space ship will be able to perform flights to the various planets of our solar system. The higher the speed developed by her, the farther the distant planets it will be able to reach. The further development of astronautics consists in the struggle for the mastering of speeds as high as possible with a maximum useful load, which is only possible on the basis of a further perfection and development of the rockets, their propulsion devices and flight control systems. The author proposes to create an international organ for the purpose of registering the achievements in the field of rocket engineering similar to that existing in aviation. Even at a cosmic speed of 16,7 km per second the flight to the nearest planet would last months and years by still taking account of the fact that the flights may only be performed at the rare moments when the planets are in their most favorable position. It will be necessary to equip the rocket propulsions with more effective sources of energy than the chemical ones. It cannot be foreseen yet whether they will consist of atomic ions, or of other means of propulsions respectively. K. E. Tsiolkovskiy reported for the first time (Ref 1) on the use of ion currents in rocket propulsion. The perigee of the trajectory of artificial

satellites of the earth will be at a height of more than 1000 kilometers from the surface of the earth in the near future. By this, the carrier rocket of the last stage as well as the earth satellite will no longer be able to return to the earth and it will be possible to use them for the construction of extraterrestrial stations. In the course of a series of years, flights with dogs and scientific apparatus to heights of 100 to 200 kilometers and to still greater heights will be systematically carried out in the USSR. The creation of man-carrying rockets and earth-satellites ought to be effected within the course of the next years. Light gliders which will be an attribute of many space ships and extra-terrestrial stations will serve for the purpose of landing of the crew on the planets. Automatically controlled rockets should be constructed for reaching the moon and flying around her, which also results from the work carried out by V. A. Yegorov (Ref 2). The development of radio-communication of the space ships with the earth, with the extra-terrestrial stations and among

Chief Problems of Astronautics SOV/30-58-6-3/45

them is also required for the successful solution of the problems of astronautics. The scientific apparatus in the rockets and artificial satellites of the earth must also be further developed in order to thoroughly investigate the earth and space. There are 2 references, which are Soviet.

1. Satellite vehicles--USSR 2. Satellite vehicles--Ve[illegible]
3. Satellite vehicles--Control systems 4. Rocket propulsion --Applications

Card 4/4

26(5), 29(C)

AUTHOR: Petrovich, G. V., Professor

TITLE: The First Artificial Satellite of the Solar S[illegible] (Pervyy iskusstvennyy sputnik Solntsa)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr [illegible], [illegible] SSSR

ABSTRACT: On January 2, 1959 a multistage space rocket [illegible] the Soviet Union, the last stage of which [illegible]. After flying 34 hours it passed the moon [illegible] 5000-6000 km and entered an elliptical orbit [illegible] author of this article gives the computat[illegible] orbit of the rocket, the revolution period [illegible] 450 days (about [illegible] months), maximum speed [illegible] minimum speed of 2[illegible].7 km/sec. The largest [illegible] rocket and the earth during its revolution [illegible] given to be 300-350 million kilometers, [illegible] very short. The scientific measuring instruments [illegible] the last stage weigh 361.3 kg. For the launching [illegible] artificial solar satellite an improved huge ca[illegible] was used. The author gives three directions of spa[illegible] which may be developed simultaneously. [illegible]

Card 1/3

The First Artificial Satellite of the Solar System SOV, [illegible]

number of artificial earth satellites [illegible]
for the observation of the whole earth's surface [illegible]
surrounding atmosphere. For this purpose [illegible]
to devise a method of safe landing on the earth [illegible]
satellites or their respective parts. Further [illegible]
of an artificial moon satellite which would be in constant
radio contact with the earth is described as useful. For the
exploration of the moon scientific measuring instruments
radio stations must be installed on its surface, [illegible]
supposes, however, the solution of a safe method [illegible]
on the moon's surface for launching also manned rockets [illegible]
only could secure complete exploration of the moon's surface.
The third direction concerns the planets of [illegible]
(Mars and Venus). It is to be expected that interplanetary
flights will take several years, as may be seen from [illegible]
papers of G. V. Petrovich (Ref [illegible]). The [illegible]
quest of outer space was pronounced already [illegible]
nineteenth century by K. E. Tsiolkovskiy. Finally, the author
emphasizes that the Soviet State puts at [illegible]
its highly developed science and industry [illegible]

Card 2/3

The First Artificial Satellite of the Solar System SOV [illegible]

of scientists, designers and engineers [illegible]
ploration of the space. There is [illegible]

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PETROVICH, V. A.

Soviet [illegible] rockets; A report on the flight and scientific results of the second and third space rockets (Rev. Ed.) L'vov, Soviet Booklets, [illegible].
47 p. illus., diagrs., tables. (Soviet booklet, no. [illegible]
Appendix: Some problems of the return [illegible] ratio of the [illegible],
by V. A. Petrovich.

S/030/60/000/009/001/016
B021/B056

AUTHOR: Petrovich, G. V., Professor

TITLE: Space Vehicles on the Orbits of Earth Satellites

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, No 9, pp 30 - 37

TEXT: On January 20, 1960 the first Soviet rocket was launched along the water area of the Pacific; it reached its target, which was about 12,500 km distant. On January 31, the second rocket was launched and on July 5 and 7, 1960, two powerful multi-stage carrier rockets were launched. On April 6, 1960 the third Soviet artificial earth satellite completed its course flight the Earth after having covered a distance of 446,600,000 km in 689 days. On May 15, 1960 a space vehicle having a weight of 4,540 kg was launched onto the orbit of an earth satellite by means of a powerful improved carrier rocket. The second space vehicle weighing 4,600 kg was launched onto the orbit of an earth satellite on August 19, 1960. The essential parts of the space vehicle consisted of the cabin and an instrument cell with a braking mechanism. By means of this vehicle the influence exerted by its flight and return to the Earth upon the life of

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the test subjects (dogs, mice, rats, insects, plants, and microbes) was investigated. After it had covered a distance of over 700,000 km within one day on the orbit of the earth satellite, it was guided back onto the landing trajectory by a command from the Earth. The instrument cell was then detached from the cabin, and burnt in the dense atmospheric strata The heat-insulated cabin passed through the atmospheric without being damaged, and was brought down to the Earth by means of a parachute V. V. Parin, Member of the Academy of Medical Sciences USSR, described this vehicle as a model of the 20th century Noah's Ark For the purpose of investigating the upper atmospheric strata and cosmic space, a one stage geophysical rocket having a weight of 2,100 kg was launched up to an altitude of 208 km in the Soviet Union in June 1960. The interpretation of the pictures of the Far Side of the Moon, taken on October 7, 1959 by Lunik III, has been completed. The main part of the work was carried out in Moscow by the Gosudarstvennyy astronomicheskiy institut im P. K. Shternberga (State Astronomical Institute imeni P K Shternberg) together with the Tsentral'nyy nauchno-issledovatel'skiy institut geodezii, aeros"yemki i kartografii (Central Scientific Research Institute of Geodesy, Aerial Surveying, and Cartography). This work was carried out

21318

S/030/61/000/003/003/013
B105/B215

3.2000 (1057, 1080)
3.2100 (2305, 2605, 2705, 1168)

AUTHOR: Petrovich, G.V., Professor

TITLE: First interplanetary travel to the Venus

PERIODICAL: Vestnik Akademii nauk SSSR, no. 3, 1961, 53 - 60

TEXT: This is a report on space exploration by rocket systems. The production of artificial earth satellites of different tonnages and for different purposes is considered to be the first stage; the second one is the detailed exploration of the moon, the third one that of the planets of our solar system. On February 12, 1961, the first interplanetary rocket of the Soviet Union was launched to the Venus. For this purpose, a perfect multi-stage carrier rocket had to be produced. On February 4, 1961, an artificial earth satellite was launched with a weight (6483 kg) 80 times that of the first artificial Soviet satellite (80 kg). The parameters of its orbit were: orbital period: 89.8 min, perigee: 223.5 km, apogee: 327.6 km, orbital inclination: 64°57'. On February 12, a heavy satellite was put into orbit. It served as interplanetary station for launching a rocket to the Venus. Measurements of the orbit showed that

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S/030/61/000/003/003/013
B105/B215

First interplanetary travel ...

the heavy satellite moved on the calculated orbit with great exactitude. Data of the orbit: perigee: 230 km, apogee: 287 km, orbital inclination: 65°. The work of the satellite's aggregates was controlled by radiotelemetric stations on Soviet territory and special ships on the oceans. The cosmic rocket was equipped with an automatic interplanetary station (AIS) was launched by the satellite on February 12; its velocity exceeded the second cosmic velocity by 661 m/sec. The rocket put the station into the orbit to the planet Venus. The engine of the rocket was then turned off, and the station was detached from the carrier rocket. Late on February 14, the orbit became elliptical with the center of the sun as focal point. The main purposes of this flight were: studying the methods of putting a cosmic object into interplanetary orbit, long-distance wireless communication and control of the cosmic station, and physical research in space. The apparatus aboard the AIS served for measuring the cosmic radiation, magnetic fields of charged particles of the interplanetary gas, corpuscular streams of the sun, recording collisions with micrometeors, and studying the optical coefficients of various coatings in interplanetary space. Radiotransmission of the station was controlled from the earth with a frequency of 922.8 Mc/sec. The apparatus aboard were fed by solar batteries.

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S/030/61/000/003/003/013
B105/B215

First interplanetary travel ...

Besides systems for orienting and control there was also programming equipment. Fig. 3 shows the body of the AIS. The maximum length of the station excluding antenna and solar battery, is 2035 mm, its maximum diameter: 1050 mm. The weight without carrier rocket is 643.5 kg. The internal temperature of the station was 20 - 30°C, and the approximate pressure 900 mm Hg. Table 1 gives data on this flight, i.e., the first section of the orbit. The station will pass the Venus on May 19 - 20, 1961 at a distance of less than 100,000 km. Fig. 1 shows the orbit of the AIS projected on to the terrestrial orbit. The best methods of exploring the Venus are: probing of its atmosphere and landing a floating station on its surface. The next occasion suited best for this purpose, will be in August 1962. The AIS and the last stage of the cosmic carrier rocket travel on an orbit round the sun with an aphelion of 151,000,000 km, perihelium: 106,000,000 km, and orbital inclination with respect to the earth: 0.5°. Approaching the Venus to a distance of less than 600,000 km, station and carrier rocket are subject to the attraction of the planet. Gradually their orbit will become approximately hyperbolical with the center of the Venus as focal point. [Abstracter's note: false numbering of the figures in the original has been corrected]. There are 3 figures and 2

Card 3/3 4

23681
S/030/61/000/005/001/012
B105/B202

3.2100

AUTHOR: Petrovich, G. V., Professor

TITLE: Soviet cosmonauts in the near space

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 5, 1961, 13 - 22

TEXT: The author describes the flights of the Soviet artificial earth satellites, especially of the manned space ship "Vostok" aboard which Yu. A. Gagarin landed on the left bank of the Volga near the village of Smelovka of the Ternovskiy rayon of the Saratovskaya oblast' (Saratov oblast'). The space ship "Vostok" was put into orbit by a multi-stage carrier rocket. The total power of all stages of the carrier rocket was 20,000,000 HP. The necessary high thrust was produced by the six liquid engines with relatively low specific fuel consumption. This fact may be regarded as a decisive achievement in Soviet rocket engineering. Furthermore, the ever increasing weights of the earth satellites from 1327 kg in 1958 to 6483 kg in 1961 are mentioned. In the table a summary is given of the studies of six earth satellites. In the last column of the table the main studies of the individual earth satellites are described as

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23681
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Soviet cosmonauts in the ...

follows: 1) the way how the satellite is put into its orbit; warranting of the operation of the conditioning system in the cabin of the cosmonaut; radio communication of the space ship with the earth; operation of the command, of the radar control of the orbital elements, and telemetering of information; checking of the solar batteries, of the systems of stabilization, orientation, and braking. All systems showed normal operation; only one disturbance was observed due to the poor condition of a pick-up. 2) Operation of all systems warranting the life of the cosmonaut, the safety of his flight, and his return to the earth. The cabin contained test animals and plants, an apparatus for the study of cosmic space, and telemetric and television systems, radar systems for the measurement of the orbit and apparatus for radio communication. All systems operated normally. The space ship landed on the predetermined spot. The test animals and the scientific apparatuses were undamaged. 3) Repetition of the program of the second satellite. The space ship burnt in the dense layers of the atmosphere. 4) Further development of the design of the space ship and of the systems warranting the safe flight of the cosmonaut. The cabin contained test animals, plants, and other biological objects. All systems operated normally. The landing took place as scheduled. 5) Repetition

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Soviet cosmonauts in the near ...

of the program of the fourth space ship. All systems operated normally and the cabin with the test animals and the dummy landed on the predetermined spot. 6) The first flight of man in a space ship satellite; the effect of all factors of flight into the near space and the return to the earth on the human organism. All systems operated normally, the cosmonaut Major Yu. A. Gagarin withstood the flight well, he fulfilled the tasks of the program and landed on the predetermined spot. The hermetically sealed cabin was provided with an air conditioning system. The radio antennas and the heat insulating system were mounted to the outside of the cabin. Control, telemetric apparatus, and the system of heat control were fitted to the switch board. The space ship "Vostok" was equipped with rescue systems of many types. For 67 min Yu. A. Gagarin was in the state of imponderability. The danger of the meteors was overestimated. The problem of excessive irradiation is still unsolved. Space stations will be constructed for the landing and launching of cosmic rockets from which they will continue their flight to the moon and the planets of our solar system. In this article the data on the flights of Soviet space ship satellites as well as the article from April 25, 1961 published in the "Pravda" "The first flight of man into outer space" are utilized.

Card 3/

PETROVICH, G., prof.

Through near-by space to universe. Av. i kosm. 45 no.6:8-12 '62. (MIRA 15:10)

(Space flight)

L 9407-66 ARG/EWT(d)/FBD/FSS-2/EWT(1)/FBO/EWP(e)/EWT(m)/FS(v)-3/FA/EWP(e)
FA(b)/FCC/EWP(j)/EWP(h)/FCS(k)/EWP(b)/EWA(h)/ETC(m) TT/WW/RM/GW/WH

ACC NR: AP5025208 SOURCE CODE: UR/0030/65/000/009/0024/0031

AUTHOR: Petrovich, G. V. (Professor)

ORG: none

TITLE: Birth of a new powerful space-rocket system with a "proton" scientific station

SOURCE: AN SSSR. Vestnik, no. 9, 1965, 24-31

TOPIC TAGS: unmanned spacecraft launching, scientific spacecraft, spacecraft data gathering equipment, calorimeter, scintillation counter, cosmic ray particle, artificial satellite orbit, proton, heavy nucleus

ABSTRACT: This paper presents the launching of a rocket with the "Proton-1" space station in the Kazakhstan desert on July 16, 1965. The article is written in popular terms and gives the author's subjective impressions of the launching and the natural conditions of the locality. The blast caused painfully loud sound for a radius of up to 2 km. There was no smoke. The combustion products escaped from the nozzles at several kilometers per second. The temperature of the combustion chambers exceeded 3000C. The power exceeded 60 million hp. The altitude of

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L 9407-66

ACC NR: AP5025208

the orbit was 207 km at the apogee and 190 km at the perigee. The pitch was 65.5° and the orbit time was 92.49 min. The station has apparatus for studying cosmic particles of ultrahigh energy. The radio apparatus operated on 19.910 Mc. The telemetry data indicated a normal temperature, the desired pressure within the station, and proper functioning of the systems. The program for studying cosmic particles provided for the study of solar cosmic rays and their hazard, the energy and chemical spectra of cosmic rays to 10^{14} eV, nuclear interaction of particles to 10^{12} eV, the absolute intensity and energy spectrum of galactic electrons, and the intensity and energy spectrum of galactic gamma rays. The weight of the apparatus was measured in tons. The instruments included an ion calorimeter with graphite and polyethylene units and scintillation counters. Various control devices are mentioned. Some of the previous Soviet satellites are mentioned, as well as a few United States space probes. Orig. art. has: 2 photographs and 1 diagram.

SUB CODE: 22/ SUBM DATE: none

Card 2/2

L 11538-66 EWT(d)/EWT(l)/EWT(m)/ES(v)-3/EEC(k)-2/ENP(t)/ENP(c)/T/FCS(k)/ETC(m)
ACC NR: AP5028627 RPL JKT/TT/WW/JW/JT/GS SOURCE CODE: UR/0030/65/000/010/0069/0078

44,55

AUTHOR: Petrovich, G. V. (Professor)

88
83
B

ORG: none

TITLE: At the source of Soviet rocket building

SOURCE: AN SSSR. Vestnik, no. 10, 1965, 69-78

TOPIC TAGS: space program, rocket technology, liquid rocket engine

ABSTRACT: The author of this article indicates that in the 1920's, chemical engineer N. I. Tikhomirov and inventor V. A. Artem'yev experimented with smokeless-powder rockets and made the first successful trotyl-pyroxylin powered rocket launchings in 1928. The value of their work was recognized and they were entrusted with the organization of the Gas Dynamics Laboratory (GDL) in Leningrad in 1929. Their work continued at the GDL with the assistance of talented artillery engineers B. S. Petropavlovskiy, G. E. Langemak, and others. Their smokeless-powder rockets were sucessful on test ranges and in military exercises. During WW II they were effectively used in battle when fired from mobile missile launchers known as "Katyusha." Electric and liquid rocket motors were originated at the GDL. In 1930-31 ORM-1 (experimental rocket motor) and ORM-2 were tested. Fuel combinations, spontaneous combustion, and chemical ignition were studied and tested. By the end of 1933 a total of 52 liquid rocket motors had been developed. A series of booster rockets

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L 11538-66

ACC NR: AP5028627

5

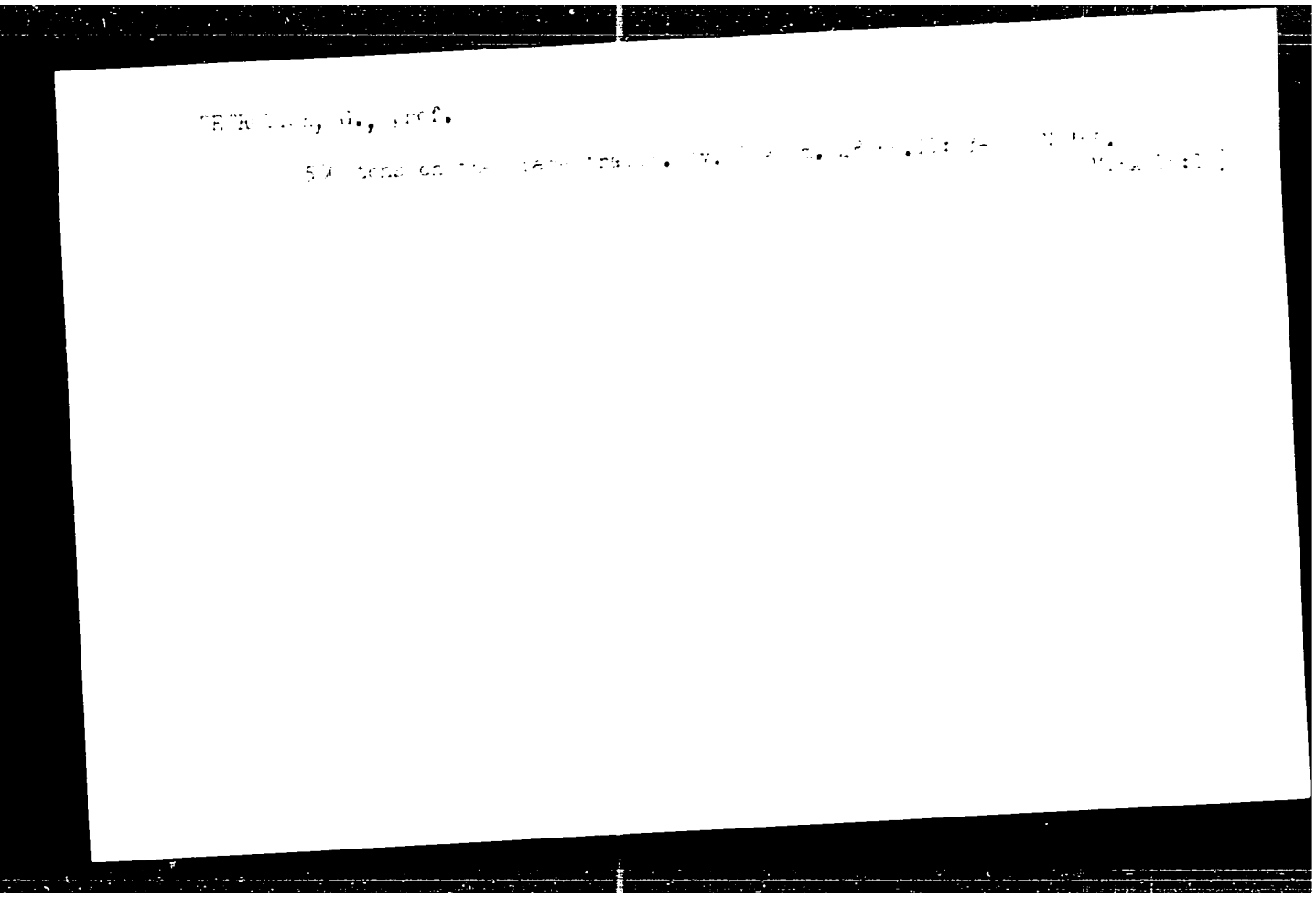
powered by smokeless powder, for the assisted takeoff of airplanes, were developed there. In 1934 the GDL was joined by the staff of the Moscow rocket propulsion group (MosGIRD), the group which in 1933 had developed and launched the "09" experimental liquid rocket, to form the Scientific Research Institute for Jet Propulsion. The MosGIRD created a number of experimental ballistic and cruise-type missiles and engines; however, the original members of the former GDL continued their research on liquid rocket engines and with fuels. They created many powerful new engines, some of which have received wide application, and eventually designed the powerful engines for all types of Soviet launch vehicles. [SA]

Orig. art. has: 12 figures.

SUB CODE: 21, 22/ SUBM DATE: none/ ORIG REF: 003/

HW

Card 2/2



L 42083-66 EWT(1)/EWT(m) JXT/JL/JH SOURCE CODE: UR/0030/66/000/002/0129/0130

ACC NR: AP6008769

AUTHOR: Petrovich, G. V. (Professor)

ORG: none

TITLE: A. A. Shternfel'd's anniversary

SOURCE: AN SSSR. Vestnik, no. 2, 1966, 129-130

TOPIC TAGS: astronautic personnel, scientific personnel

ABSTRACT: Ari Abramovich Shternfel'd, the prominent Soviet astronautical scientist, was born in Poland in 1905. Following his graduation from the Electromechanical Institute at Nancy, France, he worked in Paris and at the Scientific-Research Institute in Belleau, devoting much of his time to the study of astronautics.

In 1933, after his return to Poland, Shternfel'd completed a book entitled *Introduction to Astronautics*. This valuable contribution to a new branch of science and technology won him the International Prize in Astronautics in 1934. In 1935 he moved to the USSR and took Soviet citizenship; since then he has devoted his life to astronautical research. Shternfel'd met Professor G. V.

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Petrovich at the Reaction Scientific Research Institute (RNII), where both were working. There, it is said, Petrovich personally observed the scientist and came to appreciate his brilliant gift.

According to Petrovich, Shternfel'd's most significant contribution to astronautics is his research directed toward determining the most efficient space-flight trajectories from an energy standpoint. In his published works, Shternfel'd has listed the orbital elements of more than a hundred Earth satellites which he has computed. His research in astronautics has earned him international acclaim. In 1961, the University of Nancy conferred on him the Doctor's degree, and in 1963 he was awarded the International "Galaber" [transliteration] Prize in Astronautics. The Academy of Sciences USSR has conferred on him an honorary Doctor's degree in recognition of his great contribution to the advancement and popularization of astronautical-science problems, he recently received the honorary title of Distinguished Worker in Science and Technology of the RSFSR. His valuable scientific and popular-science works have been published in the Soviet Union and abroad; by 1965 they had been published in 31 languages in 35 different countries. Among his best known works are *Introduction*

L 42063-66
ACC NR: AP6008769

to Astronautics (1937), *Flight Into Outer Space* (1949), *Interplanetary Flights* (1955, 1956), *Artificial Earth Satellites* (1956, 1958), and *From Artificial Satellites to Interplanetary Flights* (1957, 1959). Orig. art. has: 1 figure. [FSB: v. 2, no. 6]

SUB CODE: 22 / SUBM DATE: none

Card 3/3 af

L 40433-66 EEC(k)-2/EWT(1)/EWG-2 SCTB IJP(c)/GW

ACC NR: AP6016032 SOURCE CODE: UR/0030/66/000/004/0013/0023

85
B

AUTHOR: Petrovich, G. V. (Professor)

ORG: none

TITLE: Five years of man's flight into space. Attack on the universe

SOURCE: AN SSSR. Vestnik, no. 4, 1966, 13-23

TOPIC TAGS: interplanetary space, spacecraft, manned spacecraft, soft landing spacecraft, spacecraft survey, orbit space flight

ABSTRACT: This paper is a survey of manned orbital space flights for the period 1961--1965. The author describes in some detail each manned space flight that took place since the first orbital flight of Yu. A. Gagarin and the various attempts by the SSSR and the USA to land a device on the moon. Particular mention is made of the initial failure of the US "Ranger" project. However, the author does allow that the eventual pictures of the moon surface obtained by Ranger VII and VIII were numerous and of good quality. A short survey of pertinent science fiction literature is presented, beginning with Jules Verne's "Journey to the Moon," which illustrates man's continuous interest in outer space. The author postulates that it should become possible, in the distant future, to exploit the natural resources of the moon. In conclusion, the author points out that it is significant that the recent

Card 1/2

STERIADE, M.; PETROVICH, I. [Petrovici, I.]

Electroclinical correlation in vascular insufficiency in the system of the carotid artery. Zhur. nevr. i psikh. 61 no.5:665-673 '61. (MIRA 14:7)

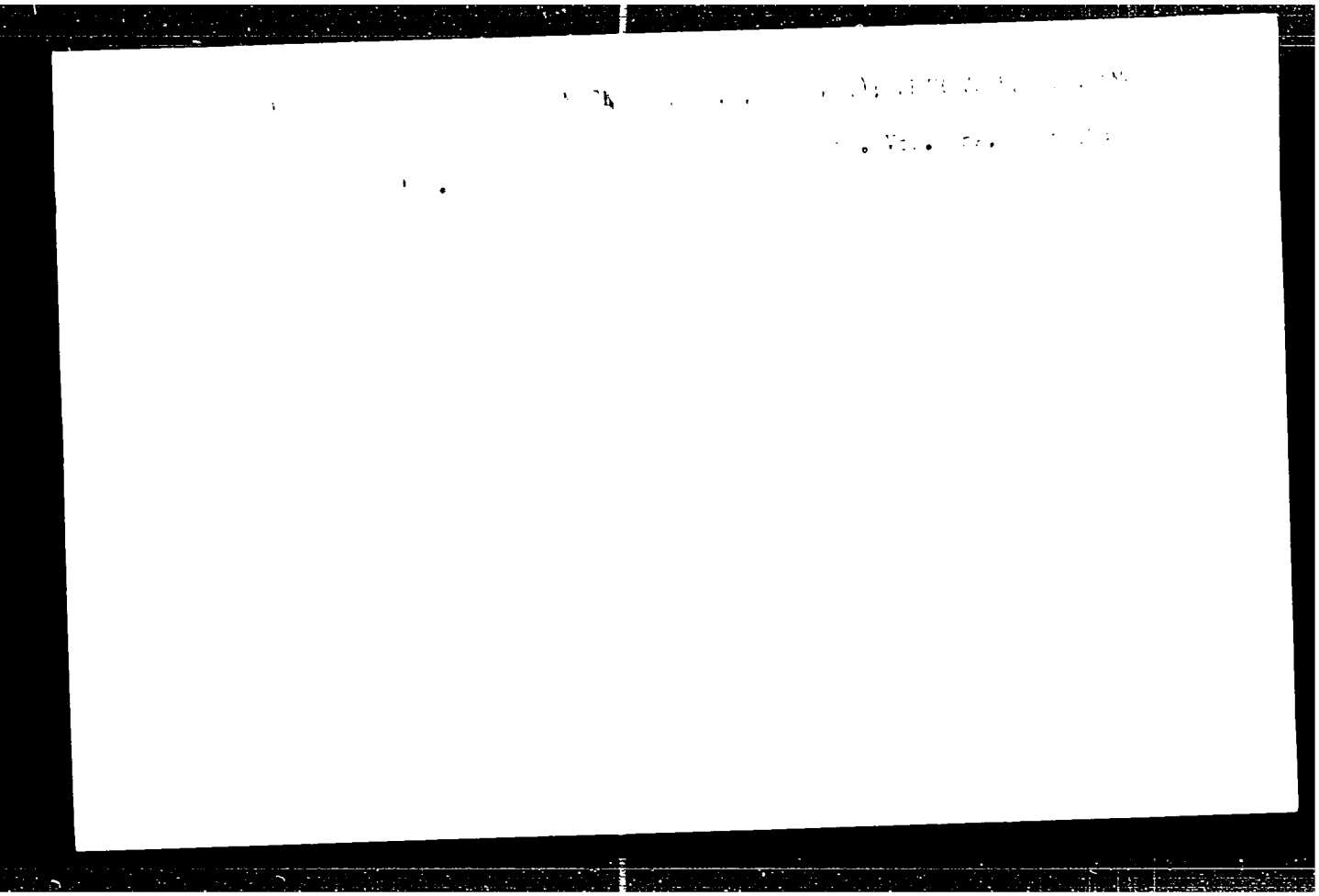
1. Institut nevrologii imeni I.P.Pavlova (dir. - prof. A.Kreyndler) Akademii Rumynskoy Narodnoy Respubliki, Bukharest.
(THROMBOSIS) (CAROTID ARTERY—DISEASES)
(ELECTROENCEPHALOGRAPHY)

MAKUTINSKIY, P.I. [deceased]; NAKHIL'NIK, KAYA...N.; PETROVICH, I.K.

Toxicity of tritium oxide. Radiobiologiia 5 no.2:318 '65.
(MIRA 18:7)

PETROVICH, [illegible], MO[illegible]KI[illegible], N.[illegible], TO[illegible]N[illegible]KAYA, [illegible].L.

Late sequelae of radiation lesions [illegible] dogs caused by Sr[illegible]90. (MIRA [illegible])
Med. rad. 9 no.6:42-50 Je '64.



L 57749-65
ACCESSION NR: AP5010368 UR/0205/65/005/002/0318/0318

AUTHOR: Zakutinskiy, D. I.; Nakhil'nitskaya, Z. N.; Petrovich, I. K. 6 B

TITLE: Toxicity of tritium oxide

SOURCE: Radiobiologiya, v. 5, no. 2, 1965, 318

TOPIC TAGS: rat, mouse, rabbit, tritium, oxide, toxicity, radiation dose, peripheral blood, blood disorder, radioresistance

ABSTRACT: Results of tritium oxide toxicity studies of mice, rats, and rabbits are reported. Animal survival, clinical symptoms, and peripheral blood changes were used as indices. For mice, a subcutaneously administered tritium oxide dose of 1 microcurie/g and higher is absolutely lethal, with death occurring in 11 to 15 days. For mice the $LD_{50/15}$ according to Pershin's formula is 0.345 microcurie/g, and the $LD_{50/30}$ is 0.22 microcurie/g. For rats, a subcutaneously administered dose of 0.5-1.0 microcurie/g is absolutely lethal, with the $LD_{50/15}$ equal to 0.37 microcurie/g. Rats are more resistant to tritium oxide than mice, with equal doses producing death at a later date in rats. A 0.25 microcurie/g dose which kills 50% of the mice in 15 days is nonlethal for rats. For rabbits, a 0.5-1.0 microcurie/g dose is absolutely lethal with death occuring on the 5th or

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L 57749-65

ACCESSION NR: AP5010368

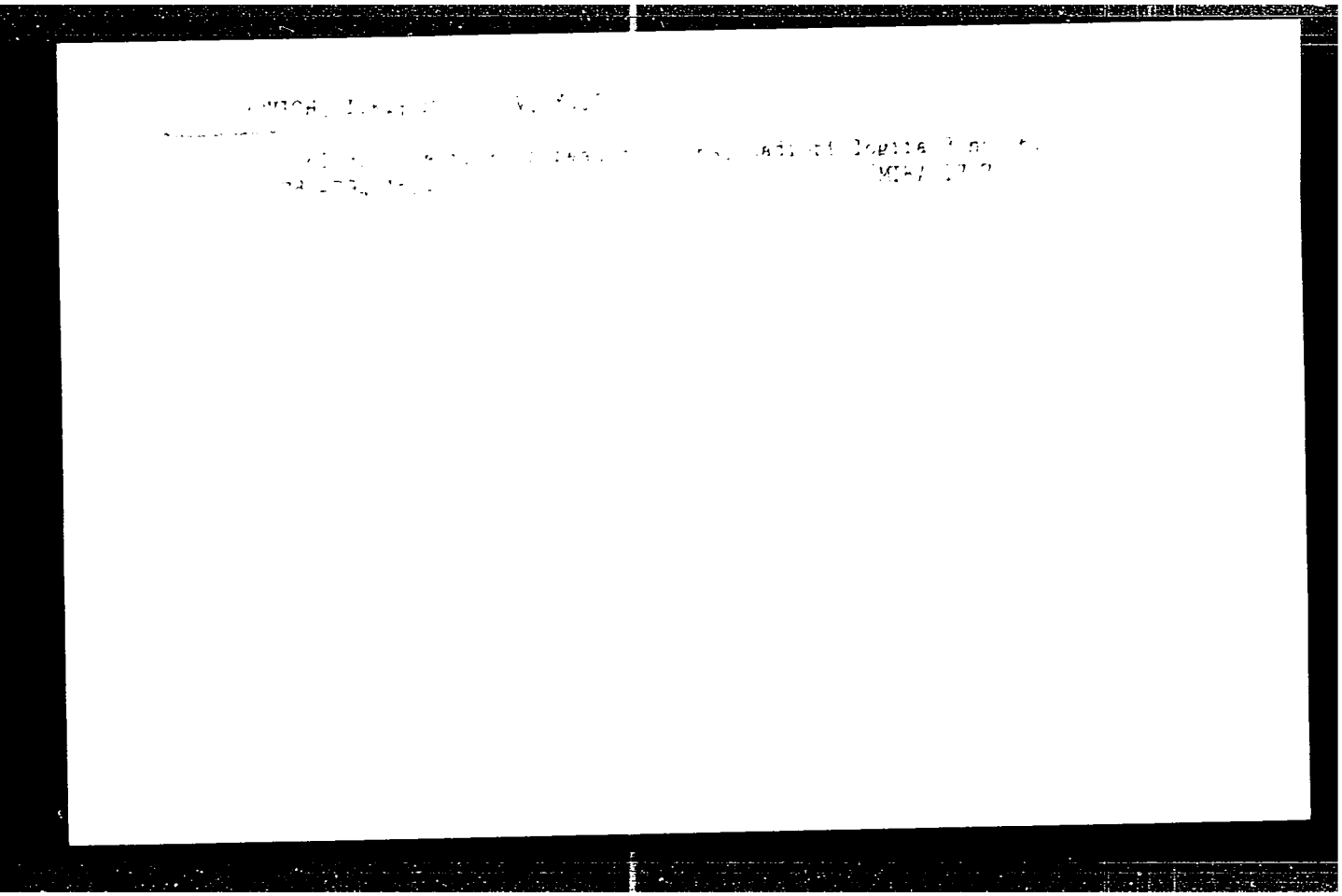
6th day, and with 0.25 and 0.04 microcurie/g doses all the rabbits survived. For all animals, peripheral blood changes basically depended on the tritium oxide dose. With large doses (0.5 and 1.0 microcurie/g) the leukocyte count during the first week was reduced to 100-400 cells/mm^3 and the lymphocytes disappeared completely during the first day. With smaller doses (0.25 microcurie/g), leukocyte count decrease was less markedly expressed, and the lymphocyte count was characterized by wavelike fluctuations. For lethal doses, no erythrocyte changes were found. For small single doses and fractional doses, significant qualitative changes of red blood cells were observed at remote periods: anisocytosis and erythrocyte polychromatophilia, appearance of erythroblasts, and others. The thrombocyte count was sharply reduced. No conclusions are drawn from these findings. Orig. art. has: None.

ASSOCIATION: None.

SUBMITTED: 09Apr63 ENCL: 00 SUB CODE: LS

NR REF SOV: 000 OTHER: 001

Card 2/2



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L 13102-63 BDS/EWT(1)/EWT(m)/ES(j) AFFTC/ASD AR/K

ACCESSION NR: AP3001508 S/0219/63/055/005/0073/0077

55

AUTHOR: Moskalev, Yu. I.; Petrovich, I. K.

TITLE: Biological action of high energy protons (500 Mev)

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny", v. 55, no. 5, 1963, 73-77

TOPIC TAGS: protons, radiation, blood, dose-effect curves

ABSTRACT: The biological action of ionizing radiation is affected not only by dose amount but by the nature of the radiation itself. Little is known about the action of high energy protons and therefore the author investigates their effect on peripheral blood. White rats were irradiated in single doses ranging from 28 to 1008 rads with a synchrocyclotron. Proton radiation energy was 500 Mevs and the dose rate was from .7 to 2.3 rad/sec. LD sub 50 for 30 to 120 days was 600 plus minus 35 rads and for 15 days was 710 plus minus 45 rads. In the initial period (up to 28 days) after irradiation, the most important changes take place in the white blood which is characterized by neutropenia and lymphopenia. After 6 to 7 months the most significant changes take place in red blood. The authors stress that the

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L 13402-63
ACCESSION NR: AP3001508

dose-effect curve for certain red and white blood elements under ionizing radiation action doses not have to be linear or S-shaped. The dose-effect curve may have different forms because of varying radiosensitivity and reaction rates. Fig. 2 shows dose-effect curves for erythrocytes, lymphocytes, and neutrofils at different time intervals. The dose-effect curves for peripheral blood elements irradiated with high energy protons depend on blood cell properties and length of observation period. It appears that over a period of time increased radiation dose does not necessarily increase the effect. Length of observation period should be an important factor in future investigations of high energy proton action. Papers presented by A. V. Lebedinskiy, Member of AMN SSSR. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 10Jul62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: AM NO REF SOV: 003 OTHER: 006

Card 2/2

PETROVICH, I.K. (Moscow)

"Problems of neural regulation of the blood system." V.N.CHernigovskii, A.IA LAreshevskii. Reviewed by I.K.Petrovich. Klin.med. 32 no.9: 90-94 S '54. (MLRA 7:12)
(BLOOD) (NERVOUS SYSTEM) (CHERNIGOVSKII, V.N.) (LAROSHEVSKII, A.IA.)

PETROVICH, I. K., STREL'TSOVA, V. N., MOSKALEV, Yu. I.,

"Biological effect of fast neturons and protons of high energy"

report to be submitted for the Sympsoium on Biological Effects of Neutron Irradiations (IAEA), Upton Long Island, N. Y., 7-11 Oct 63.

PETROVICH, I.K.

Letter to the editor. Klin.med. 33 no.5:94 My '55. (MLRA 8:9)
(NERVOUS SYSTEM) (BLOOD)

PETROVICH, I.K.

"Material on the toxicology of radioactive substances," edited by A.A. Letavet, E.B. Kurliandksaia. Reviewed by I.K. Petrovich. Med. rad. 3 no.4:93-94 Jl-Ag '58. (MIRA 12:3)
(RADIOACTIVE SUBSTANCES--TOXICOLOGY)
(LETAVET, A.A.)
(KURLIANDKSAIA, E.B.)

PETROVICH, I.K.; MOSKALEV, Yu.I.

Dynamics of leucocyte reaction to irradiation. Biul. eksp. biol. i med. 57 no. 2:33-38 F '64. (MIRA 17:9)

1. Predstavlena deystvitel'nym chlenom AMN SSSR N.A. Krayevskim.

S/0219/64/057/002/0033/0038

ACCESSION NR: AP4015151

AUTHOR: Petrovich, I. K.; Moskalev, Yu. I.

TITLE: Dynamics of white blood cell reaction to irradiation

SOURCE: Byul. eksper. biologii i meditsiny*, v. 57, no. 2, 1964, 33-38

TOPIC TAGS: white blood cell, 50 r X-irradiation dose, 12,000 r X-irradiation dose, lymphocyte level change, neutrophil level change, early radiation damage, early radiation change, lymphocyte dose-effect curve, neutrophil dose-effect curve

ABSTRACT: Early lymphocyte and neutrophil reactions were investigated in 70 white rats exposed to single dose X-irradiation ranging from 50 to 12,000 (12 tube X-ray unit, 126 r/min). Total number of leukocytes was investigated at frequent periods from 5 to 1440 min after irradiation. Absolute number counts of neutrofils, lymphocytes, monocytes and damaged cells were made for the blood of surviving animals and qualitative changes were determined for white blood cells. Results disclose a substantial difference in early reactions of lymphocytes

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ACCESSION NR: AP4015151

and neutrophils to X-irradiation. Ten minutes after irradiation the lymphocytes react to radiation doses as low as 50 r, but neutrophils react only to 8000 r doses or higher at this time. With increased radiation doses the lymphocyte level declines and reaches its lowest level after 1-2 days. The neutrophil level does not decline, but rises the first few days with increased radiation doses. The dose-effect curves for lymphocytes and neutrophils differ in shape and time and require further study to determine the mechanism of these changes. Orig. art. has: 3 figures.

ASSOCIATION: None

SUBMITTED: 19Jan63 DATE ACQ: 12Mar64 ENCL: 00

SUB CODE: LS NR REF SOV: 006 OTHER: 007

Card 2/2

PETROVICH, I.K., LEBEDEV, B.I.

First conference on medical radiology in Ufa. Med.rad. 3 no.3:99-100 (MIRA 11:7)
My-Je '58
(RADIOLOGY, MEDICAL)

LAPTEVA-POPOVA, M.S.; PETROVICH, I.K.

Features of the process of blood regeneration in remote periods following injury to the organism by strontium-90 and X-rays. Med. rad. 5 no.8:80-81 '60. (MIRA 13:12)
(RADIATION SICKNESS) (HEMATOPOIETIC SYSTEM)
(STRONTIUM--ISOTOPES)

ALEKSEYEVA, O.G.; KLIMOVA, Ye.N.; KORCHEMKIN, B.I.; PETROVICH, I.K.

Initial manifestations of injuries in dogs exposed to daily administrations of Sr^{90}. Med.rad. 6 no.8:57-64 Ag '61. (MIRA 14:8)

(STRONTIUM—ISOTOPES) (RADIATION SICKNESS)

PETROVICH, I.K.

State of the blood system in animals during Po^{210} injury. Med. rad. no.7:58-62 '61. (MIRA 15:1)
(POLONIUM--PHYSIOLOGICAL EFFECT) (BLOOD--RADIOGRAPHY)

SOSOVA, V.F.; PETROVICH, I.K.; MARKELOV, B.A.

Serological and hematological data on remote reaction to vaccination in dogs following introduction of radioactive strontium. Radiobiologiia 1 no.5:742-745 '61. (MIRA 14:11)
(STRONTIUM—ISOTOPES) (VACCINATION)

PETROVICH, I. K.

Hematopoietic changes in dogs during the formation and development of osteosarcomas induced with radioactive strontium (Sr^{90}). Vop. onk. 8 no.5:14-19 '62. (MIRA 15:7)

1. Iz Akademii meditsinskikh nauk, Moskva (nauch. rukov. raboty - deystv. chl. AMN SSSR, prof. N. A. Krayevskiy)

(STRONTIUM--ISOTOPES) (HEMATOPOIETIC SYSTEM--CANCER)
(BONES--CANCER)

L 34126-65 EWT(m) Peb DIAAP GS S/0000/64/000/000/0209/0212

ACCESSION NR: AT5006125

AUTHOR: Petrovich, I. K.; Shchelkonogova, M. I. 22 21+1

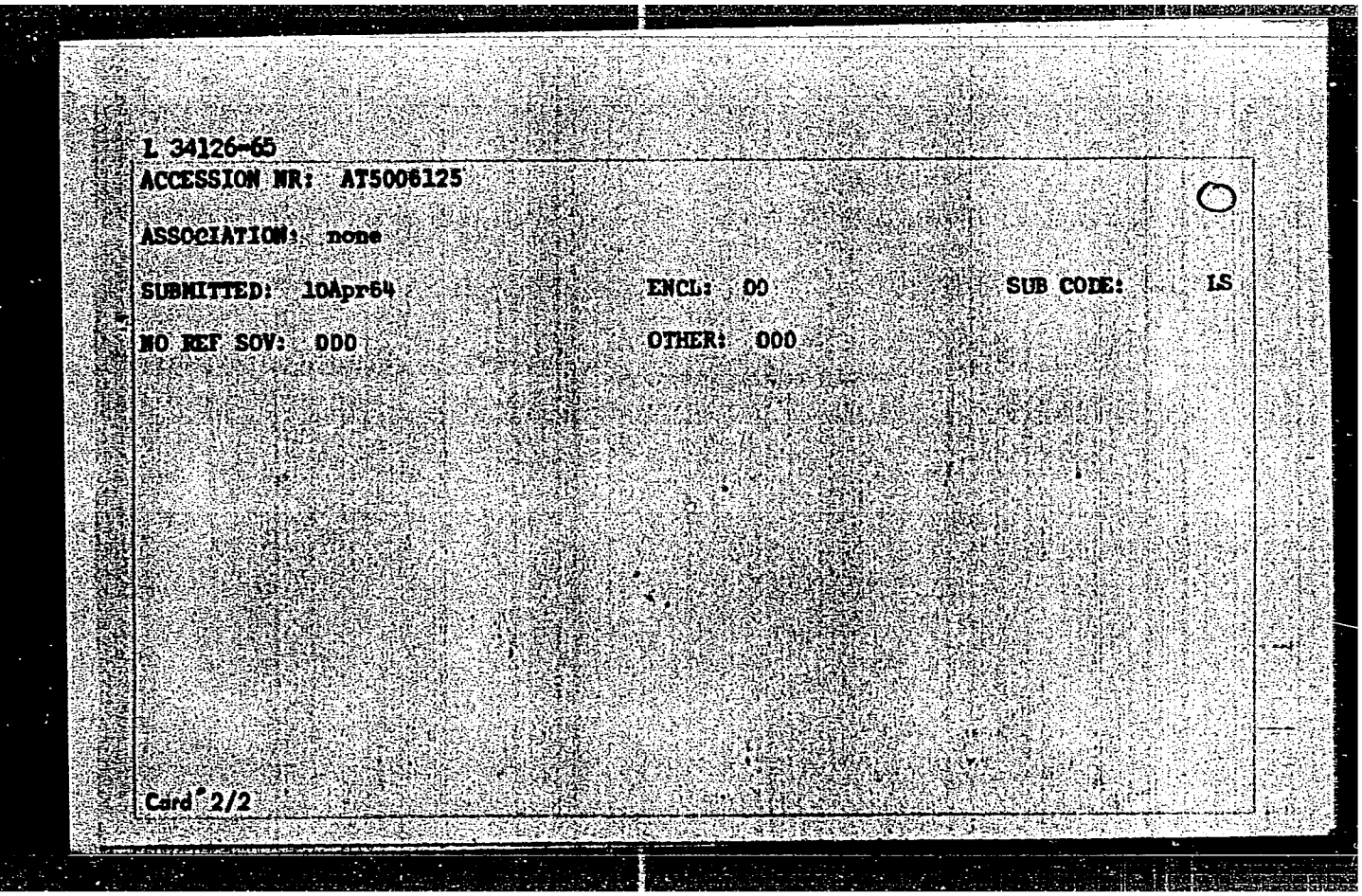
TITLE: Changes in the blood system of dogs intravenously injected with yttrium-91

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 209-212

TOPIC TAGS: yttrium-91, radioisotope, radioactivity, blood, radiation sickness

ABSTRACT: Y^{91} injected intravenously once in a dose of 0.1 to 0.2 μc/kg produced marked changes in the composition of the peripheral blood and hematopoietic organs of dogs. The acute phase of radiation sickness caused by injection of 0.1 μc/kg of Y^{91} was characterized by leukopenia for 3-5 weeks due to a decrease in the number of neutrophils, a decrease in the number of erythrocytes (by 30%) for 4-7 weeks, and a decrease in the number of thrombocytes for 2-3 weeks after injection. In the animals that survived the acute phase, erythrocytopoiesis was restored after the second month, but leukocytopoiesis remained 50% below the original level for 14 months after injection of the isotope. Orig. art. has 1 table.

Card 1/2



L 34126-65
ACCESSION NR: AT5006125

ASSOCIATION: none

SUBMITTED: 10Apr64 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 000

Card 2/2

L 34125-65 EWT(m) Peb DIAAP GS

ACCESSION NR: AT5006126 S/0000/64/000/000/0213/0216

AUTHOR: Petrovich, I. K.

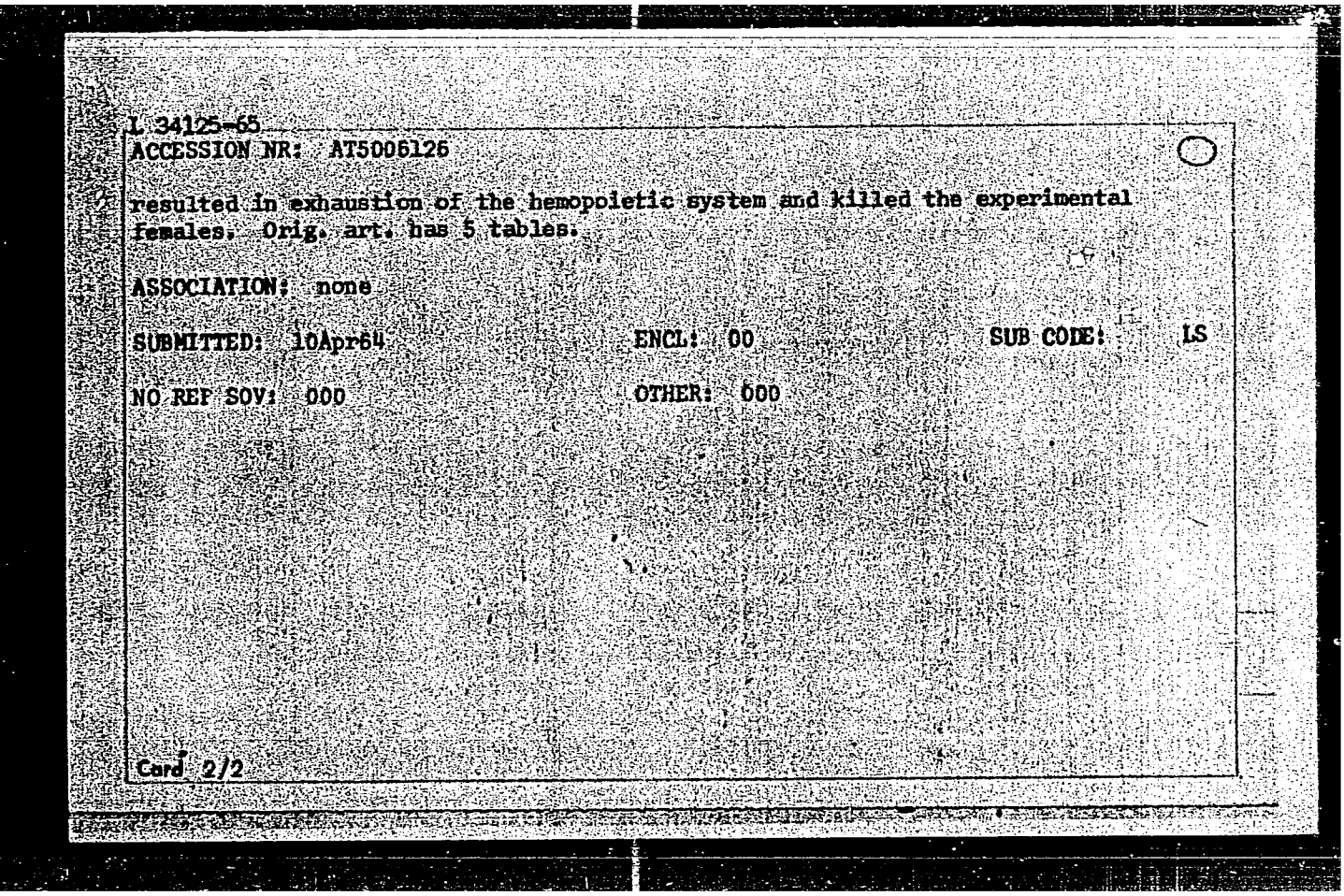
TITLE: Changes in blood of pregnant animals exposed to strontium-90

SOURCE: Raspredeleniye, biologicheskoye deystviye, uskoreniye vyvedeniya radioaktivnykh izotopov (Distribution, biological effect, acceleration of the excretion of radioactive isotopes); sbornik rabot. Moscow, Izd-vo Meditsina, 1964, 213-216

TOPIC TAGS: strontium-90, radioisotope, radioactivity, blood, pregnancy, radiation sickness, bone, calcium

ABSTRACT: An acute form of radiation sickness in dogs was produced by 0.2 μc/kg of strontium-90. Hematopoiesis returned to normal in the males and nonpregnant females. In the pregnant females, however, the regenerative processes were interrupted, and during the second half of pregnancy, the number of erythrocytes, thrombocytes, and leukocytes again decreased. This second decrease was obviously due to involvement in the metabolic processes of Sr^{90} deposited with calcium salts in the skeleton of the fetus. Circulation of Sr^{90} in the female organism quite probably caused whole-body irradiation once more and a recurrence of acute radiation sickness. The latter, coupled with a decrease in all the hematological indices,

Card 1/2



L 34125-65
ACCESSION NR: AT5006126

resulted in exhaustion of the hemopoietic system and killed the experimental females. Orig. art. has 5 tables.

ASSOCIATION: none

SUBMITTED: 10Apr64 ENCL: 00 SUB CODE: LS

NO REF SOV: 000 OTHER: 000

Card 2/2

YUGOSLAVIA/Diseases of Farm Animals - Diseases Caused by [illegible]
Helminths. Arachno-Entoms.

Abs Jour : Ref Zhur - Biol., No. 6, 1956, 26355

Author : Nevenich, V., Petrovich, K., Sibalich, S., Tsvetkovich, Lj., Angelovskiy, T.

Inst : -

Title : Our Experience in Combatting Sheep Scabies with the Help of "Vetalin".

Orig Pub : Veterin. glasnik, 1956, 10, No 1, 753-762

Abstract : No abstract.

Card 1/1

L 03773-67 EWT(m) CD

ACC NR: AT6029631 SOURCE CODE: UR/0000/66/000/000/0202/0214

AUTHOR: Petrovich, I. K.; Moskalev, Yu. I.; Strel'tsova, V. N.

ORG: none

TITLE: Dose-effect relationships for 120-Mev protons observed during long-term experiments

SOURCE: Voprosy obshchey radiobiologii (Problems of general radiobiology). Moscow, Atomizdat, 1966, 212-214.

TOPIC TAGS: proton, radiation biologic effect, ~~radiation hematologic effect~~ rat, hematology

ABSTRACT: Experiments were conducted to determine the biological effect of 120-Mev protons, which has not been studied previously. Ten groups of rats 3—4 months old were irradiated once with protons from the OIYaI synchrocyclotron at Dubna in doses of 10—1000 rad (dose rate 0.3 rad/sec). Animals were placed in revolving chambers to ensure uniformity of irradiation. The following criteria of the radiation effect were examined from the standpoint of long-term influence: dependence of length of life on radiation dose, blood composition, and the time of appearance, frequency of appearance and character of tumors. Experimental results showed that the LD_{50} for rats dying within 30, 60, 120, and 240 days was practically identical. The death rate was equivalent in males and females for a given dose, except in the remote aftereffect

Card 1/3

period (480 and 600 days), when females were more radiosensitive due to neoplasms in mammary and other secretory glands. It was found that 120-Mev protons have the same RBE as 500-Mev protons, which is approximately 0.7 as compared with gamma-rays. The average lengths of life of animals irradiated with various doses of 120-Mev protons are shown in Table 1. The number of animals dying in a given period increases with

Table 1. Average length of life of rats dying in later periods of the experiment (after 4 months) after irradiation with 120-Mev protons

Dose, rad	Average length of life, days	
	Male	Female
0	537±53	560±25
10	567±51	484±53
50	657±76	578±41
100	530±37	477±35
200	574±67	549±45
400	495±47	412±29
600	466±57	443±29
700	—	467±49
800	319±14	363±53

L 03733-67

ACC NR: AT6029631

C

increasing dose. However, the average length of life of rats dying in this period does not depend on the dose: for example, the average length of life of rats dying 16—30 days after irradiation with doses of 400, 600, 700 and 800 rad was 23, 22, 22, and 23 days, respectively. Neutropenia and lymphocytopenia were noted in the early postradiation period, together with a considerable drop in erythrocyte content with doses from 700—1000 rad. The highest incidence of tumor formation in irradiated animals was noted in the following organs and tissues: mammary glands, hematopoietic tissue, thyroid gland, adrenal glands, subcutaneous cellular tissue, kidneys, bones, uterus, thymus, and prostate gland. A higher frequency of mammary-gland tumors was observed in females irradiated with 50—600 rad of protons than in the controls. Furthermore, the total frequency of thyroid tumors in irradiated male and female rats (doses of 10—800 rad) was found to be 9.8%, which is ten times higher than the control rate. Complete data are lacking to establish the relationship of dose to frequency of occurrence of tumors in all tissues. Orig. art. has: 4 tables and 8 figures. [JS]

SUB CODE: 06/ SUBM DATE: 22Apr66/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 5164

Card 3/3

ACC NR: AP6033867 SOURCE CODE: UR/0205/66/006/005/0651/0659

AUTHOR: Moskalev, Yu. I.; Petrovich, I. K.

ORG: none

TITLE: The biological effectiveness of 240-Mev protons 19

SOURCE: Radiobiologiya, v. 6, no. 5, 1966, 651-659

TOPIC TAGS: proton, radiation biologic effect, rat, hematopoiesis, carcinoma

ABSTRACT: Experiments were conducted to study the biological effect of various doses of 240-Mev protons on the length of survival, peripheral blood composition, and incidence of mammary tumors in rats. Female Wistar rats about three months old were irradiated once with 240-Mev protons from the OIYaI synchrocyclotron at Dubna in doses ranging from 10—1000 rad. The LD_{50} of 240-Mev protons was determined: for seven days -- 776 ± 44 rad; for 15 days -- 736 ± 26 rad; for 30 days -- 675 ± 33 rad; for 60 days -- 675 ± 26 rad; for 120 days -- 645 ± 32 rad; for 240 days -- 631 ± 32 rad; for 360 days -- 628 ± 30 rad; and for 480 days -- 519 ± 28 rad. It was determined that the reduction in average length of survival of experimental animals per rad of accumulated dose was 1.0—0.7 days for the entire dose range studied (10—1000 rad), but 0.7—0.9 days per rad when calculated for doses from 400—1000 rad. Leukopenia was observed in female rats 3—14 days after proton irradiation, and normalization of the leukocyte count occurred within one to

Card 1/2 UDC: 539.125.4:577.391

ACC NR: AP6033867

two months. Neutrophil leukocytosis set in 16—18 months after irradiation, but erythropenia was only noted with large proton doses. Clinical observation of rats during their entire postirradiation lifespan showed that irradiation with 240-Mev protons considerably increases the frequency of appearance and rate of development of mammary tumors in female Wistar rats. Results of these experiments indicated that the biological effectiveness of protons per unit of dose drops as the dose increases, but further studies are needed to substantiate this phenomenon. Orig. art. has: 2 tables and 5 figures.

SUB CODE: 06/ SUBM DATE: 08Oct65/ ORIG REF: 006/ OTH REF: 002/ ATD PRESS: 5100

Card 2/2 vmb

ACC NR: AP7001831 SOURCE CODE: UR/0219/66/062/012/0053/0056

AUTHOR: Moskalev, Yu. I. (Moscow); Petrovich, I. K. (Moscow);

ORG: none

TITLE: The biological effect of 120-Mev protons

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 62, no. 12, 1966, 53-56

TOPIC TAGS: proton radiation biologic effect, radiobiology, blood morphology, relative biologic efficiency, rat

ABSTRACT: Experiments were conducted on 921 Wistar rats (311 served as controls) to study the effect of single exposures to 120-Mev protons in doses from 10 to 1000 rads (10 different doses were used) on life span and blood morphology and to determine the dependence of proton action effectiveness on dose and radiation energy. LD_{50} for various time spans (7—600 days) was determined and the dynamics of the death of rats in early and late periods analyzed. LD_{50} after 30, 60, 120, and 240 days was practically uniform, indicating that the rats did not die in these periods after single proton irradiation. The radiosensitivity of rats showed no substantial dependence on sex. One hundred twenty and 500-Mev protons exhibited uniform effectiveness. In comparison with gamma rays, the RBE of 120-Mev protons was 0.7. Mortality in the first four months was the same for control (1.3%) and experimental animals at 10, 50, and 100 rad doses (0.95, 1.2, and 0.63%). Ninety-nine percent of both control and experimental

 UDC: 612.014.482.2:539.125.4

ACC NR: AP7001831

Table 1. LD_{50} (in rad) for various periods after irradiation (with principal intervals for R = 0.05)

Day	Males and Females	Males	Females
7-th	864±25	813±48	795±16
15-th	725±22	724±43	741±24
30-th	660±23	660±32	670±25
60-th	660±20	620±32	668±20
120-th	639±18	638±31	654±19
240-th	616±18	610±34	630±22
360-th	569±23	588±27	602±20
480-th	513±21	560±33	500±22
600-th	436±24	479±39	380±24

Table 2. Average life span of rats (with principal intervals for R = 0.05) which died after 4 months with 120 Mev proton irradiation.

Dose in (rad)	Number of experimental rats		Number of rats which died in late periods		Average life span of rats (in days)		
	males	females	males	females	males	females	males and females
0	145	166	143	165	537±53	660±25	556±29
10	60	45	60	44	567±51	484±53	548±39
50	30	55	29	55	657±76	578±41	696±38
100	75	85	74	85	530±37	477±35	506±26
200	32	40	29	37	574±67	549±45	560±37
400	56	46	51	43	495±47	412±29	459±27
600	30	69	26	61	466±57	443±29	447±25
700	—	89	—	21		467±49	—
800	20	80	3	10	319±14	363±53	356±40

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Table 3. Average life span (SPZh) of rats which died in the early periods after irradiation, depending on dose and period of observation.

Radiation dose (in rad)	Original number of rats	Interval (in days) after which death rate and average life span (SPZh) of the dead rats are evaluated									
		1—4		5—15		16—30		31—60		61—120	
		%	SPZh	%	SPZh	%	SPZh	%	SPZh	%	SPZh
400	102	0	—	2,9	8,3	2,0	23	1,0	39	1,0	81
600	99	0	—	3,0	12,3	2,1	22	3,2	39	3,7	81
700	89	1,1	4	43,7	10,0	42,6	22	17,8	43	8,7	74
800	100	48	3,7	34,6	10,6	32,4	23	17,3	36	26,3	79
1 000	22	36	4	100	7,4	—	—	—	—	—	—

animals died in the later periods (after four months). Mortality in the first four months increased with greater doses. The average life span of animals which died in the later periods correlates with radiation dose (see Table 2). After 10—200 rad irradiation the average life span of males and females dying after 120 days was practically uniform and did not differ from the controls. Irradiation in doses from 400—800 rads reduced average life span in proportion to radiation dose. Average life span of rats dying in the early periods after various intervals depended little on radiation dose; however, the number of rats dying after a given period grew with increase in dose (see Table 3). The absence of substantial differences in average

ACC NR: AP7001831

life span of rats dying after specific intervals indicates the uniform mechanisms of death of animals in these periods. Substantial differences in percent of dead animals depending on the radiation dose indicate the important role of physiological factors in the organism's reaction to the radiation effect. Results indicated that the composition of the peripheral blood changes depending on the irradiation dose and period of observation. [SW]

SUB CODE: 06/ SUBM DATE: 05Apr65/ ORIG REF: 003/ ATD PRESS: 5110

Card 4/4

PROVIDA/Zoology - Animal Parasitology. Parasitic worms. Helminthes. G.

Abs Jour : Ref Zhur - Biol., No 11, 1958, 48191

Author : Petrovich, K.M.
Inst : -
Title : Concerning the Understanding of the Helminthic Fauna of Domestic Fowl in the Regions of Kosovo and Mecedonia.

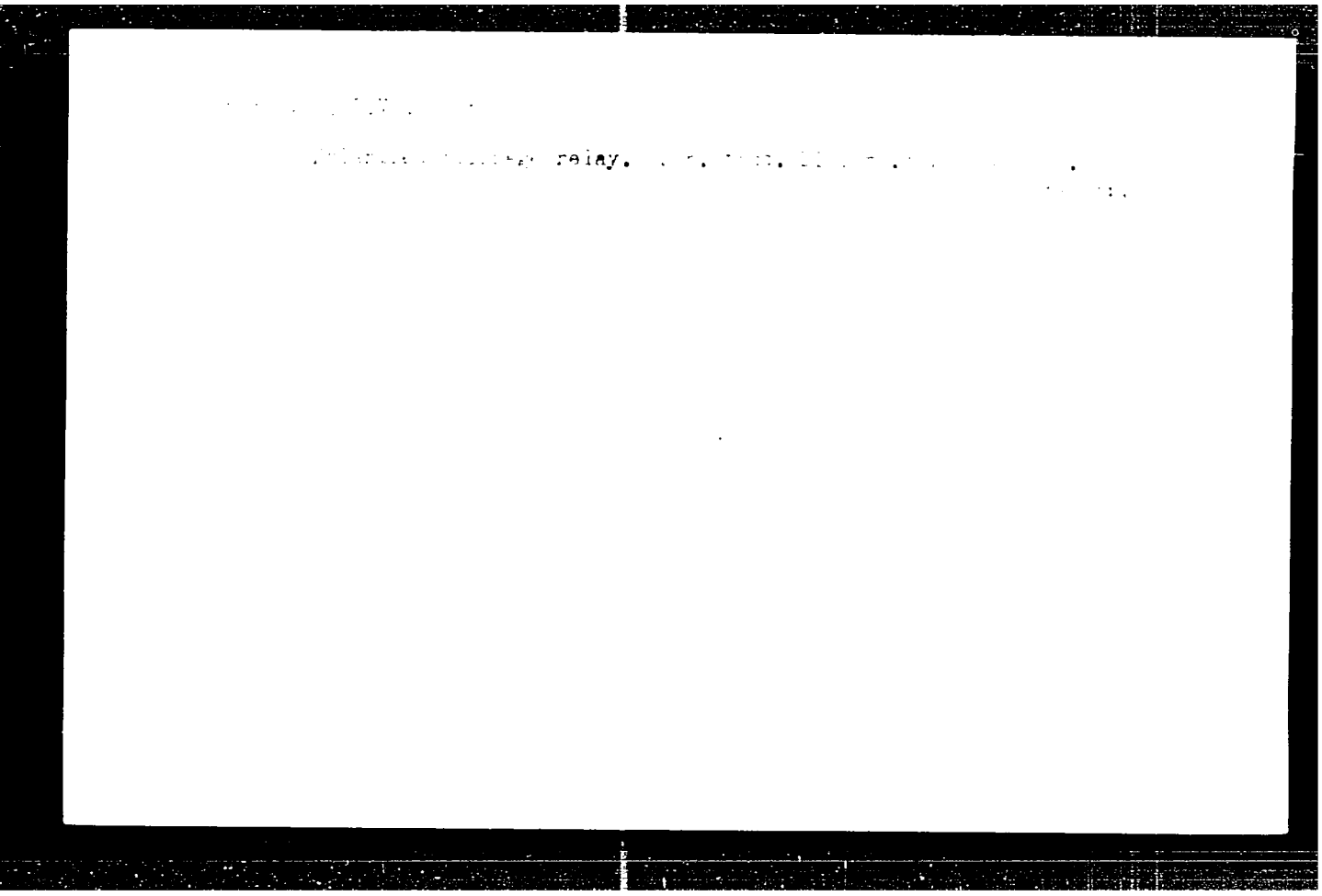
Orig Pub : Acta veterin., 1956, 6, No 2, 91-100.

Abstract : In the years, 1939-40, 500 intestines of domestic fowl were examined: 200 hens, 100 turkeys, 100 ducks and 100 geese. The hens exhibited 13 species of helminthes (1 species of trematodes, 6 species of cestodes and 6 species of nemodes). Hymenolepsis carioca (85%), Heterakis gallinae and Choanntaenia infundibulum (66%) occurred most frequently. The turkeys revealed 8 species (4 species of cestodes and 4 species of nemodes). H. gallinae accounted for the most part. The ducks exhibited 19 species (4 species of trematodes, 6 species of cestodes, 8 species of nematodes and 1 species

Card 1/2

SHINKEVICH, Nikolay Iosifovich; BUYNOV, Lenar Nikiforovich; TERESHKIN, Aleksey Fedorovich; PETROVICH, Marlen Nikolayevich; AKALOVICH, N.M., red.; ROMANCHUK, G.M., tekhn. red.

[Textbook on mechanical drawing; for students registering in institutions of higher learning] Posobie po cherecheniiu; dlia postupaiushchikh v vysshie uchebnye zavedeniia. Minsk, Izd-vo "Vysshaia shkola," 1963. 132 p. (MIRA 17:1)



PETROVICH, N. (g. Kiyev)

Industrial safety in the coal industry of the Don Valley. Sots. trud 4 no.4:132-133 Ap '59. (MIRA 12:6)
(Don Valley--Coal mines and mining--Safety measures)

ZYUKO, A.G.; PETROVICH, N.T., prof., retsenzent; FINK, L.M., prof., red.; KOKORIN, Yu.I., red.; ROMANOVA, S.F., tekhn. red.

[Interference refection and efficiency of communication systems] Pomekhoust ichivost' i effektivnost' sistem sviazi. Moskva, Sviaz'izdat, 1963. 319 p. (MIRA 17:3)

PETROVICH, N.T.; FINK, L.M.

Theory of optimum transmission through a channel with fading and new methods for transmission. Izv. AN SSSR. Tekh. kib. no.5: 89-95 S-O '63. (MIRA 16:12)

L 19781-65 EWT(d)/EEC-4/EEC(t)/FS(s)-2 Pn-4/Pp-4/Pae-4

ACCESSION NR: AP4047810 S/0108/64/019/010/0033/0036

AUTHOR: Georgiyev, V. K.; Petrovich, N. T.

TITLE: Probability of errors in the reception of phase-shift-keying signals under fading conditions

SOURCE: Radiotekhnika, v. 19, no. 10, 1964, 33-36

TOPIC TAGS: phase shift keying, fading, radio telegraphy

ABSTRACT: The short-wave signal is regarded as the sum of specularly reflected (regular) and dispersed components; values of the envelope of such a signal are distributed according to a quasi-Rayleigh law. Formulas are developed for determining the probability of error in receiving a phase-shift-keying (PSK) signal, and curves of this probability vs. signal-to-noise ratio are plotted. Fading brings about an appreciable reduction of the probability of correct PSK reception. This reduction depends on the ratio of the power of the determinate

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L 19781-65
ACCESSION NR: AP4047810

part of the signal (regularly reflected wave) to the power of dispersed signal components (random reflected elementary waves). Orig. art. has: 1 figure and 14 formulas.

ASSOCIATION: none

SUBMITTED: 04Sep62 ENCL: 00

SUB CODE: EC NO REF SOV: 004 OTHER: 003

Card 2/2

L 31522-65 EEC-4/EWT(d)/EEC(t)/FSS-2 Pn-4/Pp-4/Pac-4

ACCESSION NR: AP5000378 S/0108/64/019/011/0065/0070 25 24 8

AUTHOR: Petrovich, N. T. (Active member); Kozlenko, N. I. (Active member)

TITLE: Transmission of clipped speech signals by phase-telegraphy means

SOURCE: Radiotekhnika, v. 19, no. 11, 1964, 65-70

TOPIC TAGS: phase telegraphy, clipped speech, clipped speech transmission 4

ABSTRACT: The results of an experimental comparison of clipped-speech transmission by amplitude telegraphy (AT) and phase telegraphy (PT) means are reported. The A. A. Pistol'kors PT circuit used in the experiments ensured a negligible effect of "reverse operation" (180° phase shift). The speech signal was compressed directly at audio frequency. It was found that: (1) The noise immunity of a PT system, with a receiver passband of 7 kc and a compression of 60 db, depends only slightly on the modulator a-f filter passband within 3.8—10 kc; (2) With compressions of 40—60 db, a lower-frequency compensation in the

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L 34522-65

ACCESSION NR: AP5000378

transmitter modulator becomes necessary; (3) PT has a higher noise immunity and requires 4.5—6 times less transmitter power than AT; (4) The use of a 60-db compression instead of 40-db does not result in an appreciable enhancing of the noise immunity. Orig. art. has: 9 figures.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 06Jun63 ENCL: 00

SUB CODE: EC NO REF SOV: 004 OTHER: 000

Card 2/2

L 6922-66 EWT(d)/FSS-2

ACCESSION NR: AP5000378 S/0108/64/019/011/0065/0070

AUTHOR: Petrovich, N. T. (Active member); Konlenko, N. I. (Active member)

TITLE: Transmission of clipped speech signals by phase-telegraphy means

SOURCE: Radiotekhnika, v. 19, no. 11, 1964, 65-70

TOPIC TAGS: phase telegraphy, clipped speech, clipped speech transmission

ABSTRACT: The results of an experimental comparison of clipped-speech transmission by amplitude telegraphy (AT) and phase telegraphy (PT) means are reported. The A. A. Pistol'kors PT circuit used in the experiments ensured a negligible effect of "reverse operation" (180° phase shift). The speech signal was compressed directly at audio frequency. It was found that: (1) The noise immunity of a PT system, with a receiver passband of 7 kc and a compression of 60 db, depends only slightly on the modulator a-f filter passband within 3.8—10 kc; (2) With compressions of 40—60 db, a lower-frequency compensation in the

Card 1/2

L 6922-66

ACCESSION NR: AP5000378

transmitter modulator becomes necessary; (3) PT has a higher noise immunity and requires 4.5—6 times less transmitter power than AT; (4) The use of a 60-db compression instead of 40-db does not result in an appreciable enhancing of the noise immunity. Orig. art. has: 9 figures.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 06Jun63 ENCL: 00

SUB CODE: EC NO REF SOV: 004 OTHER: 000

Card 2/2

PETROVICH, Nikolay [illegible]; [illegible], A.I., red.

Transmission of [illegible] [illegible] information with phase keying [illegible] [illegible]. Moskva, Sovetskoe radio, [illegible]

PETROVICH, N.I.; KALMAKHININ, M.K.

Comparison of the spectra of oscillations keyed according to phase or amplitude. Radiotekhnika 20 no.9:9-16 S '65. (MIRA 18:9

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni A.S. Popova.

L 28386-66 EWT(d)/FSS-2 URV 65
ACC NR: AM5018506 Monograph 53
B+1

Petrovich, Nikolay Timofeyevich

Transmission of discrete information through channels with phase manipulation (Peredacha diskretnoy informatsii v kanalakh s fazovoy manipulyatsiey). Moscow, Izdvo "Sovetskoye radio," 1965. 262 p. illus., biblio. Errata slip inserted. 5400 copies printed.

TOPIC TAGS: communication channel, data transmission, telegraphy, telecommunication, information processing, phase modulation

PURPOSE AND COVERAGE: The book is intended for scientists and technicians involved in the improvement of noise immunity and the speed of discrete information transmission through communication channels and for students at schools of higher education concerned with these subjects. The book deals with the principles of design of phase-manipulation channels for the transmission of discrete information. Relative phase telegraphy (RPT), which made it possible to overcome the difficulties inherent in the use of the classical phase telegraphy (PT), is stressed. The effect of interference on channels with constant and variable parameters is analyzed for both RPT and PT. The improvement in noise immunity or speed of transmission realized through the change from frequency telegraphy to RPT is evaluated quantitatively. General circuits RPT communication systems together with the schematic diagrams of the specific units employed, and some results of the comparative tests of channels using frequency telegraphy and RPT are given. The author thanks Corresponding

UDC: 621.391:376.52

Card 1/3

ACC NR. AM6018506

Member, AN SSSR, V. I. Siforov for his assistance in the development of RPT; Professor N. I. Chistyakov, who reviewed the book; and Doctor of Technical Sciences Yu. S. Lezin, Professor Ya. I. Khurgin, Candidates of Technical Sciences N. P. Bobrov, A. Yu. Lev and B. D. Osipov, Engineers M. G. Bogusevich, L. Ya. Lipkin, and F. A. Gromov, Yu. G. Samsonov and V. P. Fitisov for their discussions and criticisms.

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L 26386-66 0

ACC. NR: AM5018506

SUB CODE: 09, 17/ SUBM DATE: 09Feb65/ ORIG REF: 080/ OTH REF: 023

Card 3/3 CC

ACC NR: AM5026679 Monograph UR/

Petrovich, Nikolay Timofeyevich; Kunnev, YEvgeniy Fedorovich

Problems in space radio communications (Voprosy kosmicheskoy radiosvyazi)
Moscow, Izd-vo "Sovetskoye radio", 64. 0312 p. illus., biblio. Errata slip inserted. 6,000 copies printed.

TOPIC TAGS: space communication, radio communication system, radio relay, artificial earth satellite, lunar communication, global communication, active communication satellite, passive communication satellite

PURPOSE AND COVERAGE: The book examinces two principle aspects of space radio communication: the use of artifical earth satellites (and the Moon) for creating global and local systems of ground communication of a distinct type and the guarantee of two-way radio communication with Earth for space ships. It presents the general principles for constructing communication systems with relay through the artifical earth satellite and gives examples of global and local systems of ground communications. On the basis of an analysis of the values entering into the equation of active and passive communication, the book presents and evaluation of the optimum working frequencies and energy losses in acitve and passive relaying. It gives an energy calculation of space radio communication lines in the limits of the solar system. It also presents materials published on communication systems with space objectives launched by the U. S. S. R. and the U. S. A., and on systems of ground communication

UDC: 621.396.946.231(076)

Card 1/2

PETROVICH, P.G.; SHUSHKINA, E.A.; PECHEN', O.A.

Calculating the production of zooplankton. Dokl. AN SSSR 139 no.5:1235-1238 Ag '61. (MIRA 14:8)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina. Predstavleno akademikom Ye.N. Pavlovskim.
(Zooplankton)

USSR / General Biology - General Hydrobiology.

Abs Jour: Ref Zhur-Biol., No 9, 1958, 38105.

Author : Petrovich, P. G., Sivko, T. N., Sergeev, A. I.
Inst : Not given.
Title : Hydrochemical and Hydrobiological Characteristics of the Ptich River and Its Bottomland Basins.

Orig Pub: Uch. zap. Belorussk. un-t, 1957, No 33, 185-210.

Abstract: A study was conducted of the chemical composition of the water, and the qualitative and quantitative zooplankton and zoobenthos composition on a section of midriver flow of the Ptich River (a tributary of the Pripyat River) and its bottomland basins. The effect of humus substances, which abound in its lower reaches, is reflected in zooplankton development. In the bottomland basins,

YEFIMOV, M.V., kand. biol. nauk, otv. red.; RAMPILOVA, M.A., kand. sel'khoz. nauk, red.; PETROVICH, P.I., ml. nauchn. sotr., red.; BOGDANOV, G.G., red.

[Biology of forage plants of Buryatia] Voprosy biologii kormovykh rastenii Buriatii. Ulan-Ude, 1963. 161 p. (MIRA 18:7)

1. Ulan-Ude. Buryatskiy kompleksnyy nauchno-issledovatel'skiy institut.

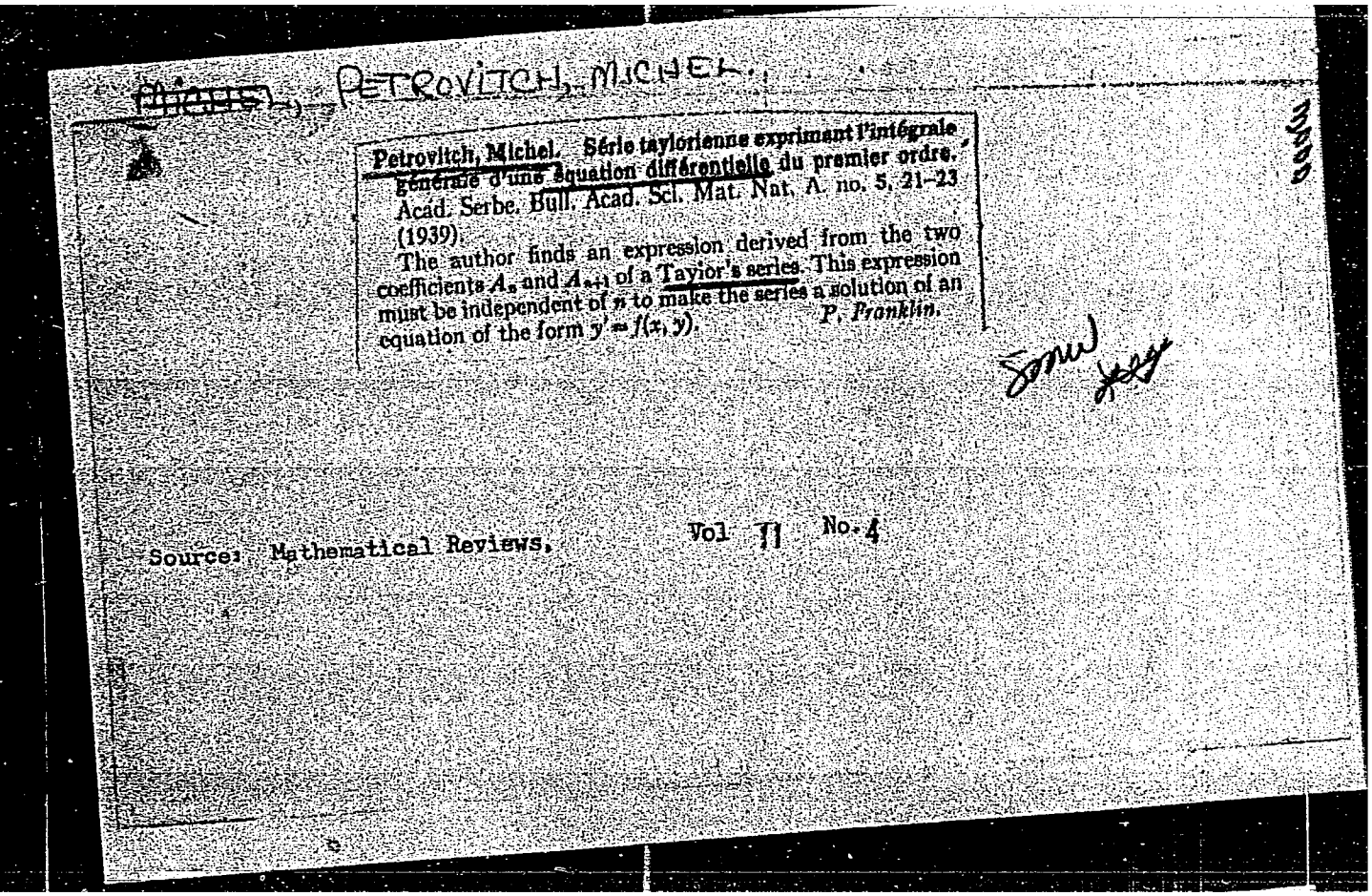
PETROVICH, P.I.

Some data on peat soils on the banks of Lake Baikal. Krat.soob. BKNII no.3:73-84 '62. (MIRA 16:5)
(Baikal Lake region--Peat soils)

PETROVICH, P.I.

Oxidative nitration of aromatic compounds. Part 4: Mercury derivatives of some p-substituted benzene derivatives and their reactions with nitric acid. Zhur. ob. khim. 30 no.9:2808-2812 S '60. (MIRA 13:9)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley.
(Mercury organic compounds) (Benzene)



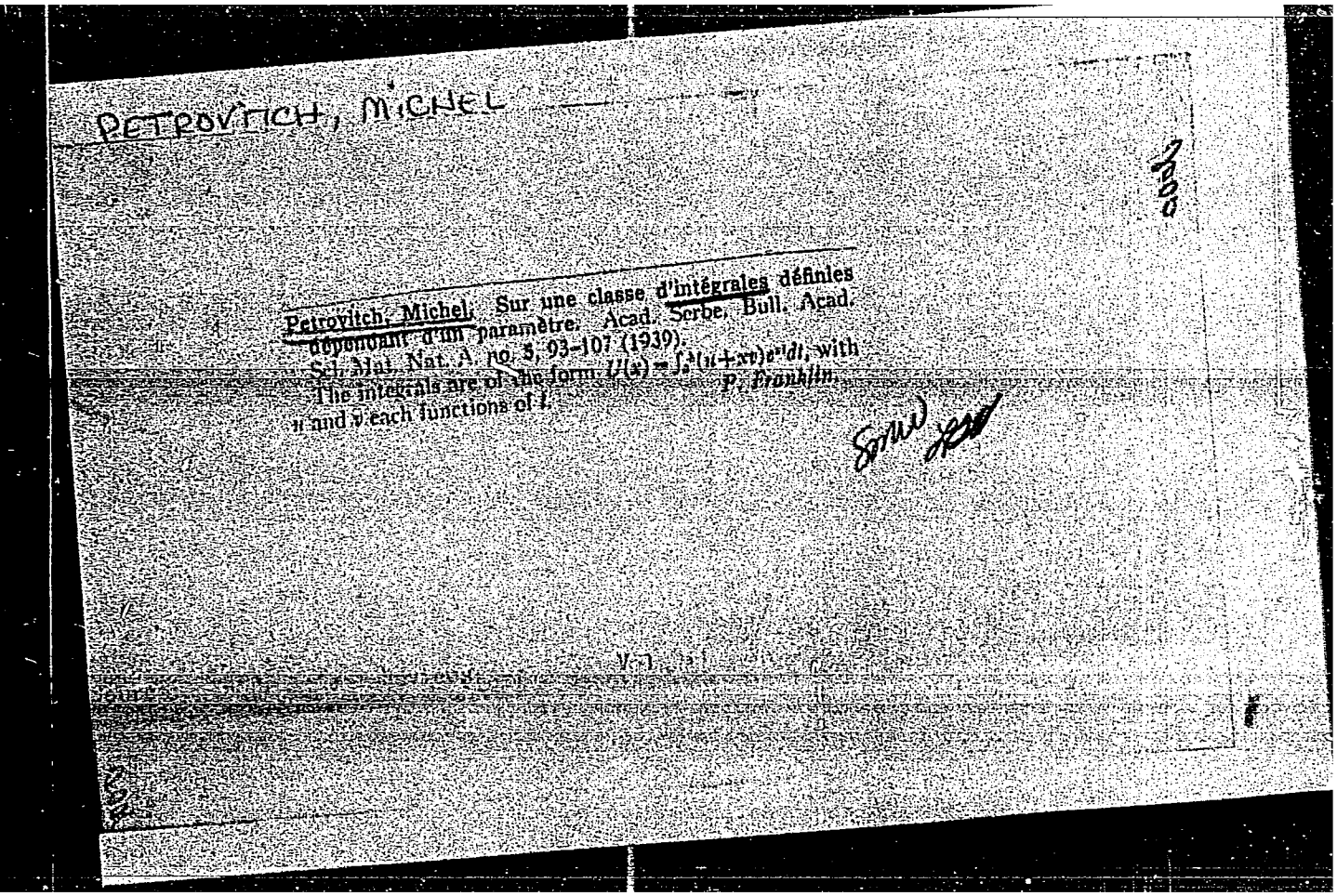
PETROVITCH, MICHEL

Petrovitch, Michel. Série taylorienne exprimant l'intégrale générale d'une équation différentielle du premier ordre. Acad. Serbe. Bull. Acad. Sci. Mat. Nat. A. no. 5, 21–23 (1939).

The author finds an expression derived from the two coefficients A_n and A_{n+1} of a Taylor's series. This expression must be independent of n to make the series a solution of an equation of the form $y' = f(x, y)$.

P. Franklin.

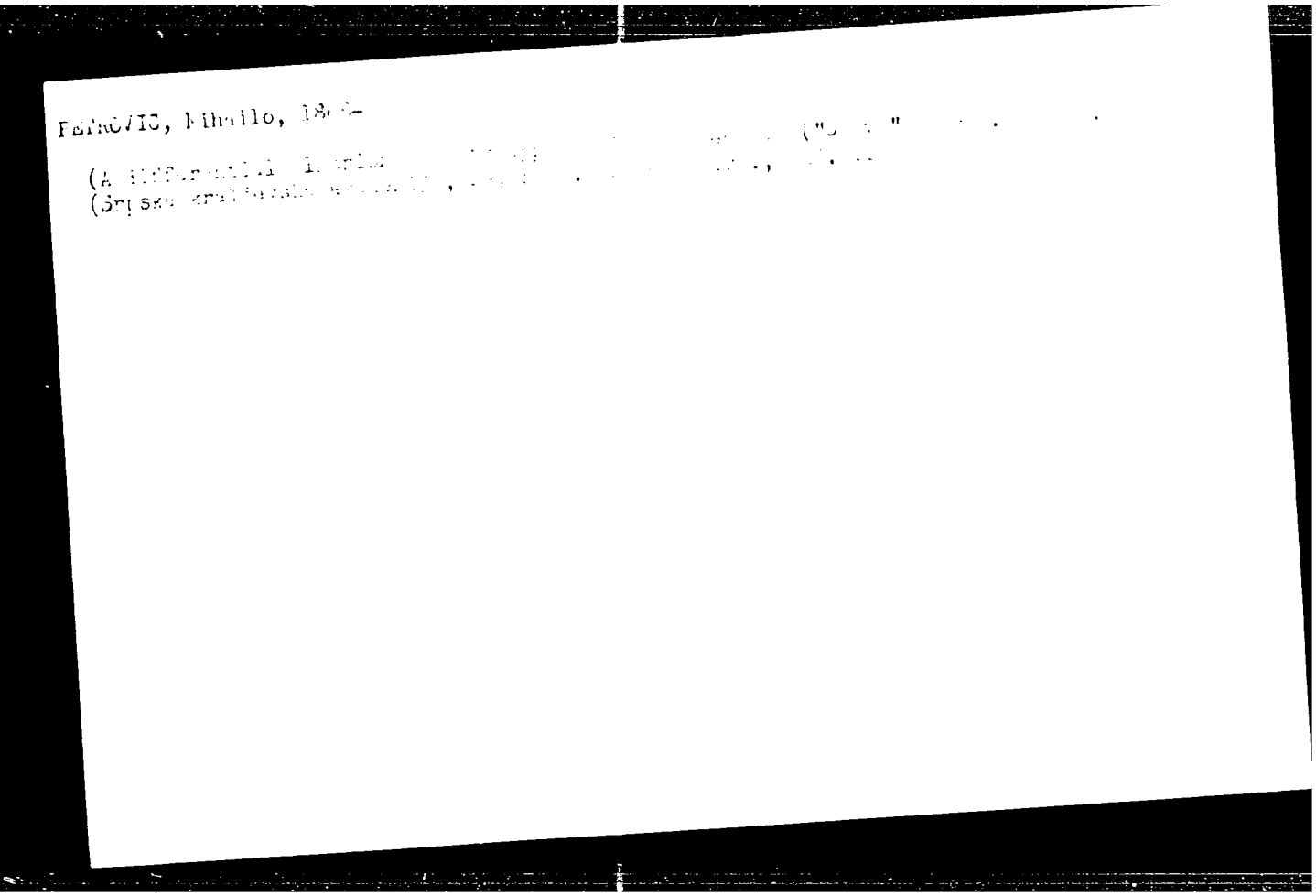
Source: Mathematical Reviews, Vol 11 No. 4



PETROVITCH, MICHEL

Petrovitch, Michel. Sur une classe d'intégrales définies dépendant d'un paramètre. Acad. Serbe. Bull. Acad. Sci. Nat. Nat. A. no. 3, 93–107 (1939).
The integrals are of the form $U(x) = \int_a^b (u+xv)e^{-u}du$, with u and v each functions of t.

P. Franklin.



SOV-137-57-11-21680

Translation from: Referativnyy zhurnal Metallurgiya, 1957, Nr 11, p 164 (USSR)

AUTHOR: Petrov, M. N.

TITLE: The Effect of Reheating to High Temperatures on the Properties and Flow Pressure of Cast Aluminum Upon Cold Extrusion (Vliyaniye peregreva na svoystva i davleniye techeniya litogo alyuminiya pri kholodnom vydavlivanii)

PERIODICAL: Sb. stud. nauch. rabot. Belorussk. politekhn. in-t, 1957, Nr 5, pp 20-21

ABSTRACT: In order for cast billets to be used for cold extrusion it is necessary to increase the flowability of the Al. This is attainable by reheating the metal (M) to an elevated temperature. Investigation has shown that the mechanical properties of industrial Al cast from molten metal at various temperatures are not dependent upon the level of heating and are practically uniform throughout the casting (casting was done in a steel chill at 20-8 mm sec). Good filling of a multiple metal mold is attained when the molten aluminum is at 900-1000°C. The ductility of the M under these conditions does not drop even when the mold is filled at maximum M. Ts.

Card 1/1 speed

Pa. [illegible]

YUGOSLAVIA/Engineering - Electric Power Apr/May 49
Stations
Construction

"The 'Mariborski Otok' Hydroelectric Power Station," Nikola Petrovich, Engr, Min of Elec Econ, FPRY, 3½ pp

"Elektrotehnicki Vesnik" No 4/5

Text of speech at dedication of subject station on 5 Sep 48. First unit to be completed has output of 18,000 kw. Total output will be 54,000 kw. This is more than that of any station built from World War I to World War II. (The 62,000-kw "Tito" power station at Split was built in Austro-Hungarian times.)

150723

FDD

YUGOSLAVIA/Engineering - Electric Power Apr/May 49
Stations (Contd)

PETROVICH, NIKOLA

Work at Maribor, begun by Germans during World War II, was 30% complete at the end of the war. It was continued without foreign aid from designs developed by Prof Goljevscek, who performed over 2,000 experiments on models in his hydrotechnical laboratory in Ljubljana.

FDD

150723

PETROVICH, N.G.

Improving working conditions for Donets Basin miners. Visnyk AN URSR 27 no.12:25-33 D '56. (MLRA 10:1)
(Donets Basin--Coal miners)

PETROVICH, Nikolay Petrovich; [illegible], G.G., otv. red.;
MAKS[illegible]KOVA, A.I., red.

[Communication channels with phase keying] Kanaly sviazi s fazovoi manipuliatsiei. Moskva, Red.-izd-skii otdel Vses. [illegible] elektrotekhn. [illegible] sviazi, [illegible]. 61 p.
[illegible]

PETROVICH, N. T. and [illegible]

"Radio Interference and Methods of Increasing the Noise Stability of Radio Lines," Referatnii Sb. Nin. Promyshlennosti Sredstv Svyazi, [illegible], Otdel. Naukhno-Tekh. Info., 1949.

PETROVICH, N.T.; KOZYREV, A.V.

[Generation and transformation of electric impulses] Generirovanie i preobrazovanie elektricheskikh impul'sov. Moskva, Sov. radio, 1954 428 p. (MLRA 8:1D)

PETROVICH, N. T.

"Potential Noise Rejection of Certain New Methods of Transmission of Telegraph Signals,"

report presented to the Session on Information Theory, All-Union Scientific Council of VNOPiE, Moscow, 2[illegible]-25 May 1957.

N. T. Petrovich considered how transmitted telegraph symbols can be received only by comparison of the given message with other messages, transmitted during other time intervals or on other carrier frequencies.

Electronic Design, 22 Jan 58

[illegible] 10-10-[illegible]

AUTHOR: Petrovich, N.T., [illegible] Member of the Society

TITLE: New methods for the Realization of Phase-telegraphy [illegible] [illegible] Popov) [illegible]

PERIODICAL: Radiotekhnika, [illegible], Nr [illegible], pp [illegible] (USSR)

ABSTRACT: The use of the principle of a relative comparison of [illegible] parameters (amplitude, frequency and phase) which correspond to the different temporal intervals (temporal comparison), or the comparison of signal with different frequency (frequency comparison) offers new possibilities for the realization of phase telegraphy. Here the use of this principle for the case of binary transmission of telegraphic signal by means of a binary phase manipulation with temporal - and frequency [illegible] of the signals is given. Different from ordinary phase telegraphy (PT) the telegraphy given here is called relative phase telegraphy (RPT). The author shows that in the case of temporal signal comparison the possibility [illegible] receive phase-manipulated signals without [illegible] the receiver (the phenomenon of "negative work" [illegible]) as well as to at the same time transmit a [illegible] signal [illegible]

Card 1/2

New Methods for th[illegible]

[illegible]quency-telegraphy channel [illegible]. The [illegible] the relative [illegible] of the oscillation [illegible] with the modulation frequency, i.e. the realization [illegible] frequency comparison of signals, makes it possible to realize, under certain conditions, the reception of phase-manipulated oscillations the static-free characteristic of which is close to that of reception by [illegible] coherent voltage. The author further shows that the presence of a coherent voltage obtained from the manipulation frequency in this case makes possible the transmission of two signals at the same time without [illegible] the frequency band [illegible] the transmitting channel. There [illegible] types.

SUBMITTED: [illegible]
ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova
AVAILABLE: Library of Congress

Card 2/2

PETROVICH, N. T.

N. T. Petrovich, "Use of relative phase telegraphy to compress a FT channel and to eliminate 'reverse operation' in the A. A. Pistol'kors circuit and in the D. V. Ageev amplitude-phase detector." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep 58.

The probability of sign distortion in the usual phase telegraphy and relative phase telegraphy is calculated for gaussian and periodic interference.

Two variations of FT channel compression are analyzed by using relative phase telegraphy. In the first variation, the difference in the carrier frequencies of the FT channel must be a multiple of the manipulation frequency and one of the carrier frequencies of the FT channel is converted during reception into the second by using oscillations of the manipulation frequency.

In the second variation, phase detection is performed separately on each of the carrier frequencies.

The interference immunity of a relative phase telegraphy channel combined with a FT channel is estimated.

Use of relative phase telegraphy jointly with phase telegraphy receiver circuits, proposed by A. A. Pistol'kors and D. V. Ageev, permits the elimination, in principle, of the tendency of these circuits to "reverse operation".

Receiving circuits are analyzed.

PETROVICH, N.T.

Noiseproof reception of phase-manipulated signals by juxtaposing the phases of neighboring signals. Nauch.doki.vys.shkoly; radiotekh. i elektron. no.2:12-18 '58. (MIRA 12:1)
(Radiotelegraph)

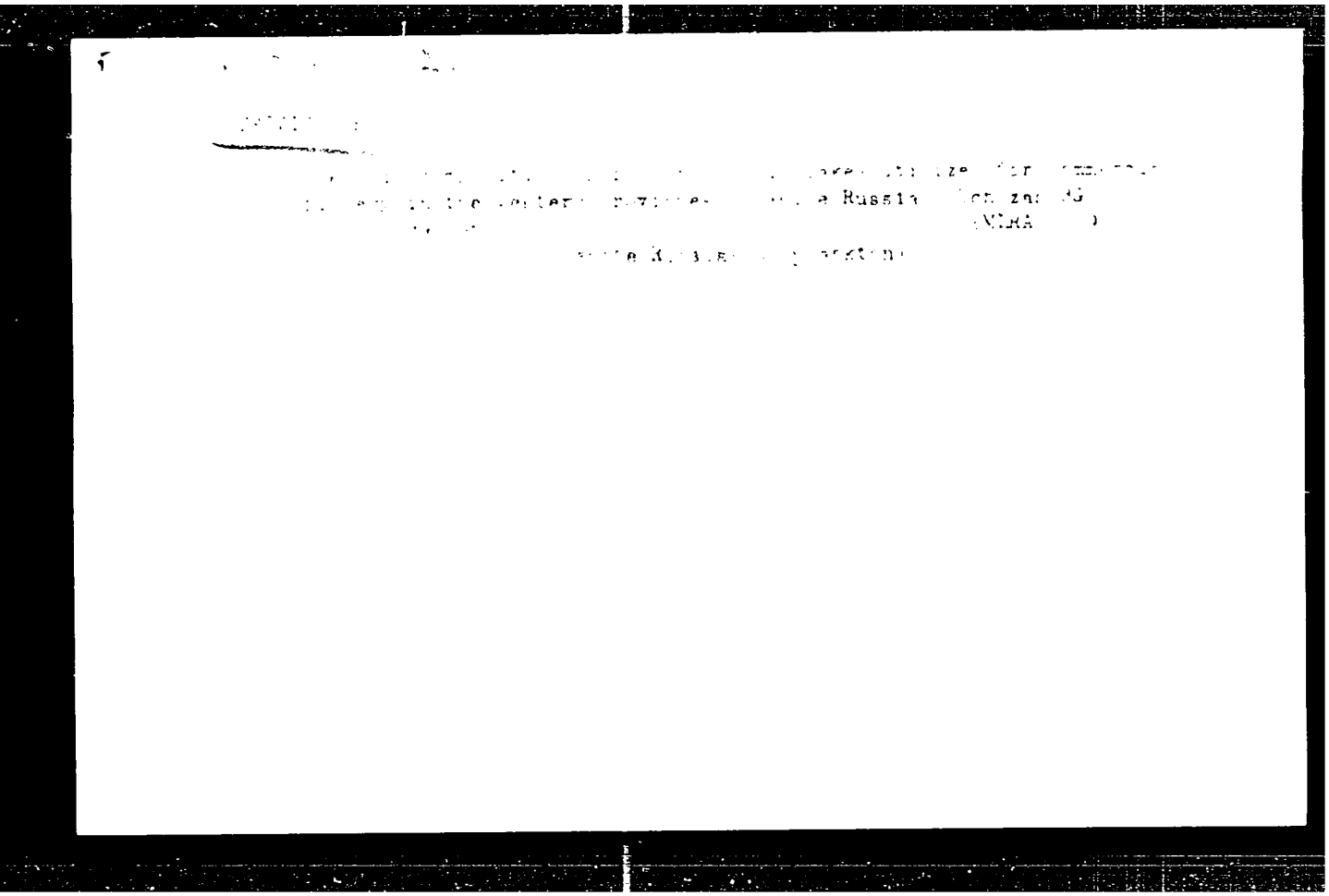
PETROVICH, Nikolay Timofeyevich; [illegible]

[illegible]

PETROVICH, N.T.

Signal transmission by a method of comparing the parameters of elementary transmission. Radiotekhnika 16 no.1:3-10 Ja '61. (MIRA 14:2)

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



AUTHOR: Petrov [illegible] S.V. [illegible]

TITLE: On the Investigation of the Oxidizing Nitration [illegible] Compounds [illegible] kislitel nogo nitrovaniya [illegible] cheskikh soyedineniy. II. Nitration of n-Xylene in the Presence of Mercury Nitrate (II. Nitrovaniye n ksilola v prisutstvii nitrata rtuti)

PERIODICAL: Zhurnal [illegible] khimii, [illegible], Vol 2[illegible], Nr [illegible]

ABSTRACT: On nitrating some aromatic compounds with diluted [illegible] the presence of mercury nitrate (oxidizing nitration) [illegible] compounds and nitrophenols are formed; there are [illegible] ble as to the behavior of n xylenes under these [illegible] increased temperature nitric acid alone nitrates [illegible] x[illegible] side chain and oxidizes it chiefly in n-tolu[illegible] On the reaction of n xylene with [illegible] nitric [illegible] of mercury nitrate [illegible] the authors obtained [illegible] terephthalic acid, n-toluyl aldehyde, nitric ether [illegible] alcohol, n toluyl dinitro and n-toluyl trinitro methane [illegible] and 2,5-dinitro-n xylene, mercury oxalate, diazonium [illegible] apparently, the mercury salt of the product of mercury [illegible] affiliating to maleic acid. Nitrophenols were not [illegible]

Card 1/2

On the Investigation of the Oxidizing Nitration of the Aromatic Compounds
II Nitration of n-Xylene in the Presence of Mercury Nitrate

varying quantitative ratio of nitric acid to n-xylene [illegible] varying reaction duration the quantitative composition of the reaction products did not change. Proofs concerning the [illegible] the compounds synthesized were undertaken. The assumed formation of a mercury salt, the product of the mercury nitrate addition to maleic acid, was confirmed by determining nitric acid and maleic acid after cleaving the compound with hydrochloric acid (Scheme). A description is given of diethyl (4 methylbenzyl) amine and its picrate, triethyl-(4 methylbenzyl) ammonium iodide, 1-n xylylazo-2 naphthol, n-toluylbromo-dinitromethane and n-tolyl trinitromethane. There are 1 reference [illegible] which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut organicheskikh [illegible] i krasiteley (Scientific Research Institute of Organic [illegible] products and Dyes)

SUBMITTED: July 2[illegible]
Card 2/2