF: 000

Card 1/1

TEPLOV, N. S.

PHASE I BOOK EXPLOITATION SOV/3752

Metallovedeniye; sbornik statey, No. 3 (Physical Metallurgy; Collection of Articles, No. 3), Leningrad, Sudpromgiz, 1959. 390 p. 3,200 copies printed.

Ed.: G. L. Kapyrin, Candidate of Technical Sciences; Literary and Tech. Ed.: N. I. Doronenko.

PURPOSE: This collection of articles is intended for scientific personnel at research and educational institutions and industrial plants and also for advanced students.

COVERAGE: The articles report the results of investigations of 1) the effect of various factors on the susceptibility of constructional and heat-resistant steels and titanium alloys to brittle failure at various temperatures under various conditions of loading (long-time, short-time, cyclic, noncyclic) 2) alloying, structure, and condition of alloys as related to their mechanical properties, and 3) corrosion resistance and evaluation of stainless and heat-resistant steels. The articles are accompanied by numerous Soviet and non-Soviet references. No personalities are mentioned.

Zav'yalov, A. S., Doctor of Technical Sciences, Professor. Nature of Steel-Embrittlement Processes During Heating and the Effect of Alloying Elements on Them 5

Teplova, Ye.D., Candidate of Technical Sciences; N. S. Teplov, Engineer; and Ye. A. Mironenko, Technician. Effect of Nickel and Copper on Thermal Brittleness of Chrome-Molybdenum-Vanadium Constructional Steel 39

Moroz, L. S., Doctor of Technical Sciences; and T. K. Mingin, Engineer. Mechanism of Hydrogen Embrittlement in Steel 51

Glikman, L. A., Doctor of Technical Sciences, Professor; N. N. Kolgatin, Engineer; V. P. Teodorovich, Candidate of Chemical Sciences; and V. I. Deryabina, Engineer. Change in Mechanical Properties of Certain Steels Under the Action of Hydrogen at High Temperatures and Pressures 58

Moroz, L. S., and Yu. D. Khesin, Engineer. Investigation of the Mechanism of Hydrogen Embrittlement of Titanium and Its Alloys 74

Sakhin, S. I., Candidate of Technical Sciences. Role of Intermediate Structures in the Heat Treatment of Medium-Alloy Constructional Steel 88

Gol'dshteyn, L. Ya., Engineer. Stability of Structures and Properties of Tempered Steel 106

Remchinskiy, A. L., Candidate of Technical Sciences. Microscopic and Macroscopic Cracks in Quench-Hardened Steel 118

Chernetsov, V. I., Engineer. Sensitivity of Titanium and Its Aluminum Alloys to Brittle Failure Under Nonrepetitive Loading 136

Chechulin, B. B., Candidate of Technical Sciences. Investigation of the Relationship Between Size of Specimen and Development of the First Failure Crack in Testing Steel for Mechanical Properties 158

Pashkov, P. O., Doctor of Technical Sciences, Professor. Some Observations on the Strength of Metals as Related to Their Microstructure 166

Shurakov, S. S., Candidate of Technical Sciences. Investigation of the Initial Portions of Stress-Strain Diagrams and Relaxation of Stresses for Quench-Hardened Steel 198

ACCESSION NR: AT4007 [illegible]

AUTHOR: [illegible]; Teodorovich, V.P.; Teplov, N.S.

TITLE: Effect of gas-saturated layer on the strength and ductility characteristics of titanium alloys

SOURCE: AN SSSR. Institut metallurgii. ... i yego splavy*, no. 10, 1963. Issledovaniya titanovy*kh splavov, [illegible]

TOPIC TAGS: titanium [illegible] ductility, VT-14 titanium alloy, VT-3-1 titanium alloy [illegible] gas saturated layer, [illegible] alloy

[illegible]: Contamination [illegible] alloys: VT-[illegible] -Al-[illegible] experimental Alloy No. [illegible] balance Ti), at [illegible] to [illegible] hours. [illegible] that in air [illegible] of [illegible] oxygen diffuses [illegible] superficial alpha-[illegible] which is characterized by increased [illegible] and reduced ductility. The strength of the specimens, however, was

[illegible] 2

ACCESSION NR: AT4007631

markedly reduced. Thus, at 1100 ... the strain ... 70-80 ... notch toughness decreased 70-80% ... dropped ... hours. ... on the other hand ... investigated exhibited high ... , especially those saturated ... original mechanical properties could be restored by removal of ... Orig. art. has: 7 tables and 7 figures.

ASSOCIATION: Institut metallurgii AN SSSR (Metallurgical Institute AN SSSR)

SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 00

SUB CODE: MM NO REF SOV: 003 OTHER: 001

Card 2/2

TERIOV, N.V.

Studying the specificity of antigens from Bunostomum on guinea pigs and sheep. Veterinariia 41 no.4:51-52 F '65. (MIRA 18:9)

1. Biologo-pochvennyy institut Dal'nevostochnogo filiala Sibirskogo otdeleniya AN SSSR.

S/191/61/000/008/002/006
B110/B201

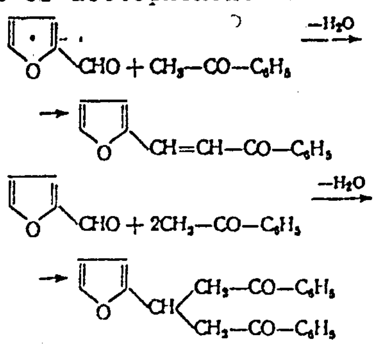
15.8130

AUTHORS: Kamenskiy, I. V., Itinskiy, V. I., Teplov, N. Ye.
Andrianov, B. V.

TITLE: Synthesis and study of monomeric and polymeric reaction products of acetophenone with furfurole

PERIODICAL: Plasticheskiye massy, no. 8, 1961, 12 - 15

TEXT: Reaction products of acetophenone with furfurole are as follows:



(I)

(A)

(II)

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Synthesis and study of monomeric...

(II) is obtained with considerable excess of acetophenone only. (I) is prepared by condensation of equimolecular amounts of furfurole and acetóphenone by means of sodium ethylate in alcohol in a yield of 60 - 80 %. In consideration of the fact that the production of resins by means of benzene sulfonic acid catalysts and resulting resin products had been hitherto insufficiently described, their description was the aim of the present work. The authors used (1) furfurole, (2) acetophenone. The polymers were obtained (I) directly from the reaction mass without separation from monofurfurylidene acetophenone (MFAP), (II) by way of resinification of MFAP. The product produced by Harvey's method (Ref. 8: USA Patent 2,461,510 (1949)) loses fluidity on the passage to the B stage.. Hardening takes place at 250°C during 30 minutes with the separation of 50 % of volatile parts. The authors washed the reaction mass with cold water, dried it at 100°C and 15 mm Hg during 3 hr, thus obtaining a brown oily liquid. A vacuum distillation yielded: 14 % furfurole, 16 % acetophenone, 60 % MFAP, 10 % resin. After 3.5 hr of heating at 250°C a fusible black resin (dropping point 65°C) was obtained. On addition of 5 % benzene sulfonic acid (50 % acetone solution) the resin is hardened during 19 minutes at 250°C under separation of 40 % of volatile parts and

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B110/B201

Synthesis and study of monomeric...

formation of foaming products. Table 1 shows that in MFAP production under optimum, equimolecular conditions, a temperature drop (experiments 1 - 5) reduces the resin formation and at the same time retards the MFAP formation. An increase of the catalyst amount (experiments 4,6,7,9-12) and a concentration increase of its aqueous solution (experiments 10 - 11), however, speed it up. At room temperature (experiments 8 - 12), MFAP is obtained without resin. 20 g KOH in 20 g H_2O were added by drops to 96 g furfurole and 120 g acetophenone within 20 - 30 minutes, neutralized with 0.5 N HCl, washed with H_2O until Cl^- ions were removed completely, and dried in vacuum. MFAP is bright-yellow, fine-crystalline with the melting point 41.8°C, and 89 % of the theoretical yield, soluble in all organic solvents (to 12 % in petroleum ether). Its specific gravity was 1.1120, the boiling point 186°C at 11 mm Hg, 181°C at 9 mm Hg. The molecular weight, cryoscopically determined in dioxan was 196.8, the oxime number was 250. since benzylidene acetophenone compounds add two hydroxyl amine molecules Resinification took place (I) thermally, (II) in the presence of a catalyst. According to Table 3, resinification takes place at high temperatures (250°C) with 95 - 97 % yield. Since benzene sulfonic acid (BSA) and H_2SO_4
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Synthesis and study of monomeric ...

(Table 4) dissolve in the monomer, the latter was heated to 80° C in a three-necked flask, and 1 - 5 % catalyst was added under vigorous stirring. The resin obtained in a yield of 98 % was brittle at room temperature. 0.25 M (49.5 g) monomer in 100 ml toluene yielded with 5 % BSA (referred to the monomer) a viscous, rubber-like mass which gradually hardened to a non-melting, unsoluble polymer. All resins were black, with a shining surface, and a specific gravity of 1.1 - 1.5. The dropping point of the resin obtained without BSA was 71°C; that of resin prepared with 1 % BSA was 78°C. The resins were found to be well soluble in benzene, its derivatives, dioxan, chlorohydrocarbon, various ketones (cyclohexanone), scarcely in alcohols and ethers. Fractionating allowed recognizing a polydisperse character. Four fractions were separated from a 10 % acetone solution: (1) insoluble residue, (2) and (3) were separated by addition of 10 ml H_2O to a 100 ml solution, (4) by means of 1000 ml H_2O. Infrared spectra for resins produced without (I) and with (II) catalyst yielded CO bands (1685 - 1665 cm^{-1}) and double bond bands (1647 - 1621 cm^{-1}) in the conjugate -C=C-O-system. The double bond peaks were, however, found to be weaker particularly with (I). The peak of ethylene bond (1285 - 1310 cm^{-1}) exists only with monomer and (II). The absorption band of the furan ring

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Synthesis and study of monomeric...

(1131 - 1189 cm^{-1}) is weaker with (I) and (II) than with the monomer. The peaks of the benzene nucleus (1110 - 1070 cm^{-1}) appear in the three spectra, whereas the furan ring bound in α,α'-position (1378 cm^{-1}) was found only with (I) and (II). There are 1 figure, 5 tables, and 15 references: 6 Soviet-bloc and 9 non-Soviet-bloc. The references to English-language publications read as follows: Ref. 7: US Patent 2,461,508 (1949); Ref. 8: US Patent 2,461,510 (1949); Ref. 9: US Patent 2,768,408 (1956)

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755310019-9"

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R001755310019-9"

GORDVIKOV, N.N.; TEPLOV, N.Ye.; KABACHNIK, M.I.

Synthesis of O-ethyl-S-(β-aryloxyethyl) ethylthiophosphonates. Izv.AN SSSR. Ser.khim. no.1:164-166 '66. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR. Submitted May 17, 1965.

TEPLOV, O.V., mladshiy nauchnyy sotrudnik

Role of human ascarids in the epizootiology of ascariasis in piglets. Trudy VIGIS 11:156-160 '64. (MIRA 18:12)

ABUSITOV, S.K., izobretatel'; TEPLOV, P.V., izobretatel'; GOGULIN, I.Ya., izobretatel'

Designing new looms. Izobr.v SSSR 2 no.2:5-6 F '57. (MIRA 12:3)

1. Gavrilovo-Posadskaya tkatskaya fabrika.
(Looms)

TEPLOV, S.I., kandidat meditsinskikh nauk (Leningrad); SOKOLOVA, Ye.A. (Leningrad)

Effects of the cerebral cortex on the cardiovascular system connected with imminent surgery. Klin.med. 34 no.9:41-47 S '56. (MLRA 9:11)

1. Iz terapevticheskogo sektora (zav. deystvitel'nyy chelen AMN SSSR prof. M.V.Chernorutskiy) Instituta fiziologii im. I.P.Pavlova AN SSSR (dir. akad. K.M.Bykov) i Gospital'noy khirurgicheskoy kliniki (dir. prof. F.G.Uglov) I Leningradskogo meditsinskogo instituta imeni I.P. Pavlova (dir. A.I.Ivanov)

(SURGERY, OPERATIVE, psychol.
eff. of cerebral cortex activity on cardiovasc. system)
(CEREBRAL CORTEX, physiol.
eff. of cortical activity on cardiovasc. system before imminent surg.)
(CARDIOVASCULAR SYSTEM, physiol.
eff. of cortical activity befor imminent surg.

TEPLOV, S. I.

EXCERPTA MEDICA Sec.18 Vol.1/6 Cardiovascular June 57

1795. TEPLOV S. I. Lab. of Electrophysiol., 'I.P Pavlov' Inst. of Physiol., Leningrad *Experimental coronary insufficiency and its reproduction as conditioned reflex (Russian text)* Fiziol. Z. 1956, 42/9 (745—751) Illus. 5

I.v. injection of posterior pituitary extract (3 units in a dog of 21.5 kg. and 5 units in another dog of 13 kg.) produced within 30-45 sec. sinus bradycardia (30 to 40 beats/min.), prolongation of the P-R interval (by 0.02 to 0.03 sec.) and of the Q-T interval (by 0.04 to 0.05 sec.) and an increase of the T wave by about 3 times the original amplitude. The peak amplitude occurred 2.5 to 3 min. after injection and disappeared in the 6th to 7th min. These changes, interpreted as due to coronary insufficiency, could be reproduced by a conditioned acoustic signal applied 30 sec. before injection of the extract. Conditioned bradycardia appeared after 80 repeats, prolongation of the P-R interval after 120-130 repeats and conditioned increase of the T wave after 100 repeats. Although the number of repeats necessary for the formation of the conditioned reflex was unusually large, the conditioned response was in no way different from the direct effect. Once established, the conditioned reflex was very stable; it disappeared only after 150-160 repeats without reinforcement.

Simonson – Minneapolis, Minn. (II, 18)

EXCERPTA MEDICA Sec 18 Vol 3/6 Cardiovascular June 59

1323. **Mechanism of electrocardiographic changes produced by pain stimulation (Russian text)** Iljina A. I. and Teplov S.I. I.P. Pavlov Inst. of Physiol. and Lab. of Pathol. Physiol., District Milit. Hosp., Leningrad *Fiziol. Zh.* 1958, 44/8 (720–726) Illus. 5

Electrical stimulation of the sciatic nerve in a curarized cat produced a slight ST_2 elevation within 5 to 10 min., and a more pronounced ST_2 elevation several hours after stimulation, coinciding with the first and second phase of blood pressure elevation. These changes were prevented by bilateral denervation of the adrenals.

Simonson - Minneapolis, Minn. (II, 18)

TEPLOV, S.I.

Reflex reactions from the stomach on the blood in experimental gastritis [with summary in English]. Biul.eksp. biol. i med. 46 no.7:20-23 Je '58 (MIRA 11:7)

1. Iz eksperimental'noy laboratorii (nach. - kand.med.nauk S.I. Teplov) Leningradskogo okruzhnogo voyennogo gospitalya (nach. N.S. Sokolov). Predstavlena deystvitel'nym chlenom SSSR M.D. Tushinskim.

(GASTRITIS, experimental,
eff. on leukocyte count (Rus))
(LEUKOCYTE COUNT,
exper. gastritis (Rus))

FROL'KIS, A.V., TEPLOV, S.I.

Changes in the secretomotor activity of the stomach in experimental gastritis [with summary in English]. Biul.eksp.biol. i med. 46 no.8:44-48 Ag '58 (MIRA 11:10)

1. Iz Leningradskogo okruzhnogo voyennogo gospitalya (nach. N.S. Sokolov) Predstavlena deystvitel'nym chlenom AMN SSSR M.D. Tushinskim.

(GASTRITIS, exper.
eff. on secretomotor activity of stomach in dogs (Rus))
(STOMACH, physiol.
eff. of exper. gastritis on secretomotor activity in dogs. (Rus))

TONKIKH, A.V.; IL'INA, A.I.; TEPLOV, S.I.

Mechanisms underlying changes in coronary blood flow accompanying pain stimulation. Fiziol,zhur.SSSR 45 no.7:753-760 Jl '59. (MIRA 13:4)

1. Laboratoriya nervnoy trofiki Instituta fiziologii im. I.P. Pavlova AN SSSR, i Patofiziologicheskaya laboratoriya Okruzhnogo voyennogo gospitalya, Leningrad.
(CORONARY VESSELS physiology)
(PAIN physiology)

TONKIKH, A.V.; IL'INA, A.I.; TEPLOV, S.I.

Pharmacological analysis of the mechanism of changes in the blood pressure and coronary circulation following painful stimulations. Fiziol. zhur. 46 no.12:1456-1462 D '60. (MIRA 14:1)

1. Laboratoriya nervnoy trofiki Instituta fiziologii im. I.P.Pavlova AN SSSR, Leningrad.
(BLOOD PRESSURE) (CORONARY VESSELS)
(PHARMACOLOGY)

TONKIKH, A.V.; IL'INA, A.I.; TEPLOV, S.I.

Changes in the coronary circulation and blood pressure during stimulation of the hypothalamus region. Fiziol. zhur. 47 no.7: 801-805 Jl '61. (MIRA 15:1)

1. From the Laboratory of Tropic Innervation, I.P.Pavlov Institute of Physiology, Leningrad.
(CORONARY VESSELS) (BLOOD PRESSURE)
(HYPOTHALAMUS)

TEPLOV, Sergey Ivanovich; VASILEVSKIY, N.N., red.; SAFRONOVA, I.M., tekhn. red.; KHARASH, G.A., tekhn. red.

[Neural and hormonal regulation of coronary blood circulation] Nervnaia i gormonal'naia reguliatsiia koronarnogo kroboobrashche-niia. Leningrad, Medgiz, 1962. 142 p. (MIRA 15:6)
(CORONARY VESSELS)

L 29213-66

ACC NR: AP6019078 SOURCE CODE: UR/0239/65/051/005/0554/0563

AUTHOR: Teplov, S. I.

ORG: Laboratory of the Physiology of the Vegetative Nervous System and Nerve Trophics, Institute of Physiology im. I. P. Pavlov, AN SSSR, Leningrad (Laboratoriya fiziologii vegetativnoy nervnoy sistemy i nervnoy trofiki Instituta fiziologii AN SSSR)

TITLE: Role of adrenergic mechanisms in the development of prolonged changes in the electrocardiogram and blood pressure following stimulation of the hypothalamus

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 51, no. 5, 1965, 554-563

TOPIC TAGS: EKG, blood pressure, cat, vasopressin, hormone

ABSTRACT: In experiments conducted on cats, stimulation of the anterior regions of the hypothalamus produced a two-phase (depressor-pressor) reaction of the blood pressure followed by development of a prolonged (up to 3 hours) wave of blood pressure increase. Furthermore, pronounced and stable changes in the EKG, specifically in the ST segment and T wave, were observed. Upon an intravenous injection of chlorpromazine (largactyl) or denervation of the suprarenals, the prolonged pressor reaction and the pressor phase of the initial reaction were absent, while no changes in the EKG occurred. Irritation of the posterior-median hypothalamus generally produced either no change or a gradual decrease in the blood pressure, while the changes in the EKG were minor. In three experiments out of 12, a precipitate drop in the blood pressure took place. The effects of the administration of chlorpromazine or denervation of the suprarenals indicated that the prolonged pressor reaction produced by irritation of the anterior hypothalamus was due to a hormonal reaction initiated by adrenalin and resulting in the evolution of vasopressin by the anterior hypophysis. Blocking of the supply of adrenalin eliminated the pressor reaction. Orig. art. has: 6 figures. [JPRS]

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UDC 612.18/612.178

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L 28045-66

ACC NR: AP6018179 SOURCE CODE: UR/0239/65/051/006/0755/0761

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B

AUTHOR: Tonkikh, A. V.; Il'ina, A. I.; Teplov, S. I.

ORG: Laboratory of Physiology of the Vegetation Nervous System and Nerve Trophism, Institute of Physiology im. I. P. Pavlov, AN SSSR, Leningrad (Laboratoriya fiziologii vegetativnoy nervnoy sistemy i nervnoy trofiki Instituta fiziologii AN SSSR)

TITLE: Changes in the electrical activity of the hypothalamus upon irritation of a sensory nerve or administration of adrenaline

SOURCE: Fiziologicheskiy zhurnal, v. 51, no. 6, 1965, 755-761

TOPIC TAGS: pharmacology, electrophysiology, cat, EEG, brain, blood pressure, rasopressin, animal physiology

ABSTRACT: In experiments on cats, irritation of the central end of a severed sciatic nerve (a pain irritation) and intravenous injection of adrenaline had the same effect on the electric activity of the hypothalamus: the activity in both the anterior and posterior divisions of the hypothalamus was increased (desynchronization of EEG rhythms took place and the amplitude of EEG waves was increased). This reaction coincided with an increase in the blood pressure, but was sometimes accompanied by a blood pressure decrease. Within 1.5-3 hrs. after the primary effect (stimulation of the electrical activity of the hypothalamus following the pain

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ACC NR: AP6018179

(irritation or injection of adrenaline), a second increase in the electrical activity of the hypothalamus took place, which coincided with the prolonged wave of blood pressure increase described in the authors' earlier work. One may assume that a chain neurohormonal reaction involving stimulation of the hypothalamus developed both in response to irritation of the sciatic nerve and to injection of adrenaline. Irritation of the sciatic nerve stimulated the sympathico-adrenal system; vasoconstriction under the effect of nerve action and also release into the blood of adrenaline and vasopressin, which was controlled by the vegetative centers of the hypothalamus, took place. The initially released adrenaline stimulated the hypothalamus, with the result that vasopressin was released, producing the second, prolonged increase in blood pressure, which was of purely hormonal origin. Orig. art. has: 6 figures. [JPRS]

SUB CODE: 06/ SUBM DATE: 30Jan64/ ORIG REF: 005/ OTH REF: 009

Card 2/2 CC

VASIL'YEVA, L.I.; TEPLOV, S.I.

Changes in the coronary blood flow in stimulation of the afferent fibers of the vagus nerve. Fiziol.zhur. 51 no.7:826-831 '65. (MIRA 18:10)

1. Laboratoriya fiziologii vegetativnoy nervnoy sistemy i nervnoy trofiki Instituta fiziologii imeni I.P.Pavlova AN SSSR, Leningrad.

Teplov, S. V.

YELIZAROV, P.P., kandidat tekhnicheskikh nauk; TEPLOV, S.V., inzhener

Heat losses during the starting and shutdown of the TP-170 boiler. Teploenergetika 2 no.7:38-44 Jl '55. (MIRA 8:10)

1. Moskovskiy energeticheskiy institut
(Boilers)

BLOKHIN, V.N.; GRIGOR'YEV, M.G.; KOZHEVNIKOV, A.I.; KOROLEV, B.A.; MATYUSHIN, I.F.; PARIN, B.V.; TSIMKHES, I.L.; KALININA, G.V.; FEDOROV, A.M.; KOLOKOL'TSEV, M.V.; SOKOLOV, V.V.; PRILUCHNAYA, O.A.; SHUMILKINA, Ye.I.; ABRAMOV, Yu.G.; RYURIKOV, A.Kh.; IKONNIKOV, P.I.; VOZNESENSKIY, I.Ya.; TEPLOV, S.V.; MIZINOV, N.N.; KUKOSH, V.I.

V.M.Durmashkin; obituary. Ortop., travm. i protez. 21 no.8:81 Ag '60. (MIRA 13:11)

(DURMASHKIN, VIKTOR MARKOVICH, d. 1960)

ACCESSION NR: AP4004156 S/0294/63/001/002/0318/0320

AUTHOR: Filimonov, S. S.; Kryukova, M. G.; Teplov, S. V.; Aygistov, A. A.

TITLE: Test stand for studying heat transfer in the flow of liquid aluminum in a pipe

SOURCE: Teplofizika vy*sokikh temperatur, v. 1, no. 2, 1963, 318-320

TOPIC TAGS: heat transfer, liquid aluminum heat exchanger, liquid metal, liquid aluminum, aluminum heat transfer, heat exchanger, liquid metal coolant, coolant, fluid flow

ABSTRACT: A test stand has been designed for heat-transfer studies with liquid aluminum. The use of liquid aluminum as a heat-transfer agent in heat exchangers operating at temperatures exceeding 1200C is being investigated since difficulties are encountered with alkali metals at such temperatures. Fig. 1 of the Enclosure shows the test assembly. An induction-type electromagnetic pump with a traveling magnetic field (capacity 3 m^3/hr) was specially

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