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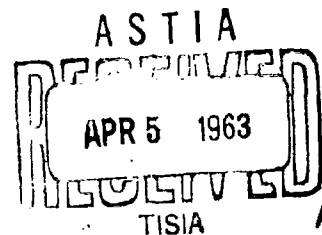
SCIENTIFIC INFORMATION REPORT

Biology and Medicine

(27)

Summary No. 4413

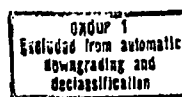
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W A R N I N G

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SCIENTIFIC INFORMATION REPORTBiology and Medicine (27)

This is a serialized report consisting of unevaluated information prepared as abstracts, summaries, and translations from recent publications of the Sino-Soviet Bloc countries. It is issued in seven series. Of these, five, Biology and Medicine, Electronics and Engineering, Chemistry and Metallurgy, Physics and Mathematics, and Organization and Administration of Soviet Science, are issued monthly. The sixth series, Chinese Science, is issued twice monthly; and the seventh series, Outer Mongolia, is issued sporadically. Individual items are unclassified unless otherwise indicated.

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I. FEATURE ITEM

1. Partial Table of Contents of Voenno-Meditsinskiy Zhurnal
No 11, 1962

The following is a reconstruction of the table of contents of Voenno-Meditsinskiy Zhurnal, No 11, 1962, as cited in Letopis' Zhurnal'nykh Staty, Volume 6, 1962. The numbers in parentheses following the article titles refer to the title number in the yearbook.

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II. BIOLOGY

Basic Biology

2. Colored Cotton Grown

Bonn, Die Wirtschaft des Ostblocks, 16 Jan 63, p 10

Soviet Professor of Biology Maksimyenko (fnu) succeeded in growing colored cotton directly on the plantations. He achieved light green, pink, and yellow shades. Fabrics produced from the colored cotton are said to be very durable and waterproof.

3. Leningrad Scientists Discover Thermoregulatory Defense Mechanism in Plants

"Planned Newtons," by D. Bilenkin; Moscow, Komsomol'skaya Pravda, 24 Jan 63, p 2

The article mentions that Leningrad botanists discovered that a protective thermoregulatory mechanism begins to operate in plants subjected to high temperatures. The mechanism exists in both northern and southern plants, but, for lack of need, is inoperative in northern plants. Southern experiments on this phenomenon will be conducted by the phytology laboratory in Tashkent, which was established only recently, and will be headed by the young student, Zhenya Khachaturov.

4. Carrots Grown From Carrot Tissue

"A Carrot Grew From Plant Tissue"; Kiev, Pravda Ukrainy, 29 Jan 63,

At the Institute of Plant Physiology imeni K. A. Timiryazev, carrots were grown from 3-year-old carrot tissue. After initial simple cell division and with some changes in nutrition, the tissue began to differentiate to produce a normal carrot.

5. New Types of Fungi Discovered

"Finds on the Seashore"; Moscow, Nedelya, No 1, 29 Dec 62-6 Jan 63, p 6

Far Eastern biologists who have studied the microflora of the seashore over a number of years have discovered 51 species and four forms of fungi which until now had not been mentioned in the literature. Sixteen species proved to be completely new to science.

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"The study of microflora has a great economic significance. Investigators have determined which of the fungi harm which kinds of trees. Useful fungi that possess medicinal qualities have been developed. Some types of fungi will be used in the control of agricultural pests."

Biochemistry

6. Synthesis of Proteins and of DNA and RNA in Presence of Bacteriostatic Antibiotics

"The Effect of Bacteriostatic Antibiotics on Protein and Nucleic Acid Synthesis in the Cells of Staphylococcus Aureus," by Yu. O. Sazykin and G. N. Borisova, Laboratory of Biochemistry, Institute of Chemistry of Natural Compounds, Academy of Sciences USSR; Moscow, Antibiotiki, Vol 7, No 11, Nov 62, pp 975-979

Bacteriostatic substances possess different types of action on the processes of protein and nucleic acid syntheses in bacterial cells.

Bacteriostasis which is caused by chloramphenicol and tetracycline is accompanied by the rapid cessation of protein synthesis in the cells of staphylococcus aureus, while the synthesis of RNA and DNA continues.

Bacteriostasis which is caused by albomycin is accompanied by the simultaneous cessation of the synthesis of protein and of RNA, but the synthesis of DNA continues.

Bacteriostasis which is produced by the effect of erythromycin is accompanied by the rapid cessation of protein synthesis, while the synthesis of RNA continues, but at a slower rate than in the control.

During bacteriostasis produced by the effect of the nonspecific action of dimethylformamide, the synthesis of protein and of RNA and DNA ceases simultaneously in the cells of staphylococcus aureus.

7. Ultrasonic Irradiation Affects Brain Enzymes

"The Effect of Ultrasound on the Activity of Depolymerase of the Nucleic Acids of the Brain," by T. P. Babiy and E. B. Skvirskaya, Institute of Biochemistry, Academy of Sciences Ukrainian SSR, Kiev; Ukrainskiy Biokhimichnyy Zhurnal, Vol 34, No 6, Nov/Dec 62, pp 807-814

The authors studied the effect of ultrasonic energy on the activity of depolymerizing enzymes, i. e., ribonuclease and deoxyribonuclease, in the brains of animals (white rats). The inhibitory effect of ultrasound on the activity of these enzymes was shown through changes in their activity after the direct and indirect action of ultrasound on brain tissue.

In addition to experiments on intact animals, studies were conducted on enzyme extracts of the brain which were subjected to ultrasound irradiation (in vivo experiments). These tests also showed the inhibiting action of ultrasound.

The authors conclude that the enzymes of nucleic metabolism, i.e., ribonuclease and deoxyribonuclease of the brain, are sensitive to the effect of ultrasound.

Biological Warfare

8. MAG Aerosol Generator With 30-Kilometer Range Described

"A Rocket Against Mosquitoes"; Moscow, Komsomol'skaya Pravda, 1 Dec 62, p 4

"The Institute of Chemical Kinetics and Combustion, Siberian Department of the Academy of Sciences USSR, has successfully solved the problem of mosquito control.

"State Prize-Winner S. I. Novikov chief designer of the institute, and a group of associates created the powerful MAG generator for exterminating mosquitoes. It is an amphibious, tracked vehicle on which a turbojet engine is mounted.

"The principle of operation of the 'MAG' is as follows. A solution of working fluid consisting of diesel fuel containing poisonous chemicals is injected into the stream of hot gases formed in the engine. Upon

ejection of the vaporized mixture into the atmosphere and its contact with cold air, condensation of the oil vapors occurs, as a result of which a highly dispersed oil cloud is formed -- an aerosol cloud which is spread over a distance up to 30 km. The cloud is harmless for plants, animals, and humans, and lethal for mosquitoes.

"The 'MAG' has high productivity. More than 10,000 hectares can be treated with it in one hour, i.e., dozens of times more than with the 'AN-2' agricultural aviation airplane. The price of treating one hectare is low -- 12 kopecks.

"The 'MAG' can be used extensively also for eradicating agricultural and forest pests. The aerosol cloud can also be used successfully for protection of plants from early frosts."

A photograph accompanying the article shows Sergey Ivanovich Novikov, chief designer at the institute, and Aleksandr Aleksandrovich Pushkarev, operator of the MAG, readying the generator of the MAG, readying the generator for operation.

9. New Nozzle for Aerosol Sprayer Described

"An Apparatus for Obtaining Aerosols," by V. S. Yarnykh, Candidate of Veterinary Sciences, All-Union Scientific Research Institute of Veterinary Sanitation; Moscow, Veterinariya, Vol 39, No 1, Jan 63, pp 79-81

"One of the simplest methods of obtaining aerosols from liquid preparations is dispersing them with compressed air in special aerosol nozzles (atomizers). The particle size (dispersibility) of aerosols obtained by gas (pneumatic) atomizers depends on the relationship between the amount of and pressure of the air or gas and the amount of liquid supplied to the atomizer. The more gas and the less liquid put into it, the higher the dispersibility of the aerosol. Besides this, the dispersibility of an aerosol depends on the design of the spray nozzle.

"The existing pneumatic sprayers do not give a sufficiently highly dispersed aerosol even with a relatively small discharge of liquid. We developed a design for a pneumatic vortical aerosol nozzle intended for dispersing different liquids in an aerosol state.

"The pneumatic vortical aerosol nozzle (figure 1) consists of a body with a connecting pipe for supplying compressed air, a tube for supplying the liquid, a control valve, and a conical atomizing insert with helical controlling bands. The atomizing insert creates two

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ring-shaped air streams: an internal (between the tubes for the liquid and the atomizing insert), and an external (between the atomizing insert and the body), which consequently divide the liquid in the nozzle.

"As the external ring-shaped air stream passes between the helical controlling bands it assumes a spiraling vortical motion and leaves the nozzle in the form of a broad 'jet.' Therefore, the nozzle is capable of producing highly dispersed aerosols with a droplet diameter of 10-30 microns and a liquid flow of up to 200 ml/min.

"According to our data, the mean arithmetic diameter of the aerosol droplets with a dispersion of up to 20 ml/min is 10 microns, and with a flow of 150 ml/min, 20 microns. According to the data of the Central Disinfection Institute (V. M. Tsetlin), the average median diameter of droplets produced by PVAN atomizers with a liquid flow of 150 ml/min is 55 microns.

"The air in the aerosol nozzle may be supplied by any compressor having an output of not less than 30 m³/hr at an operating pressure of 3-4 atmospheres. In preparing the nozzle for operation, the compressor air hose is connected to tube 8 of the nozzle. A second rubber hose connects tube 7 with the liquid reservoir. The reservoir is placed slightly higher than the nozzle. When a pressure of 2-3 atmospheres is reached in the air system, the knob of valve 5 is turned, opening the passage and permitting the liquid to enter the air stream.

"The expenditure of liquid and dispersibility of the aerosol is regulated by turning the knob on the valve. When the knob is turned 90°, up to 300 ml/min of liquid is released. The liquid is dispersed in the form of a dense, fog-like flow (Figure 2).

"The sprayer described was tested and found to be completely suitable for conducting aerosol disinfection and disinfestation in practical applications. It may also be used for aerosol vaccinations in therapy.

"In 1961 the experimental plant of the Special Design Office of Zooveterinary Instrument Building produced a group of aerosol nozzles (50) which underwent extensive industrial testing with positive results. We consider it possible to recommend the PVAN nozzle for use in veterinary practice."

A diagram and a photograph of the nozzle are provided.

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Food Technology

10 Algae Foods Offered in Czechoslovakia

"People and Microbes"; Bratislava, Pravda, 26 Jan 63, p 4

Czechoslovak Academy of Sciences facilities in Prague have prepared soups, dumplings, carbonated drinks, and desserts entirely from algae. In the near future, the International Hotel in Prague will offer a menu, a dinner of the future consisting of seven courses, for which the main raw material will be algae. Algae are also useful in medicine. For example, they will be used in cases of stomach surgery, for they are nourishing and rich and contain a minimum of indigestible substances.

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Marine Biology

11. Soviet Scientist Develops New Species of Sturgeon by Hybridization

"Hybrid of Two Sturgeon Families"; Kishinev, Sovetskaya Moldaviya, 26 Jan 63, p 4

"Soviet scientists N. I. Nikolyukin introduced a new species of fish by means of the hybridization of the young of the sterlet (sterlyad') and white sturgeon (beluga) families. The hybrid possesses the merits of both types: the rapidity of growth of the sterlet and the large dimensions of the white sturgeon. About 300,000 small fish of the hybrid type, released half a year ago by the Volgograd Sturgeon-Processing Factory into the Proletarsk reservoir (Rostovskaya Oblast), developed quickly. The fish attained a weight of 250-260 grams."

Microbiology

12. Survival of Pathogens in Environment

"The Duration of Preservation of the Pathogens of Typhoid, Paratyphoid A, Flexner Type C Dysentery, and E. coli in Artificially Infected Objects of the Environment," by D. Yu. Gitarin and D. F. Moskovenko; Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, Feb 63, p 111

"The duration of the preservation of pathogens of a number of enteric infections and also E. coli in several environmental objects (soil, water, feces), and in food products used without heat processing (butter, biscuits) was studied. The objects being investigated were infected with standard microorganism cultures (200 million microbial bodies per one g of object investigated). The infected objects were kept in tightly sealed glass vessels in a dark wooden cupboard at a temperature of 4° C to -10° C. Before each seeding, the infected objects were subjected to thawing and freezing, which was repeated 8-18 times depending on the duration of preservation of pathogens in them.

"It was established that despite the numerous thawings and freezings, paratyphoid A bacillus maintained its vital activity for a maximum of 37 days (in butter) at 4° C to -10° C. Typhoid bacillus survived for a maximum of 45 days under the same conditions (in soil and butter); Flexner dysentery bacillus was preserved for 45 days in soil, biscuits, butter, and lake water.

"E. coli maintained viability longer -- up to 59 days -- in the environmental objects and food products enumerated."

13. New Membrane Filter Attachment

"The Membrane Filter," by V. F. Katsitadze, Chair of General Hygiene, Sanitation Hygiene Faculty, Tbilisi; Moscow, Laboratornoye Delo, Vol 8, No 1, Jan 63, pp 53-54

"A device for filtering water with the aid of membrane filters (a Gol'dman system type of device) can be prepared in the following manner. A metal cone of brass, either zinc or tin plated., is attached to the upper half of a Seitz type flask. The asbestos disc is removed, and a membrane filter of the corresponding number is attached to the metal grid already in the apparatus. (Note: The grid should not be copper or rusty. A disc equal to the size of the membrane filter, made of previously sterilized filter paper, can be placed on the grid under the membrane filter.) The apparatus is mounted in a flask with an outlet tube and is connected to a vacuum pump. The absence of a valve in the lower half of the improvised apparatus does not impede analysis appreciably, and the presence of a thread for tightening the membrane sheet (instead of a holder) guarantees more solid attachment of the membrane filter. An external view of the membrane filter is shown in the photograph."

14. Method of Purifying Anthrax Antigen

"Improvement of the Culture Medium and a Search for a Method of Purifying Protective Anthrax Antigen," by N. I. Aleksandrov, N. Ye Gefen, V. F. Lebedinskiy, and A. I. Filippenko; Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 1, Jan 63, pp 103-107

Improvement of a chemical anthrax vaccine prepared from STI-1 vaccine strain on a milk medium is described in this article. Original work on the vaccine was reported in 1961. The strain was cultured on a milk-peptone medium and extracted therefrom by precipitation with ethyl alcohol, then concentrated, stabilized, and sorbed on aluminum hydroxide and lyophilized. The specific activity of the preparation was tested on white mice, which were given a 0.5 ml dose twice with a 7-day interval. The mice were infected intraperitoneally with 2.5 billion microbial cells of a 2-day culture of STI vaccine strain 14 days after the second injection and observed for 7 days.

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The vaccine was found to have low toxicity and pronounced immunogenic properties, and produced only insignificant postvaccinal reactions. A 40% concentration is recommended for the precipitating alcohol.

15. Effect of Nitrogen Dioxide on B. anthracis

"The Bactericidal Action of Nitrogen Dioxide on Vegetative and Spore Forms of Bac. anthracis." M. A. Trzhetsetskaya, K. N. Arbuzov, A. A. Akhmedova, and K. P. Chepur, Chair of Microbiology, Poltava Agriculture Institute; Kiev, Mikrobiologicheskyy Zhurnal, Vol. 24, No 6, 1962, pp 43-44

"Nitrogen dioxide is a strong bacteriocidal gas. Vegetative and spore forms of Bac. anthracis die in 15 minutes under its effect in a concentration of 0.5 g per one liter of air, at room temperature and atmospheric pressure. Vegetative and spore forms of other species of microorganisms (herb and potato bacilli, tetanus and gas gangrene pathogens) die in 1-10 minutes."

16. Brucella Staining Method Patented

"A Method of Staining Smears With Brucellosis Microorganisms," L. I. Dotsevich, USSR Certificate of Authorship No 144578, 15.02.62 (From Referativnyy Zhurnal -- Biologiya, No 1, Jan 63, Abstract No 1B311)

"A 1% solution of basic fuchsin and a 4% solution of brilliant green are heated to 70-80° C, mixed in equal parts, and put into a thermostat to dry at 37° C. Smears from a 2-4-day culture on agar are prepared by mixing the bacterial mass with physiological solution, dried in air, fixed slightly by flame, stained for 10-11 minutes, and dried with filter paper. Under a microscope, undissociated bacteria of the suis and bovis types are blue-green if alive and red if dead; dead and live undissociated bacteria of the melitensis type are bright red; green-stained cells sometimes occur among them."

17. Synchronous Culturing of Chlorella

"The Role of Synchronous Cultures in the Study of the Biology of Chlorella and Their Practical Use," by S. V. Goryunova, G. N. Rzhanova, M. N. Ovsyannikova, V. K. Orleanskiy, and V. V. Kabanov, Institute of Microbiology, Academy of Sciences USSR; Moscow, Mikrobiologiya, Vol 31, No 6, Nov/Dec 62, pp 1107-1121

Synchronous division of algae cells is caused by the alternating action of periods of light and darkness. The advantage of this method is that the daily cycles of light in the process of development of algae so frequently correspond with the natural rhythm of cell division in these organisms that most authors are inclined to view them as of a real and regular, rather than casual, nature. Following a lengthy introduction which discusses the relationship of synchronous culturing of algae to productivity, and the industrial significance of this process, the article is subdivided into four sections: (1) a study of the effect of basic nutrient elements on cell division in Chlorella; (2) the connection of different components of the culture medium with synthesis of the fundamental elements of Chlorella cells in the process of its life cycle; (3) the intensity of illumination and the productivity of synchronous cultures of Chlorella; and (4) investigations devoted to study of the sequence of metabolic processes in the Chlorella cell in connection with the cycle of its development.

The authors conclude that synchronization of Chlorella cultures with the aid of alternating periods of light and darkness corresponds with the natural rhythm of the development of algae, which distinguishes this method from methods of synchronizing other microorganisms based on the use of strongly acting factors. The "time factor," i. e., that period of culture illumination during which the algae cells must pass through a definite stage of development preceding the division process, plays an important part together with the correct "rhythmicity."

Changes in the intensity of illumination and temperature have a great effect on the direction and results of synchronization. Increase or decrease in the activity of photosynthesis in Chlorella is connected with the intensity of illumination and temperature. The activity of the process of photosynthesis depends on the age of the cells as well as on gas exchange. Processes of selective accumulation of different nutrient substances by the cells of algae from their environment, as well as the direction of synthesis and metabolism processes, are connected with growth changes of Chlorella. The introduction of mass production of Chlorella into technology under conditions of the continuous culturing method of synchronization increases by four to five times the output of biomass of this organism. The total liberation of oxygen was also increased considerably.

The determination of sequence in the accumulation of different stages of *Chlorella* development, the discovery of the mechanisms between their assimilation and the synthesis of the fundamental cell elements, and also study of the direction of a number of metabolic processes have made it possible to control such complex processes as obtaining algae cells with a much higher content of autospores in comparison with the initial cells under practical conditions.

18. Experimental Omsk Hemorrhagic Fever in Muskrats

"A Study of Viremia in Muskrats After Experimental Infection With the Virus of Omsk Hemorrhagic Fever," by T. N. Zakorkina, Scientific Research Institute of Infections With Natural Foci, Omsk; Moscow, Voprosy Virusologii, Vol 7, No 6, Nov/Dec 62, p 742

"Animals divided into two groups (ten in each) were infected with the virus of Omsk hemorrhagic fever (Toloshubin strain). A 2-ml suspension in a dilution of 1:10,000 was introduced subcutaneously to the animals of the first group, and in a dilution of 1:100,000, to the animals of the second group. They were observed for one month. Blood was collected daily from two muskrats (one from each group) and examined for virus content from the first to the 25th day after infection. The virus was isolated by intracerebral infection of white mice and by serial passage.

"Prolonged viremia in muskrats, observed up to 23 days, was established. The capability of animals to elaborate antibodies after a single introduction of a small dose of virus which protected them from repeated infection was revealed. The author considers that prolonged viremia can facilitate the rapid spread of infection among muskrats during an epizootic."

19. Salmonella Isolated From Ticks on Wild Birds

"A Case of Isolation of Salmonella From Hyalomma plumbeum Ticks," by R. S. Mikhaylova, A. A. Guseva, and V. M. Gusev, Tr. N.-I. Protivochumn. In-ta Kavkaza i Zakavkaz'ya (Works of the Scientific Research Antiplague Institute of the Caucasus and Transcauc'us), No 5, 1961, pp 215-216 (From Referativnyy Zhurnal -- Biologiya, No 1, Jan 63, Abstract No 119432, by K. Gruzman)

"Culture of Salmonella typhimurium and S. abortus ovis were isolated in two cases in bacteriological examination of 227 Hyalomma plumbeum (Panz.) ticks collected from different wild birds. The development of these ticks had a two-host nature. Several small mammals and more than 70 species of birds are the hosts of the larva and nymph phases. The isolation of Salmonella from mature hungry ticks makes it possible to suggest transmission of pathogens by these ticks from one phase of development into another."

20. Control of Bacterial Contamination of Water

"A Device for Filtering Water During Bacteriological Investigation of Water With Membrane Filters, : by V. F. Katsitadze, Tbilisi State Medical Institute; Moscow, Gigiyena i Sanitariya, Vol 27, No 12 Dec 62, p 94

"The author suggests that a metal cone be attached to an ordinary low-capacity Seitz type of filtering device to increase the volume of water passing through in the absence of a Gol'dman, Semenov, or Rublevskaya water supply station type of apparatus for filtering water in bacteriological investigations. An apparatus which is extremely suitable for filtering water in bacteriological investigations with membrane filters will be obtained."

"The Resistance of Paratyphoid A Microorganisms to Chlorination in Water," by A. N. Filipenko, Zaporozh'ye Pharmaceutical Institute; Moscow, Gigiyena i Sanitariya, Vol 27, No 12, Dec 62, p 94

"The author notes that doses of chlorine corresponding to the chlorine requirements of the water cannot guarantee a successful bactericidal effect for decontaminating water infected with massive doses of

paratyphoid A microorganisms. The presence of residual chlorine in doses of 0.056-0.380 mg/.1 still do not provide a bactericidal effect in decontaminating water infected with paratyphoid A microorganisms even after a 2-hour exposure. Paratyphoid A microorganisms have high resistance to chlorine. Of 336 paratyphoid A strains examined by the author, 33-84% maintained an active chlorine concentration of 3 mg/l after a 60-minute exposure. In the author's opinion, drinking water should be chlorinated by active chlorine doses of no less than 3 mg/l to prevent a paratyphoid A outbreak with a water origin."

21. Characteristics of Clostridium perfringens

"Certain Growth Requirements of Clostridium perfringens," by L. S. Dinevich, Tr. Mold. N.-I. In-t Epidemiol. i Gigiyeny (Works of the Moldavian Scientific Research Institute of Epidemiology and Hygiene), No 5, 1961, pp 69-77 (From Referativnyy Zhurnal -- Biologiya, No 2, Jan 63, Abstract No 2B211)

"Retardation of the growth of Cl. perfringens was observed after successive exclusion of serine, lysine, norlysine, histidine, glutaminic acid, valine, tyrosine, cystine, and methionine from a casein-hydrolysate medium containing 19 amino acids. The addition of serine to a casein-fungus hydrolysate accelerated growth of the bacteria without affecting the virulence of the cultures. The introduction of 13 amino acids into the medium guaranteed maximum growth, reinforcement of virulence, and an increase in the content of total nitrogen (from 9.3-9.6 to 10.6%) in Cl. perfringens cells."

"The Effect of Certain Microelements on the Biological Activity of Clostridium perfringens Under Conditions of Culturing on Casein-Hydrolysate Medium," by L. S. Dinevich Tr. Mold. N.-I. In-t Epidemiol., Mikrobiol., i Gigiyeny (Works of the Moldavian Scientific Research Institute of Epidemiology, Microbiology, and Hygiene), No 5, 1961, pp 79-88 (From Referativnyy Zhurnal -- Biologiya, No 2, Jan 63, Abstract No 2B212, by L. Azova)

"The addition of copper in an amount of 5%/ml causes an increase in the growth rate. With an increase in the concentration of copper up to 25%/ml, its suppressing action increases. An increase in the amount of total nitrogen and RNA in the cells was observed simultaneously. The addition of 2.5-10%/ml of molybdenum increases the growth rate,

increases the content of total nitrogen in the cells. Upon the simultaneous addition of 5% of copper and 10% of molybdenum into the medium, neutralization of the suppressing action of copper was observed: the growth curve in this case corresponded to the growth curve of control cultures without the addition of molybdenum and copper. However, the amount of total nitrogen in the cells remained the same as it was in an experiment with the addition of copper alone. The RNA content was lower than in the control group."

22. "UEMV-100" Electron Microscope Used to Study Viruses

"The Electron Studies Viruses," by Vas. Kotlov; Moscow, Moskovskaya Pravda, 20 Dec 62, p 3

The article discusses the "UEMV-100" electron microscope in the microorganism morphology and electron microorganism morphology and electron microscope laboratory of the Institute imeni N. F. Gamaleya. The microscope is 2 meters high and magnifies 200,000 times. (Photographic enlargements increase magnification to over one million times.) The electron gun in the upper part of the scope produces 100,000 volts. Its electron beam reaches a speed of 100,000 kilometers per second. The microscope is being used to study viruses and their protein structure. The viruses are dissected under the microscope with a diamond knife.

23. Bulgarian Military Medical Journal Reports on Antibiotic-Sensitive Microorganisms

"Sensitivity of Microorganisms Isolated During the First Half of 1961 to Erythromycin," by S. Petrovskiy, Voyen-Med. Delo (Military-Medical Affairs), Vol 17, No 2, 1962, pp 462-465 (From Referativnyy Zhurnal -- Biologiya, No 2, Jan 63, Abstract No 2B358)

[No abstract given.]

Radiobiology24. Gamma-Radiation of Crops

Moscow, Izvestiya, Nedelya, No 4, 30 Sep-6 Oct 62, p 3

Gamma field is the name given the All-Union Scientific Research Institute of Fertilization and Agro-Soil Science, subordinate to the Moscow Experimental Field Institute, where work is being conducted on radiation action of nuclear radiations on plants. In the field, which is in the form of a circle with a 400-meter diameter, all kinds of agricultural crops, fruits, trees, and berries which grow in the central zone of the Soviet Union are represented. In the center of this circle are powerful sources of gamma rays from cobalt-60 stored in lead storage houses. During the time of radiation treatment, the radiation source is hoisted to the top of the storehouse.

Scientists of different scientific research institutes of the USSR conduct their experiments on this gamma field. They use radioactive as a means to stimulate the growth and development of plants during the first and subsequent generations, and they are resolving problems of selecting new and improved forms of agricultural crops which have higher yield, are early-ripening, and are disease-resistant.

A photograph shows one of the sections of the sections of the gamma field where researcher T. Kuznetsova Examines tomatoes grown here.

III. MEDICINE

Aerospace Medicine

25. Factors Detrimental to Life in Space Flights

"On Some Questions Dealing With Space Flights," by Candidate of Medical Science H. Janes, Institute of Experimental and Clinical Medicine, Tartu University, Estonian SSR, Tallin, Zdravookhraneniye Sovetskoy Estonii, No 5, Sep/Oct 62, pp 69-73

This report discusses the most dangerous or potentially dangerous factors of space. These factors are divided into the following three groups:

(1). Factors connected with the physical nature of outer space, such as low barometric pressure, the absence of oxygen, ionizing radiation, unfavorable temperature, and meteorites.

(2). Factors connected with actual flight in a rocket and space vehicle, such as noise, vibration, and acceleration.

(3). Factors connected with weightlessness: artificial atmosphere within the cabin of a space vehicle, the type of food, the work and rest routine, emotional stress, confinement, and protective equipment which hinders the observance of personal hygiene.

26. Lowered Body Temperature Said to Increase G Force Tolerance

"Cold and Outer Space"; Tbilisi, Zarya Vostoka, 10 Jan 63,
p 4

"What are the limits of biological survival of an organism under various conditions? How can life be preserved under extreme elemental conditions? Answering these questions is the main purpose of investigations being conducted at one of the laboratories of the Academy of Sciences USSR.

Scientists succeeded in discovering that animals whose body temperature has been greatly reduced artificially tolerate some conditions encountered in space flight much better.

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"For the first time in the history of a young science, aerospace medicine, experimental animals tolerated G forces equal to 75 units (the weight of the body multiplied by 75). Ordinarily animals are unable to withstand such experiences.

"A group of medical scientists succeeded in doing this when the body temperature of animals was reduced to $6 - 4^{\circ} \text{C}$."

27. Music, Medicine, and Cosmic Space Discussed

"Medicine and Music," by Candidate of Medical Sciences
Yu. Fedotov and Physician Ye. Yudin; Moscow, Krasnaya
Zvezda, 13 Oct 62, p 6

Throughout history, the authors of this article observe, societies have expressed their sentiments and aspirations through music. Apollo symbolized the arts and music of ancient Greece. His son Aesculapius symbolized medical science of his day.

The earliest scientific experiments on the effects of music on the cardiovascular system were conducted toward the end of the 19th century. Results showed that cheerful music stimulates cardiac activity and circulation and produces changes in the arterial pressure, pulse rate, and respiration. Although it has not been proved experimentally, it is thought that music influences the activity of hormones which play an important role in mental and emotional reactions connected with courage, fearlessness, and daring. The Russian General A. V. Suvorov recognized that martial music makes one forget fatigue. This was recognized even in the days of ancient Sparta.

Academician I. P. Pavlov experimented with animals. He deprived them of vision, hearing, and olfaction thereby excluding a large amount of information coming from specific organs of sensation to the brain. The animals fell into an oneiric state. The English physiologist and cyberneticist Walter conducted similar experiments on humans, whom he placed in a chamber from which light, sound, and other stimuli were excluded insofar as possible. Circumscription of sensory perception and isolation from the outside world was tolerated by the nervous system with difficulty and led, now and then, to neurotic conditions. Sound signals relayed to the chamber gave its occupants an emotional lift.

Results of other experiments showed that deterioration in memory and loss in efficiency is experienced by people who remain in a state of isolation and confinement for a long period. Their interest in music remains unchanged under such conditions, however. These observations

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are significant in aerospace medicine. Astronauts must be provided with such familiar telluric stimuli as light, color, sound, and speech. Music is a specific type of information and holds an important place in any space flight of long duration.

Aside from many other necessities, Soviet astronauts heard numerous musical numbers which were relayed to them from the earth during the time they were resting and any time they requested that musical numbers be played.

Expanded medical science and the emergence of aerospace medicine are the symbols of our time. Today medicine is meeting vast new challenges. We are confronted with a profound new question in physiology concerning the general effect of music on a human organism. Psychologists and physiologists use music not only to prevent disruption in the normal functions of an organism, but also to improve the efficiency of astronauts during their flights in outer space.

28. Life on Other Planets Discussed

"A Preserve of Surprises," by Academician V. F. Kuprevich;
Moscow, Komsomol'skaya Pravda, 22 Dec 62, p 4

Vasiliy Feofilovich Kuprevich, President of the Academy of Sciences Belorussian SSR, entertains views about the possibility of life in outer space that are different from views expressed by astronomers, physicists, mathematicians, and chemists. He claims that he has not encountered a single opinion of a biologist on the subject. Everyone who is not a biologist attempts to populate Mars and other planets with creatures which have become adapted to specific conditions of life on earth. They ignore the extent of adaptability. Life can be found everywhere: it exists in petroleum and in benzene, at the bottom of the deepest ocean, in hot springs, in uranium ore, in a sulfuric acid solution, and in an atmosphere of methane and ammonia.

Academician Kuprevich thinks that much work is in store for those specializing in astrobiology in the next few years. Some studies already have been conducted at various institutes of the Academy of Sciences USSR and other establishments. Results of those studies showed that many organisms remain alive under conditions which are considered unfavorable. No temperature has been found to be low enough to kill them. The question then arises: does this mean that the ability of living organisms to adapt themselves makes it possible for them to abandon their own planet and to migrate to another? The answer is obviously yes.

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The evolution of living matter was completed in some respects on earth approximately 2 billion years ago. Results of the latest experiments showed that some amino acids may be well preserved up to 20-30 million years. Results of detailed laboratory investigations in the US showed that fossil mollusks have been obtaining energy to perform their function in the same manner for 25 million years. Paleontological data show that photosynthesizing organisms functioned actively on earth 1.5-2 billion years ago.

A long period is required for a delicate and very complex biochemical process to take place. If we assume that earth has existed 4-5 billion years, then it is evident that sufficient time has not yet passed to complete evolution of a number of the most important biochemical processes. This is because part of that time falls in the period when the temperature on earth was too high and life on it was impossible.

A conclusion can be arrived at then that life exists everywhere in the universe, and living substances adapt themselves to low and extremely low temperatures. "Living travelers" exist in outer space: they are "homeless" representatives of life. They consist of spores or other forms of life which, having wandered through space, are waiting for a chance to settle on some planet.

The emergence of life is linked to water. A question then arises: is there any water on the moon? It has been calculated that there are up to 2-3 cubic kilometers of water per square kilometer of surface present on any planet during the time it takes form. The moon may have lost water. But if the moon is covered by the heat-insulating coat about which astrophysicists are talking, there must be reserve moisture present. This moisture may be in the form of ice buried at some depth. The possibility of the presence of water in a liquid form on the moon is not excluded.

"Canals" on the planet Mars seem to be the product of an intelligent mind. Conditions on Mars are similar to those found in deserts on earth. To exist, life requires a definite amount of organic substances and may be maintained in a desert only when a well developed system of irrigation is present. And when we see a regular system of canals on a planet which does not look like a continuous desert, then we must conclude that intelligent beings have had something to do with it.

Astronomers think that Mars is inhabited by lichens. This, in their opinion, is the only representative of vegetable life on that desert planet. It must be recalled that lichens appeared on earth comparatively late. This is understandable, because lichens belong to groups of fungi and algae. They are very sensitive organisms and are not able to tolerate even the most minute, fine mixtures of unusual

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gases in the atmosphere. Lichens can hardly be found on trees in the streets and parks of Minsk, but in rural areas they grow practically on rooftops. This is the first symptom that city atmosphere is polluted with industrial gases. Astronomers populate Mars with just such delicate and capricious organisms. But this is not possible, concludes Academician Kuprevich. He believes that vegetation covering certain areas of Mars is not lichens, but some higher form of plant life which is being cultivated.

29. Research at Experimental Biostation on Mount Aragats

"Cosmic Botany," by Candidate of Biological Sciences
S. Narinyan; Yeravan, Kommunist, 23 Jan 63, p 4

The establishment of a complex alpine biological station at an altitude of 3,250 meters above sea level on Mount Aragats, Armenian SSR, is reported in this article. This biostation was established to investigate the effect of temperature, solar radiation, and currents of cosmic rays at high altitude on the hereditary characteristics of organisms. The preliminary work of establishing the biostation was done by botanists of the Academy of Sciences Armenian SSR during summer 1962. They were joined by a group from the Institute of Plant Physiology of the Academy of Sciences USSR headed by Prof A. A. Shakhov.

The station is planning to simulate on Aragats, in the years to come, adverse conditions and hazards which confront the space traveler. A closed ecological system similar to that existing on earth is to be designed at the high altitude of Aragats.

It is known that unicellular algae can be used conveniently in a space vehicle, because they reproduce rapidly and their quantity may be maintained at a fixed level under proper conditions of illumination.

Existence of life on other planets has been the subject of controversy and doubt. To prove the possibility of life under conditions that differ from that on earth, it is necessary to identify those environmental factors without which organisms cannot exist and those limits within which their vital activity may become manifest. Certain species of plants, animals, and lower organisms and cells may be utilized in space vehicles. Organisms and cells which endure the most extreme environmental factors are also of special interest.

There are quite a few areas on earth where conditions are unfavorable for the maintenance of life. Those areas are hot or cold mountainous bedlands, and areas found in polar regions, in ocean depths, in hot radioactive springs, and in caves where light and oxygen are absent and carbon dioxide is in abundance. But even under such

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adverse conditions there is life, and there are organisms which have adapted themselves and which are able to propagate. Plant species encountered in Verkhoyansk, in the Arctic Region, number up to 200. Several dozen species of various invertebrate animal life and lower plant life were found to exist in "lifeless" Antarctica on land not covered by ice.

It is known that the critical point of human tolerance lies at approximately 6,000 meters above the sea level. Permanent human settlements are known to exist in Tibet and in Andes, at an altitude of 5,300 meters above sea level. Aphids were found to exist in rarefied atmosphere present at an altitude of 8,200 meters. Spores of bacteria of mold fungus were found at an altitude of 33 kilometers. High atmospheric pressure is also known not to hinder propagation of lower forms of life. Lower forms of life can be found in oceans at depths of up to 10 kilometers and in petroleum beds in which pressure is above 1,000 kilometers.

Life is possible in dry areas where humidity is only 0.5%. Such an environment is found in Sahara desert. Nevertheless, 98 species of bacteria, 28 species of fungi, and 84 species of algae have been discovered to exist and propagate under such environmental conditions. It is possible, therefore, that life in its lower form exists on other planets, particularly on Mars, where the climate is very dry and soil or ground is hard.

All these factors are expected to be taken into consideration by the laboratory of the biostation. It is expected to serve as a base for breeding "cosmic varieties" of plants. New hereditary forms may be developed which would meet the needs of space travelers during travel and their stay on other planets. Science dealing with selection will, thus, be able to take another long step forward toward conquest of outer space.

30. Changes in Function of Sensomotor Apparatus Due to Acceleration

"Electrophysiological Investigation of the Activity of Cutaneous and Motor Analyzers During Accelerations," by E. V. Marukhanyan, K. Isakov, B. F. Asyamolov, G. I. Pavlov, and V. V. Usachev, Moscow; Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 12, No 6, Nov/Dec 62, pp 1,021-1,028

The authors discuss in this article results of their experimental investigation of sensomotor activity in the course of a subject's estimation of the weight of objects weighing from 100 grams to 700 grams during acceleration. Results of the investigation show that

acceleration curtails human ability to make proper estimate of the weight of objects. This is due primarily to an increase in the weight of the hand itself, the elevation of which requires an increased effort during acceleration. Additional muscular exertion contributes little to the ability to estimate the weight of an object during acceleration. Disruption in the ability to estimate the weight of an object adequately indicated that some changes resulting from disturbances in coordination of the motor apparatus at the periphery occur in nerve center function.

The investigation was conducted on five healthy men 23-35 years of age, who were placed in the chair of a centrifuge and accelerated up to 7 g. Results are presented in tabular form; electromyograms are presented together with tracings of skin galvanic reaction.

31. Assimilation of Large Amounts of Information and Perception of Position in Space Discussed

"Interaction of Analysors During Flights in Airplanes and in Space Vehicles," by V. V. Baranovskiy, M. D. Yemel'yanov, and A. G. Kuznetsov, Moscow; Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 12, No 6, Nov/Dec 62, pp 1,001-1,010

The authors discuss some problems in space medicine and define their future trends. They stress the significance of interaction among the organs of sensation: visual, vestibular, proprioceptive, auditory and other analysors. Interaction among all those analysors is important for spatial orientation.

Unusual and unpleasant sensations and reactions experienced by astronauts are dependent on the characteristics of the functions and the interaction of the afferent system of their organism. The extent of manifestation of these reactions is dependent mainly on the general condition of the organism, on typological peculiarities of its nervous system, on the level of training and conditioning, and on the length of time the astronaut remains in the state of weightlessness.

No reliable methods of determining the extent of tolerance of the weightless state by any future astronaut are yet available to science. Weightlessness as a natural phenomenon and as an environmental factor still remains an important problem in space physiology and medicine. Analysis and solution of this problem from the standpoint of the theory of analyzor interaction are very important as far as man's mastery of outer space is concerned.

Cardiovascular Diseases

32. Potassium Indicated in Diet of Patients With Myocardial Infarction

"Changes in Sodium and Potassium Content of Plasma and Erythrocytes of Patients With Myocardial Infarction," by T. N. Gerchikova, First Chair of Therapy, Central Institute for the Advanced Training of Physicians; Moscow, Terapevticheskiy Arkhiv, Vol 34, No 12, Dec 62, pp 38-44

Changes occur in sodium and potassium metabolism in the blood of patients with myocardial infarction during the acute period of the sickness, and normalization is commensurate with improvement.

The plasma sodium content is insignificantly increased during the first week of the sickness when its course is not complicated, while the potassium level is increased during the first 48 hours and during the 5th-7th day of the sickness. The sodium in the erythrocytes is increased more markedly and for a longer time in patients with myocardial infarction which is complicated by left ventricular insufficiency and shock, i.e., in patients with a severe course of the sickness.

The potassium content of the erythrocytes is decreased especially in patients suffering from shock.

The decrease in cellular potassium reserves indicates the necessity of including potassium in the complex treatment of myocardial infarction.

Clinical Medicine

33. Military Medical Journal Reports on Botulism

"Food Intoxication of Botulinum Etiology," by P. M. Litvinenko and V. I. Suvorov, Voyenno-Meditsinskiy Zhurnal, No 5, 1962, pp 56-57 (from Referativnyy Zhurnal -- Biologiya, No 1, Jan 63, Abstract No 1B252, by O. Birger)

"Two cases of botulism are described. The clinical manifestations were subdued and atypical; therefore, the correct diagnosis was established very late. The diagnosis of type E botulism was verified by a biological test on animals. Despite the late application, polyvalent anti-botulinum serum had a therapeutic effect on one of the patients. It was determined by inquiry that the source of poisoning was the juice of marinated beets.

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The juice of a given part of the preserved beets contained only 0.2% acetic acid instead of the 2% required by GOST [gosudarstvennyy Obshchesoyuznyy Standart -- State All-Union Standard]."

Diagnosis

34. Early Dysentery Diagnosis

"The Early Serological Diagnosis of Flexner Dysentery Pathogen," by V. M. Uzhanskiy, Voyenno-Meditsinskiy Zhurnal, No 5, 1962, pp 57-58 (from Referativnyy Zhurnal -- Biologiya, No 2, Jan 63, Abstract No 2B424, by M. Gruzman)

"Parallel agglutination reactions of 96 strains of Flexner dysentery types b, c, d, and e with specific agglutinating serum in physiological solution and in bouillon produced practically identical results. It was possible to read the reaction in bouillon after 3 hours, since young cells rich in antibodies showed clear agglutination even in the first hour of growth (when the reaction was set up in a test tube containing 1.5 ml of bouillon with different dilutions of serum, one loop of a 20-hour culture was used). The agglutination reaction modification suggested for bouillon makes it possible to obtain a response within 3 hours, i.e., considerably earlier than under ordinary conditions.'

Epidemiology

35. Fleas As Plague Vectors Investigated

"An Investigation of Fleas of *Citellus pygmaeus* in a Plague Focus of Dagestan," by N. F. Labunets and Ye. A. Sarda, Tr. N.-I. Protivochumn. In-ta Kavkaza i Zakavkaz'ya (Works of the Scientific-Research Institute of the Caucasus and Transcaucasus), No 5, 1961, pp 5-18 (from Referativnyy Zhurnal -- Biologiya, No 2, Jan 63, Abstract No 2K143, by N. Darskaya)

"Results of parasitological investigations during different epizootics among *Citellus pygmaeus* in 1951-1952 in the Sulako-Terskaya lowland are presented. In 2 years (April to September), 257 strains of *P. pestis* cultures (group and individual seedings) were isolated from fleas, including 119 from *Neopsylla setosa*, 109 from *Ceratophyllus (Citellophilus) tesquorum*, and one from *Frontopsylla semura*. Infected fleas were encountered more frequently on host carcasses and in entrances to rodent burrows during the period of settlement of young *Citellus* than on live animals and in nests. Fleas with plague pathogens were more numerous at burrow entrances during the period of settlement of young *Citellus* (up to 70.8% of burrows contained such fleas, and up to 57% of them were infected; the averages were 16 and 13%). Against a background of seasonal and annual changes in the numbers of fleas, the epizootic areas, as a rule, differed by higher indexes of flea abundance at burrow entrances than nonepizootic."

36. Epidemiological Conditions in Biotron Wards.

"Seeding of Air in Biotron Wards and Control Premises With Hemolytic Cocci and Biological Properties of the Latter," by L. V. Grigor'yeva and V. A. Yaroshenko, Ukrainian Institute of Communal Hygiene and Kiev Institute for the Advanced Training of Physicians; Kiev, Mikrobiologichnyy Zhurnal, Vol 24, No 5, Sep/Oct 62, pp 30-34

The authors studied the degree of seeding of biotron wards and corresponding control premises with pyrogenic cocci. Samples were collected with a Krotov apparatus. Selective media, blood agar, and Garrod's medium were used to detect hemolytic staphylococci and streptococci.

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The investigations showed that the air of biotron wards and of control premises contains hemolytic staphylococci, some virulent, in 47% of the cases and beta-hemolytic streptococci less frequently (10.5%).

All strains of staphylococci can be divided into two groups according to their properties -- biologically active strains and strains with weak biological activity. There are no substantial differences in the degree of biological activity between strains isolated from biotron air and those isolated from control premises. The degree of seeding of the air of biotron wards with hemolytic streptococci is less than half as great as that of the control premises, which indicates that there is a more favorable epidemiological situation in biotron wards.

37. Smallpox Epidemic in Uttar Pradesh, India

"Brief Reports"; Leningrad, Leningradskaya Pravda, 20 Jan 63, p 3

"About 4,000 smallpox cases have been reported from the area around Banda (in the Indian state of Uttar Pradesh). Five hundred people have died in the past 10 weeks."

38. Czechoslovak Epidemiological Situation Reviewed

"Report on Epidemiological Situation in Czechoslovakia in October 1962," by A. Kazmar, MD, and J. Roudny, Doctor of Natural Sciences; Prague. Casopis Lekarů Ceských, No 3, 18 Jan 63, p 80

The article, reviewing the epidemiological situation in Czechoslovakia during October 1962, lists the number of cases of various diseases reported during that month.

Among those reported were two cases of brucellosis, one case of anthrax, and one case of ornithosis.

The article also mentions an epidemic of bacillary dysentery among Prague children attending schools in the countryside, presumably in a nature camp atmosphere, and a large number of cases of the same illness in certain okreses.

Jablonec nad Nisou Okres had a large number of Salmonella infection cases resulting from ingestion of defective pork products. (FOR OFFICIAL USE ONLY). (COPYRIGHT by the State Medical Publishing House, 1963)

39. Communicable Diseases Reported in East Germany

"Table of Communicable Diseases Which Must be Reported, Which Occured During October 1962"; Berlin, Das deutsche Gesundheitswesen, No 2, 10 Jan 63, pp 80-81

The table reports the number and types of communicable diseases and the districts where they occurred, as reported for the month of October 1962. It also lists the total number of the same diseases which were reported for September 1962 and for October of the previous year. The following total figures are listed for October 1962: typhoid -- 57 cases, 5 deaths; Paratyphoid -- 14 cases, no deaths; diphtheria -- 111 cases, no deaths; scarlet fever -- 1,230 cases, one death; infectious hepatitis -- 2,259 cases, 2 deaths; epidemic meningitis -- 22 cases, no deaths; virus meningitis and virus encephalitis -- 42 cases, 2 deaths; persons given antirabies treatment, 549; virus influenza -- 39, no deaths; epidemic keratoconjunctivitis -- 182 cases, no deaths; other salmonellosis -- 794 cases, 4 deaths; botulism -- one case, no death; leptospirosis -- three cases, no deaths; brucellosis -- 17 cases, no deaths; and listerellosis -- 17 cases, 9 deaths.

40. Foot-and-Mouth Disease Spreading in East Germany

West Berlin, Informationsbuero West, 5 Dec 62, p 2

The first cases of foot-and-mouth disease have been noted since the beginning of the week of 3 December 1962 in Bezirk Neubrandenburg, which had previously been free of the epidemic. The disease occurred among pig herds in several agricultural producer cooperatives in Kreis Prenzlau.

The Bezirk Neubrandenburg Commission for Combating Foot-and-Mouth Disease announced that occurrence of the disease in this area is due solely to the undisciplined behavior of several persons, particularly those in communities of the neighboring Kreis Angermünde in Bezirk Frankfurt/Oder, where the epidemic had occurred some time ago.

41. East German Districts Affected by Foot-and-Mouth Disease Closed to Traffic

"Christmas Traffic Succumbs to Foot-and-Mouth Disease"; West Berlin, Informationsbuero West, 14 Dec 62, p 1

Christmas traffic will be drastically curtailed in all East German areas which have been declared restricted because of foot-and-mouth disease. The Bezirk Commissions for Combating Foot-and-Mouth Disease

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have ordered that protective and restrictive measures against the epidemic also be strictly observed during the Christmas and New Year holidays. This applies particularly to travel restrictions and public gatherings. For example, travel to restricted areas "for the purpose of visiting relatives or other reasons" has been banned.

Residents from communities in the restricted areas who work outside the areas or attend school there and who have been living in emergency shelters near their place of work for weeks may travel to their home communities during 22 December - 2 January 1963. On arrival there, they will be subject to the restrictions imposed on the respective community. They may not return prior to 2 January 1963, and then only on condition that they observe disinfection measures ordered by the Bezirk veterinarians.

The Zwickau City Administration has ordered its slaughterhouse closed to the public because of the epidemic.

42. Dysentery Not Yet Eliminated in East Germany

"First Dysentery Cases in East Berlin"; West Berlin, Informationsbuero West, 7 Dec 62, p 3

Although the dysentery cases continue to be mild, the danger of contagion of this intestinal disease has by no means been overcome, according to Chief Medical Counselor Dr Werner Mueller, district physician for Bezirk Gera, who made the announcement on 5 December 1962. The recommendations by the Bezirk Gera Commission for Combating Dysentery to avoid trips to other districts (Bezirke) and not to receive visitors from those areas remain in effect.

Residents of Bezirk Gera are questioned daily in their homes and in the enterprises, so that the disease may be detected more quickly. Local officials, Red Cross aides, and medical students of the Friedrich Schiller University in Jena have been employed for this purpose. A second dose of dysentery antibiotics (phage drugs) will be distributed within the next few days. Dysentery cases also occurred in East Berlin during the past several days, affecting also construction workers employed on the "Unter den Linden" project.

Measures to prevent the spread of dysentery have also been taken in Bezirk Neubrandenburg, according to an announcement on 6 December 1962 by Medical Counselor Dr Bierschenk, district physician for Bezirk Neubrandenburg. Special health control measures have been ordered for employees of the food industry. Controls in children's installations, boarding schools, camps, and in specially exposed communities will be intensified.

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43. Renewed Antidysentery Measures Taken in East German Districts

"Bezirk Erfurt Also Threatened by Dysentery"; West Berlin, Informationsbuero West, 11 Dec 62, p 2

Health authorities in Bezirk Erfurt have now ordered intensified protective measures against dysentery, which has occurred in Bezirke Gera and Suhl. The first dysentery cases in Bezirk Erfurt have occurred in Weimar, according to an official announcement.

Enterprises, public offices, institutes, schools, boarding schools, and kindergartens have been reminded that hygienic rules must be strictly observed. An appeal to the population of Bezirk Erfurt states that everything must be done to prevent the disease from spreading.

44. Outbreak of Plague Reported in Congo

Budapest, Nepszabadsag, 27 Jan 63, p 13

"An epidemic of bubonic plague has broken out in the northern part of the Province of Kivu in the Congo. So far, there have been 15 deaths resulting from plague."

45. Equipment
Instrument for the Determination of the Rapidity of Thought Processes

"Registrar of Thoughts"; Moscow, Meditsinskaya Gazeta, 5 Dec 62, p 3

The RRM-59 radioreflexometer is a device which makes it possible to determine the rapidity of human thought. It has been successfully applied in the investigations of higher nervous functions in man and animals and in the study of problems bearing on physiology and experimental psychology. With its aid, it is possible to investigate the different conditioned and unconditioned reflexes of the organism to contact, distant, and voice signal stimulants. It can be used also in the recording of defense, winking, swallowing, and other conditioned and unconditioned reflexes. The instrument can be used as a radio-telemeter.

46. Disinfection Apparatus

"Bactericidal 'Lighthouse'"; Moscow, Meditsinskaya Gazeta, 25 Jan 63, p 1

A mobile bactericidal irradiation apparatus resembling a lighthouse and intended for the disinfection of surgical and other hospital premises has been designed at the All-Union Scientific-Research Institute of Medical Instruments and Equipment. The disinfection is carried out by means of direct ultraviolet rays emitted by six globes. The globes emit a powerful current of rays which destroy the microorganisms in the air. The apparatus is small and is mounted on wheels, making possible its rapid removal from one room to another. The apparatus will be manufactured at the Sverdlovsk Plant of Electromedical Equipment.

47. Instrument for the Removal of Toxic Products and Fluids From the Organism

"Apparatus for Peritoneal Dialysis"; Moscow, Meditsinskaya Gazeta, 5 Dec 62, p 3

An apparatus for the removal of toxic products from the organism of the patient has been designed by a group of scientists of the Scientific-Research Institute of Experimental Surgical Apparatus and Instruments. By applying the method of peritoneal dialysis, it is possible by means of the apparatus to remove fluids which accumulate as a result of disturbed renal activity. The apparatus differs from those used abroad in that it permits repeated applications of the procedure without making surgical interference necessary. Clinical tests conducted at the Institute of Hematology and Blood Transfusion established the effectiveness of the device. It is simple in design and does not require many people for its operation. The apparatus will be manufactured at the Leningrad Krasnogvardeysk Plant.

48. Odor Recording

"Instrument for the Recording of Odors"; Moscow, Meditsinskaya Gazeta, 18 Dec 62, p 3

An automatic device which identifies odors and records them on a film has been designed at the Institute of Chemistry of the Estonian Academy of Sciences. It identifies and records with accuracy such odors as those emitted by potatoes, milk, and other substances. The device can be of particular assistance to scientists in their study of the different deviation of the vital processes of the organism from normal.

49. Newly Designed Thromboelastograph

"Experimental Application of the Newly Designed Thromboelastograph in Diseases of the Blood System," by L. D. Orlova, G. A. Rogunov, and I. V. Frinovskaya, Hematological Clinic, Central Order of Lenin Institute of Hematology and Blood Transfusion and Second Chair of Therapy, Central Institute for the Advanced Training of Physicians; Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 7, No 9, Sep 62, pp 34-37

An improved type of a thromboelastograph, an apparatus used to determine blood coagulability, was applied to a number of patients suffering from various diseases of the blood system. The newly designed apparatus is superior to the one now used abroad in that it weighs only about 6 kilograms, is small in size, can be carried to the patient's bed, and is insensitive to vibrations. The thromboelastograms which were obtained indicated the modifications of the blood coagulation characteristic of each group of the patients. On the basis of the data which were obtained, the application of the Soviet designed thromboelastograph to patients suffering from various forms of blood diseases is recommended.

50. New Portable Ultrahigh Frequency Apparatus Used For Children

"New Design for the 'UVCh' Apparatus"; Moscow, Moskovskaya Pravda, 25 Jan 63, p 2

The "UVCh," a medical apparatus with an ultrahigh frequency electric field, has been built in portable form. The new instrument is eight times lighter than others of its type and includes a switch for lowering the magnitude of the ultrahigh frequency electric field to a level which can be used on children.

51. New Hemacytometer Developed in East Germany

"Work Team Develops GDR's First Electronic Blood Corpuscle Counting Device"; Suhl, Freies Wort, 10 Jan 63, p 1

Members of a work team from the Scientific-Technical Center for Radiological Technology and Medical Electronics in Dresden, the Institute for Electromedical Technology of the Ilmenau College for Electrical Engineering, and the People-Owned Carl Zeiss Plant in Jena developed the GDR's first electronic blood corpuscle counting device suitable for industrial production. This device meets a frequent demand of medical science. It counts the blood corpuscles electronically within seconds and simultaneously determines their size and distribution.

The young certified engineer Guenther Pfeiffer directed the work at the center in Dresden. In certain technical aspects, this device surpasses the best-known products of capitalist countries.

Blood corpuscles can be counted faster with this device than by previous methods. This development will lead to the formation of central blood testing laboratories in the clinics, which will considerably relieve the work of personnel in these laboratories. The device is also suitable for use in other scientific branches and in industry. For instance, it can be used for work in biology and bacteriology because it can also count other particles. The particle count is shown on electronic counter tubes after a diluted suspension has been added.

Gerontology52. Geriatric Medicine

"Medicinal Therapy," by Corresponding Member of the Academy of Medical Sciences USSR Prof D. Chebotarev; Prof S. Fudel'-Osipova, Prof N. Vitte; Doctor of Medical Sciences V. Frol'kis; and Candidate of Medical Sciences N. Sachuk, Kiev; Moscow, Meditsinskaya Gazeta, 30 Nov 62, p 3

Taking into consideration the important role which vitamins play in the metabolic and other functions of the organism, the authors recommend the administration of a vitamin compound consisting of iron-ascorbic acid -- 0.3 gram, methionine -- 0.1 gram, nicotinamide -- 0.05 gram (or nicotonic acid -- 0.025 gram), riboflavin, folic acid, vitamin E, and viltasol -- 0.01 gram of each, and vitamin A -- 0.002 gram for the prevention and therapy of the aging process, to be administered two to three times per day for a period of 20 days. This course of treatment should be resorted to four times per year. Recommended also is prolonged therapy with novocaine. Observations established that novocaine treatment is beneficial in 60 to 65 percent of the cases, particularly when applied in cases of premature aging. The application of the Bogomolets cytotoxic serum is also advised.

Hematology53. Cadaver Bone Marrow in Dry Ampules

"A New Method for Preparing Cadaver Bone Marrow for Transplantation Purposes," by A. G. Sedotenkov, L. A. Danilova, I. P. Dishkamp, T. A. Pasomov, and I. M. Kulagin, Central Order of Lenin Institute of Hematology and Blood Transfusion, Ministry of Health USSR, and Moscow State Scientific-Research Institute of First Aid imeni M. V. Skifosovskiy; Moscow, Problemy Gematologii i Perelivaniya Krovi, Vol 8, No 2, Feb 63, pp 28-34

The authors describe the preparation of bone marrow from corpses of adults from the sternum, ilium, and the vertebrae by washing the bone marrow into a preservative. This new method proved least traumatic to the blood cells. By washing bone marrow from one vertebra into 60-75 ml TsOLIPK solution, 800,000-1,500,000 cells may be obtained; 10-15 billion blood cells can be obtained from all the vertebrae; 700 million-3.5 billion cells may be obtained from the sternum; and 4-8 billion blood cells may be obtained from the ilium. When the bone marrow cells are preserved in a solution of TsOLIPK No 1 at 4° C, the cells preserve their viability for 3, 5, 8, 12, and 15 days; when they are preserved in dry ampules, they retain their viability for 3-4 days. Bone marrow

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preserved in dry ampules shows 35-40 percent hemolysis by the eighth day, while bone marrow preserved in TsOLIPK No 1 solution retains up to 80 percent of its viability during this same period.

54. A- and C-Vitamin Reserves in Inhabitants of the Northern Regions

"A- and C-Vitamin Reserves of Patients Living in the North and Suffering From Pyodermatitis," by G. B. Beylin and V. N. Aleksandrov, Voyen. - Med. Zh., No 7, Jul 62, pp 78-79 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 24, 25 Dec 62, Abstract No 24S1825, by I. Korovina)

Results of test on the blood of 52 patients suffering from pyoderma showed that the vitamin-C level ranged between 0.31-0.59 mg percent, while the content of vitamin-A ranged between 3 and 9^u me per ml. Lowest concentrations in vitamins A and C were found in patients suffering from chronically abscessed and chronically ulcerative pyoderma.

55. Bulgarian Cuban Doctor Create Substitute for Blood Plasma

Havana, Hoy, 15 Feb 63

On 17 February 1963, a paper on research done by two physicians who have found a way to obtain hydrolysates from cattle blood will be read before the National Medical Congress.

Dr Ivan Popdimitrov, Bulgarian laboratory physician who has been in Cuba for 7 months, and Dr Argimiro Rodriguez, Spanish laboratory technician who has been in Cuba for many years, have been collaborating on the project.

The scientists say that this product may be administered during surgery, as a substitute for physiological solutions, to maintain a high level of arterial pressure and, at the same time, to nourish the organism's tissues which need aminoacids. The use of hydrolysates during operations allows the organism to produce plasma as it assimilates the food transfusion and has proven an aid for vastly improving the postoperative conditions of patients.

This research is the first phase of a process which will, in the long run, allow the development of a plasma substitute with all the qualities of human plasma. One of the advantages of this will be the ability to produce the plasma in large quantities for a large stockpile of plasma for use in case of war or in any other situation in which a large number of transfusions will be necessary.

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Dr Rodriguez is profoundly satisfied with the experiments they have made with the hydrolysates they have just finished manufacturing. The scientific processing of the hydrolysates includes, according to him, "The adoption of an industrial procedure for acid hydrolysis. The techniques we used to begin with are those used in the socialist countries and the ones based on the use of hydrochloric acid. To use this technique, certain resins which permit us to remove the hydrochloric acid after it has been used are indispensable...."

"These resins," added Dr Popdimitrov, "have had to be imported, and even when we had them, the system of regenerating them for repeated use was extremely difficult."

"We have tried to achieve a new technique," continued Rodriguez, "by utilizing products available in the country [Cuba] thus reducing the processing to its minimum."

In this new technique, according to Drs Popdimitrov and Rodriguez, cattle blood from the slaughter house, sulfuric acid produced in Cuba, and calcium hydroxide and other products also produced in Cuba were used.

"We are very satisfied with our biochemical and biological research," said Popdimitrov, "and today we are able to obtain a very useful and high-quality product by using Cuban materials. This fulfills a therapeutic need here."

"On the other hand," said Dr Rodriguez, "the hydrolysates which were known up to now were not suitable for injection at a rate higher than 50 drops per minute. Thanks to the intensive hydrolysis we obtained, the hydrolysates we produce are capable of a considerably faster injection rate."

This was proven in the presence of the director of the blood bank, Dr Cesar Bello, and also in the presence of Dr Boris Nikolayevich Axionov, Dr Colina, and Dr Rodriguez. At this time, Dr Popdimitrov submitted to the first transfusion of these products into a human. Popdimitrov received 250 cubic centimeters of the hydrolysates within an hour and 25 minutes. The injection rate reached 80 drops per minute, and Dr Popdimitrov suffered no ill effects; and his arterial pressure, pulse, temperature, and breathing remained normal.

"With the collaboration of the Pharmaceutical Combine, we will shortly be able to fulfill all the needs of the country and to export the product."

56. Shortage of Blood Donors in East Berlin

Berlin, Neue Zeit, 9 Dec 62

The number of annual blood donations at the Blood Donor and Hematology Institute in Berlin-Lichtenberg, amounting to about 4,000, is completely insufficient for Berlin requirements. The surgical clinic of the Charite Hospital in Berlin alone requires 4,000 transfusion units annually, and the demand will increase as soon as the recently purchased heart-lung machine is used during operations.

The Berlin-Lichtenberg Institute could use double the number of its currently registered donors, in which case the interval between donations could be extended to 3 months for each donor. Dr Fuenfhausen, chief physician of the institute, is concentrating on the development of plasma fractionation, and a new institute is being planned where 8,000 liters of blood can be fractionated annually.

The central blood bank in Berlin processes 10-15 percent of the transfusion units into blood plasma and erythrocytic mass. Dry plasma can be preserved up to 5 years, whereas the erythrocytic mass must be used within 21 days after donation. The plasma can be supplied either frozen or dried. Berlin rescue squad cars have recently been equipped with dry plasma which is dissolved with distilled water for emergency use.

Immunology

57. Ninth Report in Aerosol Immunization Series

"Aerosol Immunization With Dry Powdered Vaccines and Toxoids; Report IX: A Study of the Effectiveness of the Aerosol Method of Revaccination With Powdered Brucellosis Vaccine," by N. A. Aleksandrov, N. Ye. Gefen, and K. G. Gapochko; Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, Jan 63, pp 42-48

Revaccination of 637 guinea pigs with live brucellosis vaccine against a background of pronounced immunological reconstruction of the organism did not stimulate a vaccine process, did not cause immunological reactions, and led only to additional sensitization of the organism. Powdered brucellosis vaccine from strain Br. abortus No 19-BA was used for aerosol immunization, and a powdered vaccine prepared from "marked" strain Br. abortus 104-M, for revaccination 7, 15, 30, 90, 180, and 360 days after primary immunization. The vaccine dose aspirated by each animal was

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60-180 million live Brucella in primary immunization and 60-100 million in revaccination. For comparison, some of the animals were revaccinated via the aerosol route, some were revaccinated subcutaneously with live brucellosis vaccine in a dose of 500 million Brucella, and some, subcutaneously with a 10-mg dose of a chemical vaccine prepared by an original method developed by Gefen and Rudneva.

Revaccination with live brucellosis vaccine at a very early period (7 days) and at later periods (180 days) after primary immunization when the animals had not yet acquired or had already lost immunity resulted in satisfactory survival of the vaccine strain with the development of a generalized process and guaranteed a positive immunological effect.

Since the research was performed with the use of only indirect indexes of immunity (serum-allergic tests, survivability), testing of the specific resistance of animals revaccinated at early periods after primary immunization is recommended.

A footnote states that the Br. abortus 104-M strain was obtained from a Br. abortus 19-BA strain incapable of forming hydrogen sulfide.

58. Associated Toxoid Studies Continued

"An Experimental Study of Associated Anaerobic Toxoids; Report IV: A Study of the Immunological Effectiveness of Octatoxoid After Remote Revaccination," by G. V. Vygodchikov, A. A. Vorob'yeg, R. A. Saltykov, I. A. Larina, and V. M. Shevelev, Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR; Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 1, Jan 63, pp 127-132

A report on studies of the immunological effectiveness of sorbed anaerobic octatoxoid containing tetanus, perfringens, oedematiens, and botulinum A, B, C, D, and E types under conditions of remote revaccination of 392 rabbits is presented. Antitoxins to all components of the preparation were observed in the blood of the rabbits 4 months after double inoculation with anaerobic octatoxoid. At the same time, after single inoculation, the level of botulinum antitoxin was lower than perfringens.

Revaccination with octatoxoid 4 months after primary inoculation, produced an increase in antitoxic immunity with respect to all components. Double primary immunization was advantageous with respect to the weak antigens (botulinum A and perfringens); more intensive immunization caused a certain immunological inhibition with respect to the strong antigens (botulinum C and D).

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The effectiveness of less immunogenic components of the octatoxiod was increased to a greater extent by increasing the number of primary immunizations than by increasing the dose of antigen. It is expedient to decrease the dose of botulinum C and D toxoids in the octatoxiod.

In rabbits subjected to remote revaccination with octatoxiod, a high resistance against botulinum toxins (1000 lethal doses) and satisfactory resistance against perfringens toxin (5-10 lethal doses) were revealed. The introduction of perfringens toxin to immunized rabbits caused a pronounced revaccination effect in the surviving animals and increased the level of antibodies in the blood by 10-20 times, which indicates the great prophylactic significance of even the relatively low level of immunity conferred by these toxoids.

Results of the experiments are summarized in tabular form.

59. Humans Immunized With Live Trivaccine

"Immunization of Humans With Cutaneous Live Associated Trivaccine Against Plague, Tularemia, and Brucellosis," by V. G. Pilipenko, Ye. G. Akinfiyeva, M. A. Miroshnichenko, and A. M. Polyakova, Antiplague Scientific-Research Institute of the Caucasus and Transcaucasus (Stavropol); Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 2, Feb 63, pp 57-61

Observations of three groups of volunteers have been carried out since 1958 in Elista, Stavropol, and Blagodar. Of these, 54, were inoculated with associated vaccine, 33 with brucellosis, 22 with tularemia, and 21 with plague vaccine. The group inoculated with associated vaccine consisted of 24 women and 32 men, 18-25 years old. The authors first tested the associated vaccine on 30 persons, jointly with associates of the Elista Antiplague Station in 1958. Plague vaccine No 1, 17, series No 11, from Saratov Institute "Mikrob," tularemia vaccine series No 456, and brucellosis vaccine series No 291 from the Institute of Epidemiology and Microbiology imeni Gamaleya were used to prepare the three monovaccines; the method of preparing the suspension of dry vaccines was described in previous works (Pilipenko, Polyakova, 1955; Pilipenko and coauthors, 1959, 1960, 1961).

Inoculation with associated vaccine against plague, tularemia, and brucellosis by the cutaneous method was not accompanied by severe local or general reactions in the immunized persons. Local and general postinoculation reactions were identical in persons inoculated with the associated and monovaccines.

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Immunological reconstruction (reaction tularin, brucellin, the agglutination reaction) were expressed to an identical extent in all subjects. The associated trivaccine containing the usual doses of plague, brucellosis, and tularemia component 4-5 times higher than the usual dose were found to be harmless and capable of bringing about immunological reconstruction with respect to the antigens contained in the associated preparation.

Regardless of whether a dry associated vaccine is used or not, simultaneous inoculation against plague, tularemia, and brucellosis can be arranged by using a mixture prepared in advance from the corresponding three dry monovaccines. A combination of any two of these components can also be prepared if required.

Data from the authors' experiments on guinea pigs and humans have led them to consider the problem of associated cutaneous vaccination against plague, tularemia, and brucellosis fundamentally solved.

This report was originally presented at a conference on associated vaccines at the "Mikrob" institute on 26 June 1961.

60. Work on Tick-Borne Encephalitis Vaccine

"A Dry Tissue Vaccine for Prophylaxis of Tick-Borne Encephalitis," by B. F. Semenov, P. S. Karaseva, B. M. Parizh, and V. A. Mironov, Moscow, Scientific-Research Institute of Virus Preparations; Moscow, Voprosy Virusologii, Vol 7, No 5, Sep/Oct 62, p 613

"The experimental possibility of preparing a tissue vaccine for prophylaxis of tick-borne encephalitis has been shown by a number of authors [1-2, 5-7]. In recent years, reports have appeared on the preparation of a vaccine of this type under industrial conditions [3]. Study of immunological shifts in vaccinates and data from testing in epidemiological experiments show the high effectiveness of a tissue vaccine [3, 4].

"An important condition for the introduction of a tissue vaccine into practice is solution of the problem of stabilizing it. In connection with this, we initiated an investigation on the development of a dry preparation.

"Material and methods: The experiments were carried out with production series of vaccine. The preparation was made from Pan or Sof'in strains cultured in one-layer cultures of kidney epithelium from pig embryos with medium No 199 without serum. The virus-containing fluid was inactivated with formalin in a 1:2,000 concentration for 10 days at 14° C [2].

"A mixture of sucrose and gelatine was selected as a filler. The final concentration of sucrose in the medium was 10%, and of gelatine, one percent. After the addition of a protective agent, the vaccine was diluted to 1-2 ml in a 6 ml ampule. It was then kept for 24 hours at -40° C. The maximum temperature in the chamber reached 23-25° C. The vacuum was 50-100.

"Dry preparations with good solubility were obtained under these conditions. Residual humidity fluctuated between 2.5 and 3.5%.

"Results: The results of testing the immunogenicity of liquid and dry vaccines are presented in the table, from which it is seen that a decrease in the activity of the preparations occurs in the process of lyophilization. However, in the majority of cases the index of resistance of dry vaccines was 2,500-7,000. As is known, preparations with such activity are suitable for use in the prophylaxis of tick-borne encephalitis [2]. Therefore, the preparations obtained can be considered satisfactory.

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"The immunogenicity of dry vaccines was tested after 3 and 6 months (the observation period). Identical results were obtained in all cases.

"On the whole, our data demonstrated the theoretical possibility of preparing a dry tissue vaccine. However, the regimen used cannot be considered optimum. It is highly probable that the use of other drying regimens and also other protective agents will eliminate the loss of immunogenicity in the process of lyophilization. Research on this is in progress."

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61. Studies of Brucellosis Vaccination

"A Case of Isolation of Avirulent Strains of Brucella From Aborted Cattle After Inoculation With Vaccine From Brucella Strain No 19," by A. A. Kudryakov and G. P. Alchagova. Sb. Rabot Vologodsk. N.-I. Vet. St. (Collection of Works of Vologod Scientific-Research Veterinary Station), No 5, 1961, pp 40-46 (from Referativnyy Zhurnal -- Biologiya, No 1, Jan 63, Abstract No 1B319)

[No abstract given.]

"A Comparative Study of Two Vaccine Strains of Brucella Under Experimental Conditions," by Ye. S. Orlov and A. N. Kas'-yanova, Tr. Vses. In-ta Eksperimen. Veterinari (Works of the All-Union Institute of Experimental Veterinary Medicine), No 24, 1961, pp 139-143 (from Referativnyy Zhurnal -- Biol., No 1, Jan 63, Abstract No 1B320)

[No abstract given.]

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"A Study of the Immunogenic Properties of Attenuated Brucella Strain A-6 in Experiments on Sheep," by P. A. Bulanov, Ye. N. Nauryzbayev, and A. A. Myakushina Tr. Alma-Atinsk. Zoovet. In-ta (Works of Alma-Ata Zooveterinary Institute), No 12, 1960, (1961), pp 334-336 (from Referativnyy Zhurnal -- Biologiya, No 1, Jan 63, Abstract No 1B321)

[No abstract given.]

62. Polio Vaccinations in East Berlin

Berlin, Tribune, 25 Jan 63

Hubert Wiecezorek, chief medical officer for [East] Berlin, has announced that oral polio vaccinations will still be given in Berlin during 1963. Children born in 1961 will receive their second immunization dose. The vaccination is compulsory for students up to the age of 18 who have not been vaccinated previously.

63. Antipolio Vaccine Distributed in East Berlin

Berlin, Neues Deutschland, 14 Feb 63

The Berlin-Miederschoneneweide Institute for Immunization Biology prepared and distributed 8,000 vials of polio vaccine for the campaign against infantile paralysis conducted in East Berlin at present. The institute set aside 200,000 vials for the antipolio campaign in the entire German Democratic Republic.

64. Rumanians Give Oral Antipolio Vaccine

"Antipoliomyelitis Vaccination"; Bucharest, Muncitorul sanitar, 19 Jan 63, p 1

Because of the good results that have been obtained through the use of oral antipolio vaccine, the Ministry of Health and Social Welfare is organizing, during the first quarter of 1963, an antipolio vaccination campaign for the entire country. Approximately 10 million persons will be vaccinated during this period. Children between the ages of 3 months and one year who have not been vaccinated before will receive three doses of liquid oral vaccine. The first administration of the vaccine will take place between 28 and 31 January,

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and the subsequent doses will be given 40 days later. Persons under 30 years old will receive a single dose of the vaccine in March. The vaccine will be given at district dispensaries, institutes, enterprises, and children's establishments.

Nuclear Medicine

65. Autotransplantation of Bone Marrow Cells for Treating Radiation Sickness

"Autotransplantation of Bone Marrow Cells for Treating Radiation Sickness Induced in Rats by Fractional Irradiation," by G. S. Strelin and N. K. Shmidt, Department of Experimental Morphology of the Central Scientific-Research Institute of Medical Radiology, Ministry of Health USSR; Moscow, Meditinskaya Radiologiya, Vol 10, No 10, Oct 62, pp 44-50

In experiments on rats, autotransplantation into the blood stream of bone marrow cells taken from the bone marrow of parts of the body (hip) that were shielded during radiation proved most effective in preventing the development of radiation sickness caused by fractional general irradiation (1050 r).

Comparing the results of treating radiation sickness based on rate of survival, bone marrow transplantations proved more effective following fractional than following single-dose irradiation. This is explained as due to the fact that the intestinal syndrome is less significant following fractional than following single-dose irradiation.

Autotransplantation and the ensuing distribution of the unirradiated cells produced a much greater therapeutic effect than letting the shielded part of the body remain intact, even though the shielded portion contained many times the number of cells used in the autotransplantation.

Erythropoiesis is restored in time in the surviving animals that received autotransplantation, but lags during that same period in the animals that were protected by partial shielding but received no bone-marrow transplantations.

Hematological studies indicate that the efficacy of the transplantation of bone-marrow cells during the first stages of the development of radiation sickness is due to the prevention of leukopenia and, at later stages, to the restoration of erythropoiesis.

According to the authors, these data may be of significance in the practical treatment of radiation sickness in those cases in which the sickness arises after partial body irradiation and in which the injection of bone marrow cells from unirradiated parts of the body is possible.

66. Radioprotective Effect of Tetracyclines

"Increased Resistance to Radiation Sickness Following the Preliminary Administration of Tetracyclines," by A. M. Dumova, Laboratory of Physiology and Pharmacology, Lenin-grad Scientific-Research Institute of Antibiotics; Moscow, Antibiotiki, Vol 7, No 11, Nov 62, pp 997-1000.

The preliminary administration of the antibiotics of the tetracycline series (oxytetracycline and tetracycline) (300 mg/kg, daily) to rats 15-18 days prior to x-irradiation by 700 r. prolongs the life-span of the experimental animals and increases their survival rate. This favorable effect of the antibiotics was evident when the animals were irradiated 16-18 hours after the administration of the antibiotics, i.e., when the tetracyclines were circulating in the blood of the experimental white rats and also when the animals were irradiated 3 days after the cessation of the antibiotic administration, i.e., when all the antibiotics had been excreted from the tissues of the animals.

67. Metacil Alleviates Radiation Rectitis

"The Therapeutic Use of Metacil (4- Methyluracil) in the Treatment of Radiation Rectitis," by M. L. Gershanovich, Laboratory of Experimental Oncology and Gynecology Department, Institute of Oncology, Academy of Medical Sciences USSR; Moscow, Voprosy Onkologii, Vol 8, No 12, Dec 62, pp 35-40

The treatment of 53 patients with metacil (4- methyluracil) in intrarectal suppositories (0.2 gram in 1.5 grams of cocoa butter, administered 1-3 times daily) showed a rapid and stable therapeutic effect on various forms of radiation rectitis -- a complication which accompanies radiation therapy of the genitals.

The therapeutic effect of metacil was completely satisfactory even in treating patients who previously did not respond to the usual methods of treating various forms of radiation rectitis of varying durations.

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Metacil has a definite capacity for inhibiting inflammation reaction while simultaneously stimulating reparative regeneration.

The use of metacil makes it possible to use radiation therapy for the needed duration at needed intervals and in the necessary doses without worrying about radiation rectitis.

68. Fulminant Radiation Sickness and Its Causes

"Body Reactions Occuring During Massive Gamma-Irradiation," by A. F. Bibikova, V. Ye. Busygin, Yu. G. Grigor'yev, T. V. Kalyayeva, R. M. Lyubimova-Gerasimova, and A. B. Tsypin; Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 6, No 4, Jul/Aug 62, pp 57-62

Radiation injuries in rabbits subjected to 30,000 r, from Co⁶⁰ at 500 r/min, showed early changes in the central nervous system characterized by shifts in the bioelectric activity of the cerebral cortex, disturbance in hemopoiesis and cerebro-spinal fluid production, and injuries in the nerve and glial structures of the cerebrum.

The initial changes in cerebral hemodynamics are not accompanied by noticeable changes in general hemodynamics. This restriction of changes evidently points to the high radiosensitivity of all brain structures, including vessels. Disturbances in the activity of other vitally important systems arise due to changes in the central nervous system.

The authors conclude that in the fulminant form of radiation injury, the severe disruptions in the activity of the central nervous system are the cause of death of animals.

69. Sensitivity to Cardiac Glucosides During Radiation Sickness

"The Sensitivity of Animals to Cardiac Glucosides During Radiation Sickness," by A. N. Reut, Chair of Pharmacology, Minsk Medical Institute; Minsk, Zdravookhraneniye Belorussii, No 8, Aug 62, pp 61-64

The sensitivity of mice to convallatoxin, convasid, adonisid, and neodigitalis is significantly increased during acute radiation sickness (more to convallatoxin than to the other glucosides). Spasms always appear in unirradiated animals after toxic doses of cardiac glucosides are introduced, but may be absent in mice suffering from acute radiation sickness.

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The sensitivity of frogs to strophanthin, convasid, adonisid, and neodigitalis is significantly increased during acute radiation sickness. This applies more to strophanthin and convasid than to adonisid and neodigitalis.

No difference was noted in the picture of poisoning of frogs by means of cardiac glucoside before or after irradiation.

The sensitivity of the isolated frog heart affected by radiation sickness toward cardiac glucoside (strophanthin kendorice, adonisid, convasid, neodigitalis, and gitalin) is not changed.

70. Neutron Irradiation of Tissues

"The Irradiation of Biological Tissues and of Other Objects by Neutrons; Report No 1; The Activation of Biological Tissues in a Reactor," by Rakovic Miroslav, Sb. Lekar, Vol. 64, No 7, 1962, pp 216-219 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 24, 62, Abstract No 24514

Practical problems connected with the preparation of samples and with the processes of their activation are discussed. Curves of decay of activated contaminations in polyethylene and in filter paper are presented; analysis of these curves indicated the predominance of isotopes with a half-life of approximately 15 hours, which corresponds to the half-life of sodium (Na^{24}).

71. Suppression of Antibody Formation Due to Penetrating Radiation

"Changes in the Immunogenic Reactivity and Morphogenic Reconstruction of the Lymphatic Tissue at Different Stages of Radiation Injury," by A. I. Polyak, Chair of Pathophysiology and Chair of Roentgenology and Radiology, Rostov Medical Institute; Moscow, Meditsinskaya Radiologiya, Vol 10, No 10, Oct 62, pp 51-54

Immunological reactivity of lymphatic tissue of rabbits subjected to 500 r X-ray dose was studied during various periods of radiation sickness. The method of transplanting lymph glands of rabbits which had been subjected to a single general X-irradiation to the anterior chamber of the eyes of intact animals made it possible to follow selectively the functions and the morphological changes in antibody forming tissues.

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Massive X-irradiation 3 days after immunization (by subcutaneous injection of a suspension of a billion intestinal bacilli) did not contribute to specific morphological reconstruction in antibody-forming tissues, not to the production of antibodies either in intact animal or in transplants to an animal.

The acute disruption of antibody formation at the peak of radiation injury and the retarded restoration of antibody formation during the convalescence period may be attributed to the disruption of the antigen stimulation by penetrating radiation.

72. Changes in Blood Serum Protein Fractions Following X-Irradiation

"Changes in Blood Serum Protein Fractions Following the X-Irradiation of an Organism," by L. G. Prokopenko, Chair of Biochemistry, Kursk Medical Institute; Moscow, Voprosy Meditsinskoy Khimii, Vol 8, No 3, May/Jun 62, pp 242-246

An increase in the concentration of all globulin fractions following immunization (rabbits immunized by Bact. paratyphi) is accompanied by a significant decrease of the blood serum albumin content.

A sharp decrease in the blood serum albumin content following X-irradiation is accompanied by a rise in the alpha- and beta-globulins.

Shielding the liver from the direct action of x-rays normalizes the blood-serum protein composition, while shielding of the thorax and of the lower part of the abdomen has no noticeable effect on it.

The preliminary immunization of animals sharply stimulates globulin synthesis but does not prevent the development of radiation hypo-albuminemia.

73. Synthesis and Secretion of Corticosterone During Acute Radiation Sickness

"Changes of Adrenal Function During Acute Radiation Sickness, Report No 1," by David Gabor, Faradi Laszlo, and Tanka Dezso, Honvedorvos, Vol 13, No 2, 1961, pp 154-163 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 24, 25 Dec 62, Abstract No 24S442, by A. Laufer).

The corticosterone content is increased in the blood flowing from the adrenals of rats 5 days after the animals were subjected to general X-irradiation with 800 r. In cases of a favorable outcome,

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the corticosterone content is normalized by the 10th day, but in cases of a lethal outcome the hormone disappears from the blood. Hormone synthesis (in vitro) is significantly increased during the first few days, but within 48 hours it is decreased to the lower limit of normal. Later, corticosterone synthesis is slightly increased. Histological and histochemical data did not coincide and reflected, probably, the capacity of the adrenals to accumulate corticosterone.

The author conclude that during the first hours after irradiation, corticosterone synthesis is increased, but the hormone is not secreted into the blood stream. About the time the radiation syndrome appears, the secretion of corticosterone rises sharply, but the synthesis of the hormone is close to normal. During the third phase of the sickness, in cases where the prognosis is favorable, the secretion and the synthesis of corticosterone are about normal; but in cases of lethal outcome, the synthesis of corticosterone is preserved, while its secretion is completely stopped.

74. Modeling of Some Congenital Diseases

"The Possibility of Modeling Certain Congenital Diseases,"
by I. A. Piontkovskiy, Institute of Higher Nervous Activity
and Neurophysiology, Academy of Sciences USSR; Moscow,
Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya,
Vol 6, No 6, Nov/Dec 62, pp 3-10

The author describes certain observations on congenital pathological conditions in rats, rabbits, and dogs induced by prenatal X-irradiation action. Pregnant animals were subjected to a single action of ionizing radiation: for rats, on the 5th, 10th, 12th, 14th, 16th, 17th, and 18th days of pregnancy; for rabbits on the 15th or 23d day; and for dogs, on the 13th, 20th, 45th, and 55th, day of pregnancy. Irradiation doses used were 150-200 r for rats, 200 r for dogs, and 300-400 r for rabbits.

Results showed the following:

Blastopathy: The majority of fetuses exposed to X-irradiation during the preimplantation period died during the intrauterine period, but some animals survived with no congenital symptoms; however, the mortality rate during the first week of life of these animals was 2 1/2 times as great as in the controls. The authors consider that such animals may be used as models of a decreased general resistance condition in studies of factors that increase the general nonspecific resistance.

Embriopathy: Embriopathy may occur due to various teratogenic factors such as temperature, enzyme inhibitors, deficient nutrition, radiomimetic substances (such as choline, nitrogen mustard, cortisone, ACTH, and others), and the virus of German measles.

Fetopathy: The deleterious effects of X-irradiation on the developing fetus may be divided into four groups: (1) congenital diseases of the central nervous system which show various forms of oligophrenia due to early radiation action which affects the subcortical and the lower cortical layers and to lateradiation action which affects the upper or the superficial layers of the cortex, of the cerebellum, and of the spinal chord; (2) congenital diseases of the endocrine glands which show the affection of the anterior lobe of the hypophysis such as in hypophysial dwarfism or gigantism and diabetes insipidus (the area affected seems to be the subthalamic region); (3) congenital diseases of the cardiovascular system which appear as hypertension if irradiation is on the 15th day or hypotension if irradiation is on the 23d day of pregnancy in rabbits; and (4) radiation syndrome in rats, rabbits, and dogs which is manifested by changes of hematological indexes, the condition of the gastrointestinal tract, and hemorrhages.

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The author also stresses that X-ray fetopathies, excluding congenital radiation syndrome, are nonspecific pathological conditions. An analogous picture may be brought about by other pathological factors such as microorganisms, toxins, viruses, hemotoxic actions, etc. Congenital radiation syndrome is specific etiologically. The action of a pathogenic factor during the prenatal period can cause a great number of different congenital diseases. In this article, the author discusses a few (anophthalmia, monophthalmia, skeletal deformities, spastic paralysis, ataxia, priapism, dwarfism, gigantism, diabetes insipidus, vasculomotor syndrome--hypotonia and hypertonia, and radiation syndrome).

It is very convenient to use X rays as the pathogenic factor because it is easy to control the dose and the time of exposure. This method should be of interest to experimental pathologists because it opens avenues for research and study of models of congenital diseases in man.

75. Spleen Cell Suspension, Splenectomy, and Liver Regeneration in Fully Irradiated Rats Studied in Hungary

"The Effect of Spleen Cell Suspension and Splenectomy of the Liver Regeneration in Fully Irradiated Rats," by Drs Endre Czeizel, Gyorgy Vaczo, Kalman Bolla, and Pal Kertai, Department of Pathobiology, National Institute of Public Health and Roentgen Department, Metropolitan Istvan Hospital, Budapest; Budapest, Magyar Radiologia, Vol 14, No 5, Sep 62, pp 298-303

In the opinion of authors, liver regeneration is a suitable means of studying the cell division inhibiting effect of X rays and the substances which prevent this effect. A reduction of liver regeneration following irradiation could be prevented by the intraperitoneal injection of spleen cell suspension. Injection of irradiated spleen cell suspension. Injection of irradiated spleen cell suspension had no such effect. Preirradiation splenectomy also afforded a certain degree of protection. It was found that spleen cell suspensions and splenectomy do not influence liver regeneration in themselves; however, the administration of irradiated spleen cell suspension does retard regeneration to a certain extent.

76. Liver Regeneration and Irradiated Bone Marrow Studied in Hungary

"Effect of the In Vivo and In Vitro Irradiated Bone Marrow on Liver Regeneration of Rats," by Drs Endre Czeizel, Gyorgy Vaczo, and Pal Kertai, Department of Pathobiology, National Institute of Public Health and Roentgen Department, Metropolitan Istvan Hospital, Budapest; Budapest, Magyar Radiologia, Vol 14, No 5, Sep 62, pp 293-297

After whole-body irradiation, regeneration of the liver was considerably decreased in partially hepatectomized rats even though the liver region and the whole upper body had been covered with lead sheet. This was due to the irradiation of the bone marrow. Liver regeneration is impeded in proportion to the radiation dose resulting from bone marrow irradiation or the administration of in vivo irradiated bone marrow suspension. The regeneration of the liver is promoted when bone marrow suspension irradiated in vitro with less than 400 r is introduced and retarded when irradiation exceeds 400 r.

Oncology77. Substances Inhibiting the Growth of Sarcoma 45 and Jensen's Sarcoma

"On the Antitumorous Action of the Tripeptide of Sarcolysyl-Phenylalanyl-Leucine," by P'an Ch'i Ts'ao, Laboratory of Experimental Chemotherapy of Cancer, Institute of Experimental and Clinical Oncology, Academy of Medical Sciences USSR; Leningrad, Voprosy Onkologii, Vol 8, No 12, Dec 62, pp 57-59

The tripeptide of the ethyl ester of p-di-(2-chlorethyl) aminophenyl alanyl-phenylalanyl-leucine with methylene -bis-(beta-oxynaphthoic acid) (SFL) was synthesized at the Chair of Dyes of the Leningrad Technological Institute. The antitumorous activity of SFL was tested in experiments on sarcoma 45 and Jensen rat sarcoma. The preparation is insoluble in water and was therefore administered to the animals in the form of a suspension in starch paste. The investigations established that SFL in a dose of 20 milligrams per kilogram body weight administered to rats inhibited the growth of sarcoma 45. SFL exhibited also an expressed antitumorous action in relation to Jensen sarcoma. In a therapeutic dose of 40 milligrams per kilogram body weight it inhibited the growth of the tumors by 99.8 percent.

78. Hormones, Cytotoxic and Alkylating Substances, and Antimetabolites in Therapy of Tumors

"Concerning the Chemotherapy of Tumors," by Yu. Raudsepp;
Tallinn, Zdravookhraneniye Sovetskoy Estonii, No 6, Nov/Dec
62, pp 11-15

The chemotherapy of tumors received its greatest development during the past 15 to 20 years. Considerable successes have been attained in this period.

Antitumorous preparations can be divided into three basic groups, depending on the mechanism of their action: (1) hormones; (2) cytotoxics and alkylating substances; (3) antimetabolites. The most widely used preparations are the alkylating substances (chloroethylamines and ethyleneamines); these may be regarded as nitrogen derivatives of yperite).

Of the large group of alkylating substances developed in the Soviet Union and now being clinically applied are novembichin, sarcolysin, dopan, and thiophosphamide.

These preparations are particularly effective against tumor-like affections of the hemopoietic system (lymphogranulomatosis and chronic leukoses). Sarcolysin and thiophosphamide, however, have been found to be adequately effective against true tumors (sarcolysin in the therapy of seminomas, angioendotheliomas, Young's sarcoma; thiophosphamide -- against cancer of the ovaries). The above-mentioned preparations should be used with caution because of their depressing action on hemopoiesis. Chemotherapy should not be applied as a substitute for surgical and radiation therapy. Its application is advisable only in combination with surgical interference after the removal of the primary tumor; the preparations are more effective against metastases than against the primary tumors.

79. Antitumorous Activity of Certain Compounds

"Investigation of the Antitumorous Activity of Certain Amides of Chlorethylamine Fatty Aromatic Acids Containing 'Residues' of Syntomycin, Aminocholine, and Anesthesine," by Ye. I. Khomchenovskiy, Laboratory of Experimental Chemotherapy of Cancer, Institute of Experimental and Clinical Oncology; Leningrad, Voprosy Onkologii, Vol 8, No 12, Dec 62, pp 60-67

Investigations were conducted in order to determine the antitumorous activities of N-[p-di-(2-chlorethyl)-aminophenacetyl]-2-oxy-2-p-nitrophenyl-1-oxymethyl-ethylamine (I); N-p-di-(2-chlorethyl)aminophenacetyl]-6-methoxy-8-aminocholine (II); ethyl ester of N-[p-di-(2-chlorethyl)-aminophenacetyl]-p-aminobenzoic acid (phenastezin) (III); ethyl ester of N-p-di-(2-chlorethyl)-amino-alpha-N-acetylphenyl alanine]-p-aminobenzoic acid (IV); ethyl ester of N-[p-di-(2-chlorethyl)amino-alpha-N-formylphenylalanine]-p-aminobenzoic acid (pharsazin) (V). Fourteen different strains of rat and mouse transplantable tumors were used to determine the antitumorous activity of the preparations. It was found that preparation I had no effect on the tumors; preparation II inhibited the growth of sarcoma 45 and Guerin and Walker carcinomas by 66 to 90 percent; preparation III was the most active of the substances in regard to its antitumorous effect; preparations IV and V were also marked by their strong antitumorous action; they exhibit, however, a spectrum of action which is more limited than that of preparation III.

80. Relationship Between Pharmacological and Antitumorous Activities of Certain Alkaloids

"Concerning the Antitumorous Activity of Certain Alkaloids," by Ye. M. Vermel' and S. A. Kruglyak, All-Union Scientific-Research Institute of Medicinal and Aromatic Plants, VILAR; Leningrad, Voprosy Onkologii, Vol 8, No 9, Sep 62, pp 9-17

The antitumorous properties of the following 12 alkaloids were investigated: dauricine, lutenurine--a new preparation of vegetable origin, retamine, rosmarycin -- $C_{20}H_{27}O_4N$, rotundine -- $C_{17}H_{21}O_3N$, sarracine -- $C_{18}H_{27}O_5N$, securinine -- $C_{13}H_{15}O_2N$, sinomenine, skimmianine, tetrandrine, triacantine -- $C_{10}H_{13}N_5$, and evoksine -- $C_{18}H_{21}O_6N$. Studies were conducted also to determine the relationship between the pharmacological and antitumorous activities of these alkaloids. The investigations were conducted in vivo on seven strains of tumors. It was established that the alkaloids lutenurine, tetrandrine, and evoksine possess strong antitumorous properties; dauricine, sarracine, rosmarycin, triacantine, rotundine, and retamine were found to be active when

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administered in maximally tolerated doses only; the alkaloids securinine, sinomenine, and skimmianine had no effect on the tumors. No relationship between the antitumorous and other pharmacological properties of the alkaloids has been established.

81. Cancer Control in Kazakh SSR Discussed

"The Status and Problems of Oncological Service in the Republic," by S. R. Karynbayev, Minister of Health Kazakh SSR; Alma-Ata, Zdravookhraneniye Kazakhstana, No 12, 62, pp 3-7

The author states in this report that the incidence of malignant growths in both the rural and the urban areas of the Kazakh SSR is of great concern. Statistical data available shows that cancer of the digestive organs makes up more than half the total incidence of malignant growths in the republic. Incidence of cancer of the organs of respiration holds second place. Cancer of the female sex organs is in third place.

Statistical data available seems to indicate that there are fewer cases of malignant growth in Kazakh SSR than in the RSFSR, Ukrainian SSR, Latvian SSR, Lithuanian SSR, or in the Estonian SSR. This may be partially due to influx of younger people into the Kazakh SSR. Absence of a proper reporting and recording system is probably the main reason.

The oncological service has gone through a process of steady expansion in the past few years. The number of oncological dispensaries in the Kazakh SSR increased from 4 in 1950 to 18 in 1961. A total of 357 physicians-oncologists and more than 700 medical workers on the subprofessional level are employed in cancer control establishments, including scientific medical establishments of the Kazakh SSR. There are 0.18 oncological beds per 1,000 people in the republic. All this obviously does not meet the present-day needs of the population.

The decree of the Central Committee and the Council of Ministers Kazakh SSR specified that oncological beds be increased by 1,020 within the period between 1961 and 1965. The number of such beds should have been increased by 400 during 1961 and 1962, but only 160 additional such beds became available.

The following scientists of Kazakhstan have been responsible for development of surgical treatment of cancer: Member of the Academy of Sciences Kazakh SSR A. N. Syzganov, Prof M. I. Brykin, Prof A. B. Rayz, and Prof P. P. Ochkur. Systematic Scientific Cancer Research has been conducted during the past 5-6 years, in the Institute of

• • •

Clinical and Experimental Surgery of the Academy of Sciences Kazakh SSR
The institute is presently attempting to perfect surgical, radiation,
and combinative methods of treatment of malignant growths. The in-
stitute is also developing a unique method of gastroesophagoanastomosis
following resection of esophagus in cases of cancer.

Pharmaceuticals and Biologicals

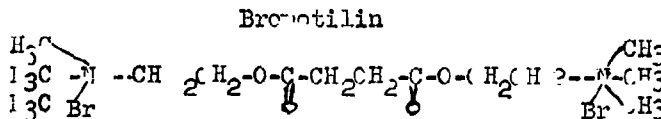
32. Bromotilin, A Soviet Controllable Muscle Relaxant

"Experience in Using Bromotilin, a Soviet Curareform Preparation," by Prof I. Kh. Gevorkyan; S. A. Vartanyan, and F. A. Nazaryan, Hospital Surgical Clinic of the Yerevan Medical Institute; Moscow, Vestnik Khirurgii imeni I. I. Grekova, Vol 90, No 1, Jan 63, pp 96-99

Bromotilin was synthesized at the Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR, under the direction of Academician A. L. Mndzhoyan, and it differs from ditilin by having the bromine atoms substituted for iodine as follows:

On the basis of using bromotilin on 130 patients, the authors draw the following conclusions:

1. Bromotilin is a muscle relaxant with a short duration and no contraindications.
2. Bromotilin can be used just as ditilin for intubation, and for muscle relaxation that is easily controllable and in traumatological practice. Its use during the postoperative period quickly restores active respiration and the cough reflex.
3. The administration of a 2-% sodium thiopental solution with a one-% bromotilin solution completely eliminates bronchospasms and laryngospasms and significantly decreases the required sodium thiopental dose.
4. No complications from the use of bromotilin were noted.
5. A simpler technological method for producing bromotilin will make it possible to obtain this preparation in quantities large enough to make it available for use by therapeutic institutions.
6. Bromotilin requires further studies, especially to find its antidote.



83. Initial Studies of Antibiotic 2703 Encouraging

"Initial Results of the Clinical Study of Antibiotic 2703,"
by R. N. Kuchakarev, Chemotherapeutic Department of the
Institute of Experimental and Clinical Oncology; Moscow
Voprosy Onkologii, Vol 9, No 1, Jan 63, pp 90-94

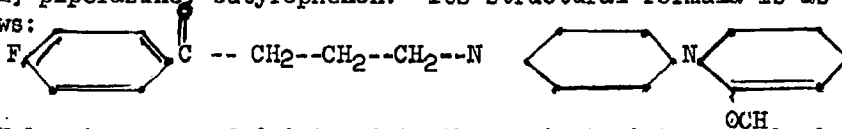
Initial clinical studies of antibiotic 2703 used in treating
39 patients suffering from various malignancies showed objective im-
provement in 16, subjective improvement in 10, and was ineffective in
the remaining 23 patients.

These results demonstrate the advisability of further clinical
studies of antibiotic 2703 for various forms of malignant tumors,
especially for cancer of the stomach, cancer of the adrenal glands,
cancers of the large intestine, chorionepithelioma, lymphogranulomatosis,
and cancer of the thyroid gland.

84. Haloanizon -- A New Tranquilizer

"Therapy of Schizophrenia with Haloanizon (20-28 MD),"
G. Ya. Avrutskiy, I. Ya. Gurovich, and Yu. A. Aleksan-
drovskiy, Clinic of Adult Psychoses, Department of Psyche-
pharmacology, Scientific-Research Institute of Psychiatry,
Ministry of Health RSFSR, and Clinical Psychoneurological
Hospital No 4 imeni Gannushkin, Moscow; Moscow, Zhurnal
Nevropatologii i Psikhiiatrii imeni S. S. Korsakov, Vol
63, No 1, Jan 63, pp 87-89

Results of the application of haloanizon to a number of patients
suffering from different forms of schizophrenia are reported in the
article. Chemically haloanizon is 4'-fluoro-4-{-1-[4-(2-methoxy)
phenyl] piperazine}-butyrophenon. Its structural formula is as
follows:



Haloanizon was administered to the patients intramuscularly
in doses of 20 milligrams two to three times a day. Positive results
as a rule were noted after the first administration of the drug. Some
patients received aminazine in addition to potentiate the action of
haloanizon. Administration of the drug per os with gradually reducing
doses was utilized in some cases. Side effects in the forms of akithisia,
takisinesia, and parkinsonism were noted on occasions despite the ad-
ministration of vitamins for the prevention of these reactions. These
can be usually arrested by aminazine. The number of observations to

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date, however, is as yet too limited, the authors write, to permit the recommendation of the drug as an effective remedy for the therapy of schizophrenia. Further observations are necessary.

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85. New Antituberculin Agent

"Tuberculostatic Properties of Mixed Guanyldihydrazone Indane-1,3 Thiosemicarbazone -- A Representative of a New Type of Antitubercular Agents," by V. Ya. Grinshteyn, K. K. Medne, S. P. Zayeva, N. S. Stolygov, A. P. Veveris, S. K. Germane, M. A. Alberta, G. S. Grigalinovich, V. A. Temmere, and S. B. Zelcha, Institute of Organic Synthesis and Institute of Experimental and Clinical Medicine, Academy of Science Latvian SSR; Moscow, Doklady Akademii Nauk SSSR, Vol 147, No 5, 11 Dec 62, pp 1083-1085

Previous tests show that mixed guanyldihydrazone indane-1,3 thiosemicarbazone has high bacteriostatic activity against tuberculosis mycobacteria which are resistant to isonicotinic acid hydrazide and streptomycin. This compound, also known as thiogyn, has four tuberculostatic groups: thiosemicarbazide, guanidine, hydrazide, and beta-diketone. In vitro and in vivo tests show that it has specific bacteriostatic activity only against human and bovine tuberculosis mycobacteria. Thiogyn also inhibits catalase activity of tuberculosis mycobacteria.

Thiogyn administered in daily doses of 25-100 mg/kg was found to have a therapeutic effect on experimental tuberculosis in guinea pigs infected with streptomycin-sensitive strains; doses of 50-100 mg/kg were required for the streptomycin-resistant strains. A study of the thiogyn content of the internal organs of guinea pigs treated with this compound shows that the lungs have the highest concentration (1.05 mg%) and the liver has a smaller amount (0.74 mg%). An entirely different picture is obtained when using tubazid or phthiyazid. The concentration of nicotinic acid hydrazide reaches 0.55-0.51 mg% in the lung tissue and 1.25-2.5 mg% in the liver. This is significant because a high concentration of nicotinic acid hydrazide in the liver can cause functional disorders, while the low concentration in the lungs is ineffective against pleural tuberculosis.

On the basis of the experimental data, thiogyn is being recommended for clinical testing for treating patients with tuberculosis which is resistant to the known chemotherapeutic preparations.

86. New Factory for Medical Preparations Constructed in Kaunas

"Factory of Medical Preparations"; Vil'nyus, Sovetskaya Litva, 13 Jan 63, p 2

Construction of the Kaunas Organic Preparations Factory has begun in Aleksotas. All processes at the factory will be mechanized and automated.

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The first production line of the new factory will go into operation next year, and in 1965 it will operate at full capacity. The factory will produce about 30 types of insulin, vitamin, enzyme, and other preparations with a value of 15 million rubles a year.

Physiology

87. Results of Inquiries Into the Structure and Function of the Brain Discussed

"Natural Scientific and Philosophical Questions on the Contemporary Status of Science of the Brain," by S. A. Sarkisov, Institute of the Brain, Academy of Medical Sciences USSR; Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 12, No 6, Nov/Dec 62, pp 985-1,000

This article reports the contents of a paper presented at a session of a conference on philosophical questions of the physiology of higher nervous activity and psychology, held in Moscow from 8 through 11 May 1962. Some results of recent investigations of the structure and function of higher branches of the central nervous system are cited. It is claimed that these results are being examined from the views point of methodological and philosophical ideas about the brain as an organ of higher nervous activity. The following four questions are discussed:

1. The variability of cytoarchitectonic fields in the cerebral cortex of humans and various animals in connection with the search for information concerning localization of functions.
2. The interdependence between the cortex and subcortical formations.
3. Neuronal structures of the central nervous system and their association.
4. Functional interpretation of some neuronal structures within the cerebrum.

The dialectic-materialistic approach in scientific investigations is believed to guarantee a genuinely materialistic interpretation of the principia mechanisms involved in biological and physiological processes and in the structure and function of the brain. This interpretation is opposed both to mystic and to idealistic views. Moreover, we are witnessing new discoveries in that branch of science that deals with the brain. These discoveries are enriching not just the Marxist-Leninist philosophy, but mainly that theory in gnoseology which deals with the primary nature of matter and the secondary nature of consciousness.

88. Conditioned Reflex Reorganization of Rhythm in Human Electroencephalogram

"Dynamics of Conditioned Reflex Changes in the Electroencephalogram During Repeated Combinations of Sound With a Rhythmic Light Stimulus," by G. N. Boldyreva and V. S. Rusinov, Institute of Higher Nervous Activity and Neurophysiology, Academy of Sciences USSR and Institute of Neurosurgery imeni N. N. Burdenko, Academy of Medical Sciences USSR; Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlova, Vol 12, No 6, Nov/Dec 62, pp 1,011-1,020

Results of the authors' experiments on 11 people showed that it is possible to bring about a conditioned reorganization of the electroencephalogram in humans by exposing them to a combination of sound and rhythmic light stimuli. This reorganization has a very unstable and irregular nature because it is extinguished rapidly. Reorganization is diffused and is relatively localized during initial stages of its development. The area where conditioned reorganization is observed does not always coincide with the localization of the unconditioned response. In some experimental subjects the conditioned reorganization was recorded in the area where a nonspecific response was manifested.

89. Freezing and Revivification of Organisms

"After an Icy Sleep," by Oleg Karyshev, News Agency Correspondent (APN); Yerevan', Kommunist, 4 Jan 63, p 4

"Is it within the power of science to cause cessation of life processes in any kind of an animal and then resume them as is done with clocks? Mind you, not to interrupt the vital processes, but actually put a stop to those processes, switch them off, shut them down for a whole year, perhaps, for 10 or 100 years!

"Having confused the reader with such a strange question, let us shift to the Institute of Cytology of the Academy of Sciences USSR in Leningrad. Here we became acquainted with work conducted under the supervision of Prof Lev Lozina-Lozinskiy that deals with the study of life's threshold.

"Researchers proved that cold per se is not capable of destroying a living cell: ice crystals into which water in the organism is transformed cause its disintegration. Crystallization may be avoided, however, by reducing the temperature rapidly: this transforms water into a glasslike state.

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"During such chilling, explained Lozina-Lozinskiy, many tissues of mammals and humans resume their normal activity after they are warmed later. No cellular disintegration of any kind would take place if an animal could be chilled to -100°C within one or two seconds. The fact is that science does not yet have at its disposal any facility for such rapid freezing of more or less large organisms.

"Biologists have devised another method. It is possible to saturate a living tissue with some kind of harmless liquid which hinders crystallization of moisture. Glycerine, for example, is one of them. After that tissue may be deep frozen without any apparent harm to structure and to subsequent vital activity of cells.

"Lev Lozina-Lozinskiy began to experiment first on caterpillars of a maize butterfly by subjecting them to very low temperatures. After being thawed, the caterpillars became animated. But this success was not genuine: days and weeks passed and all experimental specimens died. It became clear that caterpillar tissue is not suited for a lower temperature than, even in Antarctica. But there is such thing as adaptation, which is adjustment of a living organism to changing environmental conditions!

"A series of new experiments was conducted. Caterpillars at first endured zero temperature for a long time. Thereafter the temperature was reduced to -30°C . Another long period of silence followed. Only after that, the caterpillars were placed in liquid nitrogen at -178°C . Was protective adaptation apparent during such chilling?

"...The caterpillars thawed. In due time they developed in a normal manner and then took the form of a chrysalis from which butterflies emerged. These butterflies produced viable progeny. Victory! It appeared possible not only to investigate the thresholds of life passively, but to expand them artificially by chilling the organism.

"For how long a period can life be preserved? Do not jump to conclusions the scientists said that the need for long and continued experimentation still lies ahead."

90. Space Dynamics of Consecutive Visual Images Shown To Be Conditioned Reflex

"Developing Consecutive Visual Image Space Dynamics in Children,"
by P. A. Sorokun; Moscow, Voprosy Psikhologii, No 6, 1962;
pp 102-106

"The space dynamics of consecutive visual images displays a definite regularity: a consecutive image varies in size in direct proportion to the distance to the plane on which it is projected."

This article discusses experiments with children of grades one to five. Experiments showed that the above-mentioned regularity in vision develops with age and does not become well-established until a child is 12 or 13 years old. However, the younger children's concept of the image became more accurate after walking the distances between the various screens on which the image (a red circle) was projected.

91. Natural Noises and the Spectral Sensitivity of Human Hearing

"On the Spectra of Certain Noises of Natural Origin," by V. I. Arabadzhi and K. I. Rudik, Minsk; Moscow, Akusticheskiy Zhurnal, Vol 8, No 4, Oct/Dec 62, pp 466-468

The Acoustics Laboratory at Moscow State University conducted an analysis of the sounds of rustling leaves and falling water, recorded with MD-4 electrodynamic microphone and a portable Reporter-2 tape recorder. It was noticed that, in the spectra of the noises of leaves and the not very intense noises of a fountain and surf, the maximum intensity lies in the region of one-two kilocycles per second, which more or less coincides with the zone of maximum spectral sensitivity of the human auditory apparatus. It is considered possible that the adaptation to such natural noises has had an influence in the formation of the spectral characteristics of the sensitivity of human hearing.

92. Response to Clicks At Periphery of Auditory System

"On the Measurement of the Intensity of a Short Sound Signal at the Level of the First Neuron of the Auditory System," by Ye. A. Radionova, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad; Moscow, Akusticheskiy Zhurnal, Vol 8, No 4, Oct/Dec 62, pp 447-453

A study was made of the mechanism whereby the level of the first neuron of the auditory system measures the intensity of a short sound signal during the conduction of the summary neural response to clicks away from the fenestra rotunda of the cochlea. On the basis of an analysis of the dependence of the amplitude of the summary neural response and its dispersion on the intensity of the click, it is concluded that there must be in the peripheral part of the auditory analyzer two groups of neural elements (more sensitive and less sensitive), which provide the possibility of measuring the intensity of the short sound signal within a wide range, but which provide a somewhat reduced differential sensitivity in the area of average intensities. By measuring the amplitude of the summary neural response, it is possible to obtain information on the relative number of neural elements which respond simultaneously to the signal.

93. Peculiarities of Audibility of Clicks

"Peculiarities of the Differential Intensity Thresholds for a Short Sound Signal," by R. V. Avakyan and Ye. A. Radionova, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Moscow; Moscow, Akusticheskiy Zhurnal, Vol 8, No 4, Oct-Dec 62, pp 407-411

Two persons with normal hearing were used in a study of the differential intensity thresholds for a short sound signal (click) at various intensity levels ranging from 10 to 90 decibels above the threshold of audibility. It is shown that the curve of differential thresholds for clicks differs essentially from the well-known curves of differential thresholds for longer sound signals by the presence of a "hump" in the center. At an intensity level of 40-70 decibels, the differential threshold for clicks is larger by a factor of 1.3 - 1.9 decibels than at a lower or higher intensity. It is assumed that this condition is associated with the existence of two groups of elements which have different thresholds in the peripheral section of the audibility analyzer and which differ in that the intensities of short sound signals are measured in an auditory system as a number of synchronously responding elements.

94. Roza Kuleshova's Abilities Further Described and Explained

"Sight in the Finger Tips," by R. Svoren', scientific reviewer of APN; Moscow, Izvestiya, 13 Jan 63, p 4

Various experiments have been conducted in the Soviet Union to determine how Roza Kuleshova is able to "see" with her fingers.

In November, Roza was at the Svedlovsk Institute of Kurortology and [hysiotherapy, where her unusual abilities were described in this way: the adaptation of the tactile receptors or, as an engineer would say, the adaptation of pressure transmitters to light perception.

In the beginning of December, Roza went to Moscow at the invitation of the Institute of the Problems of Information Transmission, Academy of Sciences USSR. Included in the program of the Moscow cycle of examinations, which was worked out by D. Mirza, D. Bogoyavlenskaya, and Prof F. Bassinyy, was the Institute of Biophysics, Academy of Sciences USSR, where the hypothesis of photosensitivity was tested. As the result of a series of experiments, an unbelievable fact was discovered -- real light receptors, organs of vision in their own way, are located under the skin, or perhaps in the skin itself, of Roza's fingers.

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The first of the experiments was designed to establish whether Roza distinguished dark and light places just by their degree of roughness. For this, the image was projected on a small semitransparent screen or, more simply, on frosted glass.

It is completely clear that in such a system the smoothness of the surface of various parts of the screen is not at all related to their illumination. Regardless of this fact, putting her fingers to the screen, Roza distinguished the light and dark places. Only one conclusion can be drawn here: Roza's finger tips, like eyes, react to the most ordinary light, that is, more simply, they see.

An experiment was conducted to make sure that Roza was not reacting to the change in temperature caused by the projection of light [and hence heat] onto the screen. First a filter which blocked infrared (heat) rays was placed in front of the objective -- Roza distinguished the light and dark places as before. When this was replaced by a filter which blocked light but let infrared rays pass freely, she was unable to detect the resulting heat picture.

The young scientist-physicists who conducted these experiments, M. Bongard and M. Smirnov, decided to evaluate objectively the possibility of their discovery. Therefore, on the advice of Prof N. Nyuberg they conducted a series of experiments which are usually used in investigating the eyes.

The higher the density of photosensitive elements in the retina, the sharper the vision. How did Roza compare on this aspect of vision? With the help of special drawings -- lines from points placed at various distances -- it was established that there are about 10 photosensitive elements in each square millimeter of the pulvilli of Roza's fingers.

The next question was one of the most complex -- how does Roza distinguish color? Using the method which is employed to determine the spectral sensitivity curve of each of the three color receptors in the eye (a screen one half of which is illuminated by a pure color, and the other half by a mixture of the basic colors, the object being to adjust the mixture until both sides are exactly the same), it was determined that there are three color receptors in Roza's fingers -- "red," "blue," and "green" -- whose spectral sensitivity curves correspond exactly to the cones of the human eye.

With each following experiment the similarity between Roza's photosensitive fingers and the organs of sight was more and more confirmed.

If red light is replaced by grey abruptly, you will see blue. With her fingers Roza perceived the change of these colors in the same way. It has been established that our eyes are constantly in motion, even though we do not notice it. In the same way Roza, when investigating an image, had to move her fingers constantly.

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The authentically established second sight of Roza Kuleshova cannot help but interest scientists of very different specialties. Obviously, it will help those who are studying the evolution of the living organism to understand how systems of light and color perception developed, what form they had originally, and how and from what the specialized organ of sight, the eye, developed. Histologists studying the structure of various tissues will try to explain where the new photosensitive elements are located and how they are arranged. Specialists in cybernetics will obtain a whole series of enigmas -- how the color signal is transmitted from the eye to the brain, how it is coded, how it is decoded, how it interacts with other signals, for example, with the pressure signal; and finally, how such a complex process as the recognition of images takes place.

Among the many principal problems which must be solved there is one which is nearly the most important. It is necessary to find out whether other people have photosensitive fingers or whether it is a rare characteristic. Only wide experiments with a large number of people can provide the answer.

95. Other Scientists Support Claim That Fingers Can Be Trained to "See"

"Skin That Can See," by S. Dobronravov, docent; Moscow, Komsomol'skaya Pravda, 19 Jan 63, p 4

In discussing the phenomenon of Roza Kuleshova, the young woman who "sees" with her fingers, one must first of all recall that a half century ago the well-known Russian physician S. S. Korsakov described a similar case, says the author, who has studied Roza's phenomenal abilities.

A. N. Leont'yev, he continues, considers "photosensitivity" to be an atavistic phenomenon in man, an ability that he lost due to its uselessness. Leont'yev has also shown by his own experiments that it is possible to reestablish the "photosensitivity" of the skin by training.

The experience of Roza herself convinces us of this also, for that was how it all began. Once while feeling a printed text with her finger tips Roza noticed that they were sensing something. This interested her. Persistent repetitions gave their results -- within 2 years the girl was able to read books with her fingers.

Psychology

96. Fourth Session on Defectology Meets in Moscow

"Fourth Session on Defectology," by V. I. Lubovskiy and T. V. Rozanova; Moscow, Voprosy Psikhologii, No 6, Nov/Dec 62, pp 181-184

"Questions of special psychology occupied a large place at the Fourth Scientific Session of Defectology, Conducted by the Institute of Defectology of the Academy of Pedagogical Sciences RSFSR, 26 to 29 March 1962.

"At the plenary meetings of the session, summary reports were heard on the basic trends of the work of the Institute of Defectology.

"A. I. D'yachkov formulated in his report the basic problems confronting defectology, its tasks in the proposal to bring the school closer to life and to perfect the polytechnical and professional training of abnormal children. Concerning the problems of special psychology, D'yachkov noted the necessity of developing experimental methods of research which should be directed toward deeper study of the development of abnormal children, the process of training them, and the basis of the possibilities of compensation for defects. The reports of S. A. Zykov, Prof R. M. Boskis, and M. I. Zemtsova presented the prospects for the development of surdopedagogy, the theory of the training and teaching of hard-of-hearing children, and the basic trends of research in the area of typhlopädagogy. On the basis of numerous psychopedagogical investigations, G. M. Dul'nev showed the positive influence of labor training on the mental development of students in auxiliary schools. The solution by the children of logical problems in the process of mastering labor skills is the basic principle of the utilization of labor as a means of correcting shortcomings in mental development.

"R. Ye. Levina, discussing the influence of speech disorders on the mastery of reading and writing, remarked that for a long time difficulties in mastering reading and writing were explained by defects of visual perception and for that reason the methods for overcoming these difficulties were incorrectly formed. The elimination of these defects is possible on the basis of investigations that show their relation to disturbances in the development of oral speech.

"M. S. Pevzner delivered a report entitled 'The Significance of Clinical Investigation in the Area of Defectology.'

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"A survey of the methods of investigating higher nervous activity and the functions of separate analyzers, and also of the results which have been obtained with the help of these methods in the investigation of abnormal children was made by V. I. Lubovskiy in his report, which also indicated the prospects for physiological research in the area of defectology.

"Zh. I. Shif described research in the area of the psychology of abnormal children, remarking that the development of abnormal children depends to an especially great degree on the nature of their training and education. Investigations in the field of special psychology have revealed the laws of compensatory development of abnormal children under the conditions of specially organized pedagogical influence. The psychic activity of the abnormal child should be investigated in detail, since the initial defect gives rise to diverse and complex changes in his personality as a whole. The most important task of psychological investigations at the present time is the clarification of the significance of labor training and instruction for the development of abnormal children, the correction of their shortcomings, and the preparation of the abnormal children for a richer life.

"R. S. Muratov and F. F. Rau presented a report on the status and prospects for development of technical methods of training abnormal children.

"The subsequent work of the session proceeded in sections: the training and education of deaf children, the training and education of hard-of-hearing children, the training and education of pre-school children with hearing defects, typhlopedagogy, oligophrenopedagogy, logopedia, and the clinical and pathophysiological study of the child.

"In addition, for the first time a section of special psychology was created at the session. This fact is related to the increase in the number of psychological investigations in this area in recent years. The reports at this session were devoted to problems which up to this time have received little attention in special psychology and which have a great significance for the correct education and training of abnormal children.

"Great interest was provoked by the reports on the problems of the personality and emotional-volitional sphere of abnormal children, which demonstrated how important it is to study not only the cognitive activity of abnormal children, which up to this time has received principal attention, but also the development of their personality as a whole. N. G. Morozova (Institute of Defectology) showed that interests which have considerable significance in any activity of man are distinguished by their originality in deaf and mentally retarded children. In his

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report he formulated the basic laws of the changes in the interests of these children during school years. In addition, he gave a scientific foundation to pedagogical ways of formulating interests in knowledge and constructive activity in abnormal children.

"B. V. Zeygarnik (Central Institute of Psychiatry, Ministry of Health RSFSR), reporting on investigations in the emotional-volitional sphere of the mentally retarded, disclosed a discrepancy of emotions and will in these children, who combine rigidity in emotional states and modes of behavior with instability of purpose. S. Ya. Rubinshteyn (Central Institute of Psychiatry, Ministry of Health RSFSR) in his report on the training of habits in mentally retarded children expressed the idea of the necessity of paying attention to not only the development of cognitive activity in school children but also the formation of their educational and labor skills and habits (in the selection of children in special schools as well as in the process of training and educating them). He set forth the facts of the wide spread of bad habits and incorrectly fixed or weak skills in mentally retarded children, and analyzed the causes of their appearance.

"The problem of emotional-volitional disorders in the mentally retarded was touched upon by E. A. Korobkova (Central Institute of Examination of Work Capacity) in connection with an analysis of the factors of work capacity in the mentally retarded. She noted that the mentally retarded, who are by usual criteria recognized as imbeciles, are capable of a certain steadiness in purposeful activity that consists of the accomplishment of elementary types of labor. Ye. A. Gersimya (Institute of Psychology, Academy of Sciences Georgian SSR), having discovered a peculiarity in the illusions of mentally retarded children (fixation of illusion and a low index of its magnitude), determined that this peculiarity almost disappears in conditions of a strengthening of motivation, which indicates, in his opinion, the great significance of motivation for the cognitive activity of these children.

"The report of V. M. Kogan (Central Institute of Examination of Work Capacity) entitled "Analysis of Proximate and Directed Connections in the Mentally Retarded" had great value in revealing the cognitive activity of mentally retarded children and their personalities as a whole.

"Many of the reports at the section referred to the problem of the interrelation between the practical and theoretical actions of abnormal children. Among these, the reports of B. I. Pinskiy (Institute of Defectology) and I. N. Manzhul (Institute of Psychology Ukrainian SSR) examined psychological questions of the labor activity of students at auxiliary schools.

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"The report of B. I. Pinskiy gave evidence showing that the execution of a labor task by these children is successfully accomplished only by extensive instruction with detailed explanations of the nature of the task and ways and means of accomplishing it. This is related to the inability of mentally retarded children to organize their activity correctly and to solve the frequent problems that arise in the course of its accomplishment I. N. Manzhul discussed the difficulties of applying knowledge of arithmetic in labor activity which were experienced by students in the older classes of the auxiliary school. The cause of these difficulties lies in insufficient generalization of knowledge of arithmetic and in the inability to actualize the corresponding knowledge in time, which can be overcome to a significant degree by including the application of the knowledge in the process of its acquisition.

"An analysis of the thinking activity of abnormal children in the execution of various practical actions was contained in the reports of V. G. Petrova, T. V. Rozanova (Institute of Defectology) and Ye. M. Kudryavtseva (Institute of Psychology, Academy of Pedagogical Sciences). V. G. Petrova reported that practical actions with objects that are accomplished by students of auxiliary schools without assistance provide the many-sided knowledge of these objects. However, for the activation of the thinking activity of the children it is necessary that they realize the goal and results of their actions as well as the relation of the actions to the properties of the objects.

"T. V. Rozanova reported on the peculiarities of the thinking of deaf children which were displayed in the practical solution of arithmetic problems. In these conditions deaf children experience three types of difficulties: in comprehending the text of the problem and, consequently, its object-space presentation; in applying arithmetic knowledge; and in abstracting certain space-time indications and relations.

"Ye. M. Kudryavtseva examined the question of deaf children's understanding of the conditions of the life of plants in connection with the practical application of knowledge.

"The reports of Kiev psychologists A. M. Gol'dberg, N. M. Stadnenko, L. S. Lebedeva (Institute of Psychology, Ukrainian SSR), and E. P. Petrova (Pedagogical Institute imeni A. M. Gor'kiy, which were devoted to the problem of the development of unassisted speech in deaf and mentally retarded children in connection with the development of their thinking, formed a unified group -- in their idea and direct pedagogical reforming orientation. A. M. Gol'dberg illuminated the question of how written speech is developed in deaf children by the writing of compositions.

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In her report L. S. Lebedeva singled out the characteristic difficulties experienced by deaf children in mastering spoken speech, pointed out substantial errors of pedagogists in training children in this type of speech, and outlined ways of more effective training. E. P. Petrova analyzed the peculiarities of the oral speech of deaf children in describing various objects and showed under what conditions such a description is conducive to the development of their oral speech. N. M. Stadnenko spoke on the role of reading classes in the development of independence of thought in mentally retarded students.

"Questions about the structure of abnormalities and the correlations between the initial defect and its consequences were discussed by P. Ye. Levina, who demonstrated convincingly that the consequences of a defect which form the basic characteristic of the abnormal development of the child are not inevitable; they may be avoided by means of preventive pedagogical actions.

"In a number of reports at other sessions psychological questions were broached specially.

"R. M. Boskis disclosed the essence of the problem of the abnormal development of a child with partial lesions of the analyzer in a report of great scientific significance. Special attention was given in the report to questions of the timely diagnosis of this form of infantile abnormality and a new system of training these children.

"A number of reports dealt with the problems of the cognitive activity of abnormal children. N. F. Zasenkov (Kiev Pedagogical Institute imeni A. M. Gor'kiy) characterized the peculiarities of the knowledge of third and fourth grade students of objects of surrounding reality. L. I. Tigranova (Institute of Defectology) revealed the peculiarities of the formation of natural science concepts in hard-of-hearing children in relation to the underdevelopment of their speech. Questions of the cognitive activity of deaf students were examined in a number of reports. N. A. Moreva (Institute of Defectology) presented the problem of age differences in the cognitive activity of children of various pre-school ages. V. Ya. Statsenko (Moscow Kindergarten for Deaf Children) described the formation of generalizations in deaf preschoolers, and A. A. Venger (Institute of Defectology), the development of their casual thinking. The characteristics of the interests of deaf preschoolers were given in the report of N. G. Morozova (Institute of Defectology).

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N. Ye. Tsitsishvili (Institute of Psychology of the Academy of Sciences Georgian SSR) showed that blind students comprehend the conditionality of the designation of quantity more quickly than those who can see. This is explained by the peculiarities of the acquaintance of blind children with the decimal system of enumeration. The peculiarities of the mastery of grammatical material by blind children in elementary school and ways to perfect this mastery were described in the report of N. S. Kostyuchek (Institute of Defectology). Yu. A. Kulagin (Institute of Defectology) analyzed the peculiarities of visual perception of pictures in children with impaired vision. In the report of O. L. Alekseyev (Institute of Defectology) an analysis was made from the position of information theory of how there could be perception of signals in the absence of sight. This analysis makes it possible to consider precisely all the possibilities of instruments for the blind and to find ways to perfect them.

"A large group of reports was related to questions of the psychology of speech.

"A. G. Zikev and K. G. Korovin (Institute of Defectology) examined the nature of the formation of the grammar system of a language in hard-of-hearing students. R. Ye. Levina (Institute of Defectology) spoke on the prevention of disorders in the development of speech, emphasizing that the earlier the signs of difficulties in speech development are detected the easier it is to prevent these disorders. The peculiarities of the formation of the lexicogrammatical side of speech and the peculiarities of the mastering of grammar and handwriting in children with generally underdeveloped speech were examined in the reports of N. A. Nikashina and L. F. Spirova (Institute of Defectology). The report of Z. K. Gabashvili (Institute of Psychology, Academy of Sciences Georgian SSR) was distinguished by a new approach to the psychological study of speech disorders: the substitution of sounds in tongue-tied children was viewed as a manifestation of a fixed arrangement. E. S. Beyn (Institute of Neurology of the Academy of Medical Sciences USSR) characterized types of compensation in the course of the restoration of speech in aphasia and analyzed various methods of restoring speech which have a bearing on these types of compensation.

"Psychological questions were also broached in other reports. A. I. Gozova (Institute of Defectology) reported on the results of research on the fatiguability of the deaf in conditions of loud noise. In the report of V. I. Lubovskiy (Institute of Defectology) the peculiarities of light sensitivity in children with impaired vision were characterized. It was shown that the level of light sensitivity does not depend directly on acuity of vision. N. N. Zislina and L. A. Novikova (Institute of Defectology) disclosed the dependence of the level of electrical activity of the brain on the degree of deterioration of vision in the blind and those with impaired vision.

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"Prof G. Ye. Sukhareva (Institute of Psychiatry, Academy of Medical Sciences USSR) examined the question of the classification of the mentally retarded, proceeding from the time of the affection of the central nervous system to various stages of the intrauterine and postnatal periods. Further division of the forms of mental retardation should proceed on the basis of pathogenetic factors.

"The report of Prof I. A. Mizrukhin (Institute of Pedagogy Ukrainian SSR) characterized the 'withdrawal' syndrome in oligophrenia. N. M. Trofimov and I. A. Molotkova (Institute of Experimental Medicine of the Academy of Medical Sciences USSR, Leningrad) reported on the results of the latest investigations of higher nervous activity in mental retardation.

"The session showed the availability of definite achievements in the development of defectological science and, in particular, of special psychology. The fourth session was distinguished by the especially broad participation of workers of the provinces. In all, about 1,000 people from 11 union republics participated. About 200 people participated in the work of the psychology section alone. Defectologists of Bulgaria, Hungary, the German Democratic Republic, Poland, and Rumania were represented at the session."

Public Health

97. Favorable and Unfavorable Aspects of Public Health Service in the RSFSR

"Some Results and Problems in the Development of Public Health in the Russian Federation," by A. V. Sergeyev, Deputy Minister of Health RSFSR; Moscow, Zdravookhraneniye Rossiyskoy Federatsii, No 1, Jan 63, pp 3-10

The author discusses in this report the rapid pace of the development of public health service in the RSFSR and defects that still remain to be rectified. Thousands of "universities of health" are now operating, and millions of people attend courses in hygiene and are benefiting from physical fitness programs inaugurated by industrial establishments. Medical practitioners are now armed with new vaccines and serums, better equipment, and new methods of diagnosis and treatment.

Infant mortality has dropped 21% from what it was 3 years ago. A total of 1,037,400 hospital beds was available in the RSFSR at the beginning of 1963. This amounts to 8.3 beds per 1,000 people. Many new beds added to the network of hospital establishments are in re-converted buildings, not in new structures built according to specifications; however, a shortage of tuberculosis, psychiatric, and oncological facilities still exists. There were 3,000 hospitals operating at the beginning of 1963 which had a capacity of 15 beds or less. It is obvious that proper medical care in hospital establishments of this size is not possible.

Although 5,000 young physicians are placed with rural medical establishments, there is still a shortage of trained medical personnel in villages and northern rayons of the RSFSR. Lack of proper living accommodations is the cause of the uninterrupted exodus of trained medical personnel from the above-mentioned areas. As late as 1961, 1,015 rural medical districts had no physicians, 4% of rural rayon hospitals had no therapists, 5% had no pediatricians, 11% had no obstetrician-gynecologists, and 8% had no sanitation officers.

98. Public Health Service and Hospitalization in the Russian Federation Discussed

"Improvement in Hospital Service to the Population Is One of the Most Important Tasks of Organs of Public Health," by N. I. Matveyev, Head of the Main Administration of Therapeutic - Prophylactic Aid, Ministry of Health RSFSR; Moscow, Zdravookhraneniye Rossiyskoy Federatsii, No 12, Dec 63, pp 3-8

The author states in this report that during the 5-year period from 1951 through 1955, the average annual increase in hospital capacity was 19,000 beds. The average annual increase in hospital capacity was 33,000 beds during the 5-year period from 1956 to 1960. The Seven-Year Plan, set in motion by the Central Committee of the CPSU and the Council of Ministers on 14 January 1960, resulted in a further increase in bed capacity in hospitals of the RSFSR. Consequently, hospitals of RSFSR added 51,000 beds during 1961. At the beginning of 1962, there were 10.2 hospital beds available for each 1,000 people in urban areas and 8.2 hospital beds available for each 1,000 people in rural areas of the RSFSR. Capital construction is not proceeding at the same rate throughout the entire RSFSR, however. Some autonomous republics and oblasts are not increasing hospital bed capacity fast enough within the areas under their jurisdiction. Despite the expansion of hospital facilities that has taken place in the past few years, there is a shortage of tuberculosis, oncological, and psychiatric beds.

The author supplies figures showing that laboratory equipment in the majority of hospitals with a capacity of 100 beds or more is adequate. Not everywhere, however, is the equipment available used effectively due to lack of trained personnel.

Medical care in rural areas is far from being adequate. It is deemed to be too expensive and not advisable to equip the majority of rural medical district hospitals with X-ray machines and other instruments. This is because 82% of all rural medical district hospitals have a capacity of less than 25 beds. As of 1 January 1962, 1,384 rural medical district hospitals functioned without a physician.

S. V. Kurashov, Minister of Health USSR, spoke to delegates to the All-Union Conference on Hospitalization, held in Moscow in September 1962. He urged that heads of health agencies and establishments and the entire medical community of the Russian Federation strive to eliminate all existing inefficiencies in medical service as rapidly as possible.

99. Increased Automation and Physical Fitness of New Soviet Man Discussed

"Work, Leisure, and Physical Training," by Docent N. I. Ponomarev and P. F. Lesgaft, State Order of Lenin and Order of the Red Banner Institute of Physical Culture; Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 11, Nov 62, pp 17-21

The author of this report states that the Program of the CPSU calls upon Soviet people and Soviet science to renew their effort to promote physical fitness of youth. If the communist system is to be established, far better understanding of the importance of the training of the new Soviet man will be needed. This new Soviet man must possess such traits as intellectual wealth, moral purity, and physical perfection.

Transition to a communist way of life is to be based on the widespread application of automation. An increase in leisure and a more bountiful life will require a systematic rise in the educational level of the workers and the eventual inclusion of adults in any physical fitness program.

100. 65-70 db Proposed As Maximum Frequency of Noise

"Experimental Research Data on the Effect of High-Frequency Noise (Not Exceeding the Maximum Permissible Level) on the Body of Operators," by E. P. Orlovskaya, Kiev Institute of Labor Hygiene and Occupational Diseases; Moscow, Gigiena Truda i Professional'nyye Zabolevaniya, No 9, Sep 62, pp 21-25

"The provisional hygienic norms and specifications on restricting noise in industry", developed by the Leningrad Institute of Labor Protection of the VTsSPS (the All-Union Central Council of Trade Unions) and ratified in 1956 by the State Sanitary Inspection of the USSR, have played a major role in decreasing noise in industry. However, a number of scientists have come to the conclusion that these norms which are based on results of studying the effect of noise only on auditory functions require further study and revision when based on broad physiological research.

A total of 380 tests was conducted on 45 volunteers subjected for about 2 hours to high-frequency noise with maximum permissible levels of 80 db, 70 db, and 65 db.

C-O-N-F-I-D-E-N-T-I-A-L

Results showed that high-frequency noise of the 80 db caliber sustained for about 2 hours impaired muscular function, disrupted essential cortical processes, and induced changes in the autonomic functions.

Noise of lower frequency (70 db) produced insignificant changes in the functions studied, as proved by the absence of marked ill effects on the human organism. The functions that were studied revealed no changes under the effect of 65 db noise maintained for an equal period.

The study of muscular activity is a sufficiently sensitive test and can be used in evaluating the effect of noise on the human body.

The data obtained can be used in revising the hygienic norms for restricting high-frequency noise in industry. The author recommends 65-70 db as the maximum permissible level of noise.

101. Head of Estonian Drug Control Warns About Quack Medicinal Herbs Sold at Public Markets

"Quacks at the Market," by I. Podol'skiy, head of the Central Drug Administration, Estonian Ministry of Health; Tallin, Sovetskaya Estoniya, 1 Feb 73, p 4

The author notes the dangerous sale of quack medicinal preparations at public markets in Estonia. Some of the preparations are legitimate drugs but have incorrect instructions for use. Others go under the name of legitimate drugs but are, in fact, of another, often dangerous, composition.

The author questions why this abuse has not been corrected earlier. He notes that control over the sale of food products at these markets was transferred in 1962 from the public health department to veterinary inspectors. The latter seem to have forgotten to investigate the sale of herb medicines.

The Central Drug Control Administration and the Veterinary Board of the Ministry of Agricultural Products' Production and Preparation have decided to forbid the sale of medicinal plant preparations at all public markets, the author states.

Surgery

102. Soviet Plans for Surgery in 1963

"Some Results of the Work of the Editorial Board of Vestnik Khirurgii imeni I. I. Grekov in 1962 and Work Prospects for 1963", Moscow, Vestnik Khirurgii, imeni I. I. Grekov, Vol 90, No 1, Jan 63, pp 3-6

The article summarizes the work reported in the journal during the period of 1958-1962, showing progress in the number of articles published and in the number of contributors.

Replying to the requests of numerous readers of the Surgical Journal, the monthly periodical Vestnik Khirurgii will publish articles on the following topics:

1. Acute and chronic surgical infections;
2. Antibiotics in surgery;
3. Surgical treatment of thrombo-obliterating diseases;
4. Burn treatment;
5. The early diagnosis and methods of the surgical treatment of malignant diseases of the esophagus, the stomach, and the pancreas;
6. New methods of research and diagnosis of surgical diseases;
7. Surgical errors and dangers; and
8. Summary of non-Soviet literature.

The editorial board will also publish summaries of articles by great Soviet surgeons on surgical discoveries that will be of practical significance to medical science.

103. Hope for Successful Homografting of Extremities in Mammals Predicted

"Homoplastic Transplantation of the Extremities," by O. R. Bogomolova and Ye. D. Savchenko, Scientific-Research Institute of Experimental Surgical Apparatus and Instruments, Ministry of Health USSR; Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 62, pp 61-64

Histological studies of various tissues of dogs subjected to amputation and homografting of their extremities reveal the following biological reactions at the point of contact between the donor and recipient dog tissues: a leukocyte barrier, complete infiltration of tissues with leukocytes, white thrombi in the blood vessels, necrosis, and histolysis. Even 17 days after homografting, there were no signs of regeneration. The "taking" of a homografted kidney from one monozygous twin to another, as reported in non-Soviet literature, shows that homografting may be possible and successful even in man if the proteins in the donor and in the recipient are identical.

104. Hearing Restored by Surgery

"And the World Is Heard Again"; Dushanbe, Kommunist Tadzhikistana, 5 Jan 63, p 3

It is reported in this news item that the surgical method of restoring hearing in otosclerosis patients, developed by scientists in the past few years, has been successfully used in Tadzhik Clinic of Diseases of the Ear, Nose, and Throat. Lev Iosivovich, Kal'shteyn, director of the clinic, has performed 60 such operations.

This delicate operation is performed through the narrow meatus acusticus externus with the aid of a special kind of microscope. Using miniature instruments, a surgeon is able to restore the original mobility of the tympanic bones.

105. New Method in Dental Surgery Discussed

"A Tooth Lives Again"; Riga, Sovetskaya Latvija, 5 Jan 63, p 4

"Replantation. This is what a new operation for rerooting of teeth is called.

C-O-N-F-I-D-E-N-T-I-A-L

"Scientists attempted for a long time to extract teeth temporarily in order to treat them outside the oral cavity. After numerous experiments, stomatologists and surgeons succeeded.

"According to Edmund Gusev, an associate of the maxillofacial hospital, "A patient's tooth is extracted from the alveolus with extreme care so as to damage retaining ligaments as little as possible. The tooth is kept for 10 minutes in a small jar containing physiological solution and antibiotics. The alveolus is cleaned and then covered with a sterile pad. After that, the surgeon takes the tooth from the jar and begins to fill it, having previously cleaned the tooth canal with a chemical substance. The filled tooth is rinsed in antibiotics a second time and is again placed in the alveolus from which it was extracted. It is fastened by a fine wire, ligature, or a layer of plastic for 2 weeks.

"The tooth is fed through minute vessels of osseous tissue. Results of experiments showed that complete intussusception takes place approximately within one month. We resort to replantation, of course, in cases of complicated diseases only.

"The operation for rerooting an extracted tooth has been mastered by stomatologists and surgeons of many cities of the country: it is being performed in Leningrad, Moscow, Kiev, Stavropol, and Tbilisi."

Therapy

106. Antidiphtheria Action of Several Organophosphorus Compounds

"The Effectiveness of New Organophosphorus Agents in the Treatment of Diphtheria," by N. P. Kudryavtseva, I. V. Zaikonnikova, and L. S. Afonskaya, Chair of Children's Infections (head, Prof N. P. Kudryavtseva) and Chair of Pharmacology (head, Docent T. V. Raspopova), Kazan Medical Institute; Kazan, Kazanskiy Meditsinskiy Zhurnal, No 6, Nov/Dec 62, pp 41-44

Four organophosphorus preparations synthesized at the Laboratory of Organic Chemistry, Kazan Chemicotechnological Institute, under the direction of Prof A. I. Razumov, were tested against diphtheria in two series of experiments on 71 guinea pigs. The preparations were: 162,

C-O-N-F-I-D-E-N-T-I-A-L

the phenyl ester of diethylphosphinic acid; 183, the paranitrophenylic ester of di-n-propylphosphinic acid; 403, the cyclohexyl ester of dibutylphosphinic acid; and 803, the isopropyl 1,2,2,2-tetrachloroethyl ester of ethylphosphinic acid. Three of these, 183, 403, and 803, were found to have an antibacterial and frequently an antitoxic effect in diphtheria. The preparations had more pronounced specific action when they were administered in conjunction with antidiphtheria serum. When the combined method of therapy was used, specific symptoms (intoxication, edema, and perspiration) disappeared earlier, complications were observed less frequently, and clinical convalescence occurred earlier. The antitoxin titer in the blood and the phagocytic activity of the leukocytes were twice as high as in a control group.

Preparations 403 and 803 are recommended for clinical testing in diphtheria treatment and control of bacillus carrying.

107. Olitoriside -- a Cardiac Therapeutic Agent

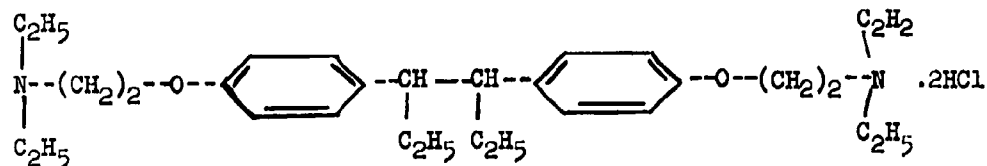
"Clinical Investigation of Olitoriside," by L. D. Zhdanov; Moscow, Lekarstvennyye Sredstva iz Rasteniy (Medicinal Substances From Plants), edited by A. D. Turova, Medgiz, 1962, pp 22-27

Olitoriside, a cardiac glycoside isolated from *Corchorus olitorius* (jute), was intravenously administered in the form of a 1:2,500 solution in a 40 percent solution of glucose to 29 patients afflicted with different forms of cardiac disorders. The patients were 30-60 years of age. Fourteen of them suffered from rheumatic defects of the mitral valve, one from defects of the aorta valves of syphilitic etiology, 2 from hypertension and cardiosclerosis, 5 from atherosclerotic cardiosclerosis, and 7 from cor pulmonale of different etiologies. Observations following the administration of the glycoside established: (2) olitoriside is a highly effective preparation in the therapy of patients suffering from insufficient circulation; (b) best therapeutic results were noted when olitoriside was applied in cases with second degree of insufficient circulation; (c) it was slightly effective in cases afflicted with the third degree of the disease; (d) the duration of the treatment depends on the individual and the severity of the disease; no side reactions were noted; and (e) it acts also as a diuretic.

108. Etaphen -- A Vasodilating and Ganglioblocking Preparation

"Etaphen in the Therapy of Coronary Insufficiency," by A. P. Pekshev, Clinic of Propedeutics of Internal Diseases, Military-Medical Order of Lenin Academy imeni S. M. Kirov; Moscow, Kardiologiya, Vol 2, No 6, Nov/Dec 62, pp 69-73

Etaphen, a substance pharmacologically analogous to voralgil, was synthesized at the All-Union Scientific-Research Chemicopharmaceutical Institute imeni S. Ordzhonikidze. Chemically it is the dihydrochloride of 4,4'-diethylaminoethoxy-alpha-beta-diethylphenylethane. Its formula is as follows:



Etaphen is a white crystalline powder, readily soluble in water. Its melting point is 226-227 degrees. Applied experimentally to animals, it was found to possess vasodilating and moderate ganglioblocking properties. Clinical tests established that etaphen is highly effective in the therapy of angina pectoris: considerable improvement was noted in 34 of 40 patients treated with the drug. Best results were obtained when etaphen was intravenously injected in the form of 0.2 percent solution, in a dose of 5 milliliters daily. No side reactions were noted. Etaphen reduces the resilient vascular resistance and contributes to the diminution of the minute circulation volume. It relaxes the myocardium in patients suffering from coronary insufficiency and normalizes the supply of the required oxygen to the myocardium.

109. Lithium Iodide in the Therapy of Psychoses

"Experience With the Application of Lithium Iodide in the Therapy of Some Psychotic Conditions," by K. V. Mosketi, G. M. Bel'skaya, and I. D. Muratova, Chair of Psychiatry, Arkhangel'sk Medical Institute; Moscow, Zhurnal Nevropatologii i Psikhiiatrii imeni S. S. Korsakov, Vol 63, No 1, Jan 63, pp 92-95

Lithium iodide in the form of a 10 percent solution was administered intravenously to 127 patients, male and female, suffering from dysphoria, disturbed consciousness, hallucination-paranoid syndromes, and states of

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excitation on a depression background. Best results were obtained when the drug was used in the therapy of hallucination-paranoid and depression-paranoid syndromes, in males in particular. The effect of the drug when administered to females was quite different: it was ineffective in most cases. The mechanism of the action of the drug is not as yet clear. It is thought, however, that its action is due to its effect on carbohydrate and protein metabolisms.

110. Antitoxic Serum for Thermal Burn Treatment

"The Use of Antitoxic Serum for the Treatment of Thermal Injuries," by N. T. Tsishnatti, Chair of Pathological Physiology, Military Medical Order of Lenin Academy imeni S. M. Kirov; Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 54, No 10, Oct 62, pp 58-59

Blood serum obtained from three healthy rabbits 3 weeks after triple overheating (with 5-day intervals in a heat chamber) accompanied by a rise in rectal temperature to 41.5-42.7°C was used (at 1.5-2.5 ml per kilogram body weight) to treat nine rabbits with severe thermal affections. Two of the treated rabbits recovered. The life span of four more was prolonged by 2 1/2-18 hours, while the remaining three rabbits died at the same time as control animals (kept at room temperature and treated with 2-2.5 ml physiological salt solution per kilogram body weight).

The data obtained showed that serum obtained from animals which have been subjected to overheating has specific therapeutic properties.

111. Brucellosis Therapy

"Remote Results of Combined Antibiotic Therapy of Brucellosis," by K. D. Dzhalilov, V sb. Vopr. Biol. i Krayev. Med. (Problems of Biological and Regional Medicine), No 2, Tashkent, Academy of Sciences Uzbekistan SSR, 1961, pp 299-306 (from Referativnyy Zhurnal -- Biologiya, No 24, Dec 62, Abstract 24 T292

"Of 65 patients suffering from brucellosis (40 of them were treated with combinations of ofleomycin and streptomycin; 16 -- with terramycin and streptomycin; 7 with the antibiotics in combination with the vaccine; 2 with the antibiotics and adrenocorticotrophic hormone), 58 recovered clinically and bacteriologically,

C-O-N-F-I-D-E-N-T-I-A-L

and 7 improved clinically. Subsequent observations (one month to 3 years) established that relapses occurred in 16 (13.8 percent) of the patients. Among them were the patients (seven) who did not recover bacteriologically. The combined therapy of brucellosis with antibiotics provided fewer relapses than did other methods of combined therapy of the disease."

112. Therapeutic Application of Ultrasound

"Application of Ultrasound in the Therapy of Certain Neuralgic Syndromes," by O. Gruner and B. Skalickiy, Fysiat. Vestn. (Czechoslovakia), 1962, 4, pp 215-220 (from Meditinskiy Referativnyy Zhurnal, Section 1, No 1, Jan 63, Abstract No 436, by M. A. Samsonov)

"The results of the application of ultrasound to 45 patients with neuralgic syndromes are reported. Good results were obtained in cases with noncongenital syndromes, as well as pain syndromes of postinfectious etiology. Ultrasound was effective also in cases in which other methods of therapy of the neuralgic syndromes were applied in cases with a macrokinetic type of cutaneous capillary reactivity of the patient to ultrasound. Doses of small intensity and brief duration of action were applied in cases with a macrokinetic type of cutaneous capillary reactivity; doses of greater intensity and longer duration of action were used in cases with a microkinetic type of cutaneous capillary activity."

113. Ultrasound Therapy

"Apparatus for Therapy by Ultrasound," by S. Riskin, Chief of the Physiotherapy Department; Ashkhabad, Turkmeneskaya Iskra, 10 Jan 63, p 4

An ultrasound apparatus which is effective in the therapy of bronchial asthma, inflammations of the sciatic nerve, other neuralgias, neuritis of the joints, gastritis, gastric ulcers, suppurative inflammatory processes, and some gynecological diseases has been received at the Physiotherapy Department of the Turkmenian Republican Hospital. The apparatus has not been previously been used in the Republic.

114. Treatment of Helminthiasis With Ultrasound

"The Use of Ultrasound in Helminthological Research," by E. R. Geller, Uchennyye Zapiski Kurskogo Gosudarstvennogo Pedagogicheskogo Instituta (Scientific Reports of the Kursk State Pedagogic Institute), Vol 12, 1961, pp 62-69 (from Referativnyy Zhurnal -- Avtomatika i Radioelektronika, No 11, Nov 62, 11-5-18 zh)

In a brief survey of the possibilities of using ultrasonics in medicine and biology, the monograph of N. P. Krykov and V. I. Rokityanskiy, Ul'trazvuk i yego Lechebnoye Primeneniye (Ultrasound and Its Medical Application), published by Medgiz in 1958, is recommended; an estimate is made of the future uses of ultrasound in theoretical helminthology, particularly in medical and veterinary practice. It is assumed that, by using a contact-type ultrasonic radiator, a good effect can be produced in the treatment of tissue helminthiasis. An intensity of one-two watts per square centimeter and a frequency of 1.2 megacycles per second are recommended for all cases. The ova of many helminths are destroyed by a 10-second exposure. The larvae of certain helminths are not susceptible to ultrasonic effects because of the protective influence of the membrane, particularly the layer of air inside it.

115. Therapy of Tuberculosis

"Steroid Hormones in the Therapy of Tuberculosis and Certain Other Nonspecific Methods of Treatment," Sbornik Statey pod Redaktsiyey B. Ya. Stukalovoy i Z. V. Matyushinoy (Collection of Articles Edited by V. Ya. Stukalova and Z. V. Matyushina), Moscow, 1961, 212 p (from Meditsinskiy Referativnyy Zhurnal, Section 2, No 1, Jan 63, Abstract No 154)

[No abstract given.]

116. Bee Venom in the Therapy of a Number of Diseases

"The Bee Heals," by Physician V. Pertsulenko; Moscow, Meditsinskaya Gazeta, 20 Nov 62, p 3

Bee venom is being widely utilized in the Soviet Union in the therapy of a number of diseases. As yet, however, only two preparations -- KF and melissin -- have been prepared from bee venom. The result is that the method of the direct application of the bee sting to the patient is being used. After it is established that the patient tolerates bee venom well, he is exposed to the bee stings. The method is now being widely applied in the therapy of diseases of the joints, the peripheral nervous system, bronchial asthma, endarteritis obliterans, and infectious nonspecific arthritides. No side reactions as a result of the bee stings were noted. Contraindications to the application of bee venom are neoplasms, tuberculosis, blood disorders, diabetes, hepatic and renal diseases, and cardiovascular affections with manifestations of decompensation. Other products of the vital activities of the bee, such as bee's milk and propolis, are also medically effective.

117. X-Ray Therapy of Plantar Warts

"Indirect Radiation Therapy of Plantar Warts," by A. L. Geller and Z. S. Kritsman, Odessa Oblast of Dermo-Venerological Dispensary; Moscow, Vestnik Dermatologii i Venerologii, No 12, Dec 12, pp 66-68

Indirect X-ray therapy was effective in the majority of patients suffering from plantar warts. In cases where the warts were located in the heel area, the authors irradiated the popliteal region; in all other cases, the area of Scarpa's triangle was irradiated.

This method of treatment does not involve a general reaction of the organism; there is a temporary reaction of increased pain and some reddening in the area of injury.

The simplicity of this method makes it possible to use it extensively in treating patients with plantar warts.

118. Medicinal Preparations From Vegetables

"How, Where, and What"; Moscow, Komsonol'skaya Pravda,
7 Jul 62, p 4

"It is well known that vegetable products are assimilated by the organism better than many other products. Is it not possible then that vegetables containing required medicinal substances could be helpful in the therapy of some diseases?

"L. Tokar', a Kiev biologist, has been studying this problem for a number of years and has already cultivated a variety of medicinal vegetables in one of the laboratories of the Academy of Sciences Ukrainian SSR."

119. Candy-Based Kelp Pill Produced in Yerevan

"Sugar Plum From Kelp," by A. Agababyan; Yerevan,
Kommunist, 9 Jan 63, p 4

This short article announces that the Expert Council of the Armenian Branch of the All-Union Permanent Pavilion of Better Forms of Goods for National Needs has considered and sanctioned the mass output of the sugar plum "Green Pec," mixed with kelp, by a Yerevan factory.

The special feature of this sugar plum is that it contains iodine, which is a prophylactic substance against sclerosis and thyroid disorders.

Toxicology

120. Effect of Tabun Intoxication on the Organism

"Electrocardiographic Modifications in Cases of Acute Intoxication by Tabun," by St. Petrov and L. Krustanov, Voyenn-Med. Delo (Bulgaria), 17, No 1, 1962, pp 34-40 (from Referativnyy Zhurnal -- Biologiya, No 24, Dec 62, Abstract No 24 T431, by Z. Voronina)

"The electrocardiographic modifications which occurred in 47 rabbits as a result of tabun intoxication were studied. Tabun was administered to the animals subcutaneously in doses of 0.3 to 0.6 milligram per kilogram body weight. Eleven of the animals died directly following the administration of tabun; 21 -- within one to 20 days following the intoxication. Electrocardiograms were taken every 1-2 minutes

during the first 15 minutes; every 5 to 10 minutes during the next 4 hours, and then once during the subsequent days. No electrocardiographic modifications were noted in five of the animals. A sharp decrease in serum cholinesterase was noted in the rabbits which were only slightly intoxicated; this decrease was accompanied by modifications of the R and T waves on the electrocardiogram: a decrease in the amplitude of the waves, a leveling, and in some cases an inversion of the T wave. Progressive bradycardia -- up to 30-40 pulsations per minute 200 pulsations per minute is normal -- developed in nine of the animals afflicted with acute forms of intoxication; the T wave changed from a positive wave into a deep negative coronary type wave; the R wave disappeared. In some of the animals, the development of a ventricular extrasystole (of an allorhythmic type) the omission of the interval ST combined with an inversion of T wave, and changes in the QRS were noted in addition. The mentioned modifications are of a functional character; their development is apparently due to the acetylcholinemia which arises as a result of tabun intoxication.

121. Pharmacology of Certain Organophosphorus Compounds

"On the Relationship Between the Chemical Structure and Pharmacological Action of Certain Mixed Esters of Ethyl Phosphinic Acid," by G. F. Rzhetskaya, Khimiya i Primeneniye Fosfoorgan. Soyedineniy (Chemistry and Application of Organophosphorus Compounds), Moscow, Academy of Sciences USSR, 1962, pp 453-457 (from Referativnyy Zhurnal -- Biologiya, No 24, Dec 62, Abstract No 24 T-482, by N. Frumentov)

"Ten organophosphorus compounds with the general formula of $C_2H_5 - P(O)(R_1)R_2$ in which R_1, R_2 , and the LD_{50} (in milligrams per kilogram body weight administered intravenously for mice are, respectively: OCH_3 , $OC(CH_3)-CH_2$, 205; OC_2H_5 , $OC(CH_3)-CH_2$, 190; OC_3H_7 , $OC(CH_3)-CH_2$, 160; $O-is-C_3H_7$, $OC(CH_3)-CH_2$, 80; $O-n-C_4H_9$, $OC(CH_3)-CH_2$, 75; $O-is-C_4H_9$, $OC(CH_3)-CH_2$, 85; $OCH_2CH_2CH_2$, $OC(CH_3)-CH_2$, 57.7; $OCH_2CH_2CH_2$, $OCH-CCl_2$, 0.55 (I); OC_4H_9 -secondary, $OCHCl-CCl_3$, 7.4; they were compared in regard to their anticholinesterase activity, toxicity for mice, and other indexes. Result of a biochemical method of investigating the minimal concentrations of these substances which depressed the choline sterase of the blood serum and brain of a rabbit were found to be, respectively, as follows: $2 \cdot 10^{-4}$ $5 \cdot 10^{-5}$; $1 \cdot 10^{-4}$ $4 \cdot 10^{-5}$; $1 \cdot 10^{-4}$ $4 \cdot 10^{-5}$; $2 \cdot 10^{-4}$ $5 \cdot 10^{-5}$; $3,3 \cdot 10^{-5}$; $1 \cdot 10^{-5}$; $5 \cdot 10^{-5}$; $2 \cdot 10^{-5}$; $5 \cdot 10^{-5}$; $4 \cdot 10^{-5}$; $2 \cdot 10^{-7}$; $5 \cdot 10^{-8}$; $1 \cdot 10^{-7}$; $2 \cdot 10^{-8}$; $2 \cdot 10^{-7}$; $2 \cdot 10^{-7}$.

All of the substances under investigation, in addition, exhibited a miotic action, diminished pulmonary ventilation, and reduced blood pressure in rabbits. The toxicity of substances with the unchanged radical $[\text{OC}(\text{CH}_3)-\text{CH}_2]$ increased with the increase in the number of hydrocarbon atoms in the second ester radical. The transformation of the Π -alkoxy into an isoalkoxy radical is accompanied by a decrease in the anticholinesterase activity of the substances. Greatest anticholinesterase activity was exhibited by compounds with dichlorovinyl, tetrachloroethyl and dichloro secondary propyl radicals in the respective order mentioned. As regards the effect of these substances on pulmonary ventilation and blood pressure of rabbits, these substances may be grouped in the same order as those grouped in relation to their anticholinesterase activity. Preparations containing one butyl(II) or one allyl (I) and a second dichlorovinyl radical are characterized by greater anticholinesterase activity, toxicity, miotic action and also by their effect on respiration and blood pressure of rabbits."

122. Effect of Yperite Intoxication on the Organism

"Experimental Study of Aqueous-Salt Metabolism in Intoxication by Yperite," by G. Shaytanov, Voyenn.-Med. Godishnik (Bulgaria), 1961, I, pp 19-25 (from Referativnyy Zhurnal -- Biologiya, No 24, Dec 62, Abstract No 24 T491, by I. Zhelezkov)

"Yperite in lethal doses (20 milligrams per kilogram body weight) was applied to the skin of rats at intervals of one, 5, 24, and 72 hours. After the animals died the following organs were examined: the abdominal muscles, heart, renal organs, lungs, liver, brain, skin, suprarenal glands, ovaries, stomach, spleen, duodenal mucosa, and blood. The chloride and dry residue content were also determined. Considerable deviations in water-salt metabolism from normal were found; these began on the first day and reached their maximum on the third day, when a substantial migration of chlorides from the radioresisting to the radiosensitive organs was noted. Greater deviations in water-salt metabolism from normal were noted in the radiosensitive organs than in the radioresistant organs. These deviations were characterized by an increase in the content of chlorides, ash, and dry residue."

123. Toxic Effects of 2,4-D and Triorthocresyl Phosphate on the Organism

"Effect of 2,4-Dichlorophenoxyacetic Acid and Triorthocresyl Phosphate on the Higher Functions of the Central Nervous System (Bioelectrical Activity and Conditioned Reflex Reaction)," by Illes Desi and Dr Iozhef Sos, Chair of Pathophysiology of the Medical Institute (Budapest); Moscow Gigiyena i Sanitariya, Vol 27, No 12, Dec 62, pp 38-46

Albino rats, cats, and dogs were used in the experiments which were conducted in order to determine the effect of 2,4-dichlorophenoxyacetic acid (2,4-D) and triorthocresyl phosphate on the higher nervous functions. 2,4-D is used as a herbicide; triorthocresyl phosphate (TOCPH) is used as a component of aviation fuel and in the production of plastics. It is highly toxic. Acute and chronic experiments were conducted. It was established that 2,4-D in acute experiments temporarily depressed the electric activity of the brain; TOCPH was ineffective in this respect.

In chronic experiments, both preparations in relatively small doses (200 milligrams per kilogram body weight of 2,4-D and 100-200 milligrams per kilogram body weight of TOCPH) gradually depressed the higher functions of the central nervous system. Severe disturbance of the electric activity of the brain at the cortical and subcortical levels took place. Higher nervous functions were already severely disturbed when the first symptoms of intoxication became apparent. The possibility of the development of such intoxications must be taken into consideration with regard to people engaged in handling these substances, and periodical special neurological examinations of these workers are recommended.

124. Effect of Some Parasympatholytics on the Smooth Muscles

"Effect of Some Pharmacological Substances on the Response Reaction of the Smooth Muscle to a Direct Electric Stimulus," by A. I. Shevchenko, Chair of Pharmacology, First Leningrad Medical Institute imeni I. P. Pavlov; Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 54, No 12, Dec 62, pp 57-60

Investigations were conducted to determine the effect of adrenalin hydrochloride, atropine sulfate, spasmolytin, promedol, papaverine hydrochloride, and 2,4-dinitrophenol on the response reaction of a section of taenia coli of a guinea pig to direct electric stimuli.

An electrode suspended in Tyrode's solution which was used to wash the tissue provided the electric stimulus. The contractions of the tissue were found to be proportional to the amplitude of the stimulus and the duration of each impulse. The investigations established that adrenaline hydrochloride and atropine sulfate had no effect on the response contractions of the tissue to the electric stimulus; spasmolytin, promedol, papaverine hydrochloride, and 2,4-dinitrophenol depressed the reaction of the smooth muscle to the stimulus by 26, 42, 63, and 86 percent, respectively.

125. Beryllium Inhibits Hepatic Respiration

"The Effect of Beryllium on Tissue Respiration," by Liu Yut'ang, Institute of Labor Hygiene and Occupational Diseases, Academy of Medical Sciences USSR; Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, Sep 62, pp 41-44

Beryllium ions in 10^{-2} M/l concentration retard the respiration of hepatic tissue, but have no effect on the oxydation of succinic or of beta-oxybutyric acid.

Beryllium in 10^{-2} M/l concentration sharply inhibits the oxydation of alpha-ketoglutaric acid.

The author concludes that this research on the effect of beryllium on processes of tissue oxydation confirms an earlier hypothesis that beryllium inhibits the effect of those enzyme systems which are activated by magnesium or by other divalent cations.

126. Method Developed for Assaying Mercury Vapors in Air

"A Catalytic Method of Determining Mercury in the Air," by Ye. E. Gershkovich, Institute of Labor Hygiene and Occupational Diseases; Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 9, Sep 62, pp 57-58

A sensitive method for mercury determination based on the catalysis by mercury ions of the reaction between potassium ferricyanide and nitrosobenzene has been developed. The violet color which is formed is proportional to the amount of mercury. The sensitivity of the method is 0.02 microgram per colorimetric determination.

A method for the absorption of the mercury vapors from the air has been developed.

127. Czechoslovak Study of Effects of Organophosphorus Compounds

"Reactions Evoked by the Effect of Organophosphates on Some Interoceptive Systems," by Z. Fink and M. Sajda of the "Jan Ev. Purkyne" Military Medical Research and Postgraduate Medical Training Institute (Vojensky lekarsky vyakumny a doskolovaci ustav J. Ev. Purkyne) in Hradec Kralove; Prague, Casopis Lekaru Ceskych, Vol 102, No 7, 15 Feb 63, pp 179-182

In the first stage, organophosphates evoke from the receptive systems of the organism irritations and symptoms of stimulation of the blood pressure and respiration, as do acetylcholine, nicotine, and other substances. In the second stage, particularly when organophosphates are repeatedly applied into a vascularly isolated ileocaecal area, administration of acetylcholine results in conspicuous circulatory disturbances with a collapse of blood pressure. In several instances, this resulted in death of the experimental animal. The occurrence of these reactions may be explained by a reflex mechanism. They may be considered to be nonspecific reactions which occur generally in the pathogenesis of various shock conditions brought about by different stimuli. The results point to a very important role and participation of the peripheral nervous system in organophosphate intoxication and to the importance of acetylcholine in the development of shock reaction. (FOR OFFICIAL USE ONLY)
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IV. SCIENCE NEWS ITEMS

Aid to Underdeveloped Countries

128. Baku Factory Exports Medicines to Cuba

"Medicines for Cuba"; Baku, Bakinskiy Rabochiy, 8 Jan 63,
p 3

The Baku medical preparations factory has sent a shipment of drugs to Cuba, including the drug "Thyroidin." They plan also to ship naphthalene salve and oil to Cuba this year. Other countries receiving shipments from this factory are Mongolia, Bulgaria, Rumania, and Vietnam.

129. USSR Gives Smallpox Vaccine to Congo

"A Gift to the Congolese People"; Pravda, 23 Jan 63,
p 3

"Soviet Ambassador to the Congo Republic, S. S. Nemchina, gave 500,000 doses of smallpox vaccine to the Ministry of Public Health of the Congo Republic."

130. Tbilisi Pharmaceutical Plant Sends Aloe Extract to Cyprus

"To the Island of Cyprus"; Moscow, Vechernaya Moskva,
24 Dec 62, p 2

The Tbilisi Chemical-Pharmaceutical Plant recently sent to Cyprus a batch of aloe extract, a preparation used for several chronic illnesses.

131. Polio Vaccine Sent to India

"Soviet Vaccine for India"; Riga, Sovetskaya Latvija,
21 Feb 63, p 1

"I. A. Benediktov, Ambassador of the USSR to India, transmitted a gift of 100,000 doses of antipolio vaccine from the executive committee of the Union of Societies of the Red Cross and Red Crescent USSR to Mr Amrit Kaur, chairman of the Indian Red Cross Society."

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132. Soviet Polio Vaccine To Be Used in Japan

"Soviet Vaccine for Japanese Children"; Moscow, Izvestiya,
22 Jan 63, p 4

"The Ministry of Public Health and Social Security of Japan has decided to inoculate 8.5 million Japanese children between the ages of 3 months and 13 years with Soviet polio vaccine in May of this year. This decision was taken in connection with the fact that the Soviet vaccine has received a high evaluation as an effective agent against infantile paralysis.

"Noting the poor quality of the Canadian vaccine, the ministry announced its refusal to import it to Japan. According to the data of the ministry, cases of contraction of infantile paralysis after use of the Canadian vaccine have been recorded in Japan, as well as in Canada and the US."

133. Soviet Red Cross and Red Crescent Sends Aid to Flood-Stricken Macedonia

"Help From the Soviet Red Cross to the Population of Macedonia";
Moscow, Trud, 2 Dec 62, p 4

"The executive committee of the Soviet Red Cross and Red Crescent decided to send aid to the flood-stricken areas of Macedonia, including the city of Skopje. The Yugoslav Red Crescent has ordered food to be sent."

134. Morocco Receives Soviet Aid

"Aid for the Population of Morocco, Suffering From Flood";
Vilnyus, Sovetskaya Litva, 24 Jan 63, p 4

The Soviet Red Cross and Red Crescent are sending blankets and medicines worth 9,000 rubles to flood-stricken Morocco.

135. Soviet Gift to Nepal

"The Hospital in Nepal Is Open!"; Moscow, Meditsinskaya Gazeta, 8 Jan 63, p 1

A hospital built in Nepal as a gift of the Soviet government to the government of Nepal opened on 6 January in Katmandu. Modern medical equipment supplied from the Soviet Union will make it possible to successfully arrange diagnosis and treatment of diseases.

136. USSR To Send Antipoliomyelitis Vaccine To Syrian Arab Republic

"As a Gift to Syria;" Leningrad, Leningradskaya Pravda,
25 Nov 62, p 3

The USSR will send 100,000 doses of antipoliomyelitis vaccine to the Syrian Arab Republic in the next few days. The announcement was made by the Ambassador to the Syrian Arab Republic, A. A. Barkovskiy, to the Syrian foreign affairs minister, Asada Makhassen.

Conferences

137. Conference Calls for Stepped-Up Efforts Against Foot-and-Mouth Disease

"After Izvestiya Spoke," by I. Savel'yev, Vice-Minister of Agriculture USSR; Moscow, Izvestiya, 9 Jan 63, p 3

"In July and September of last year, two articles were published ('Glory Into Credit' and 'Reprimand With a Curtsy') which noted serious defects in the organization and conducting of the prophylactic fight against foot-and-mouth disease.

"The Ministry of Agriculture USSR conducted an all-union conference for the heads of the veterinary administrations of the union republics, leaders of the scientific-research veterinary institutions, and leading scientists and specialists.

"The participants of the conference arrived at the unanimous conclusion that in spite of the large amount of work that has been done by specialists of the state veterinary system in close contact with livestock breeders and scientific-research veterinary institutions, there are still serious defects in the organization of the quarantine-prevention fight against foot-and-mouth disease.

"The participants demanded that scientific-research veterinary institutions intensify their work on the further perfection of lapinized (rabbit) vaccine and also expedite the industrial tests and introduction of new, more effective antfoot-and-mouth disease vaccines and sera.

"Taking into account the special national-economic importance of the complete eradication of this dangerous epizootic disease, the participants concluded that under the Ministry of Agriculture USSR, it would be expedient to form a permanent coordinating council on the control of foot-and-mouth disease, to create a special all-union scientific-research institute, and also to expand the experimental bases of the existing veterinary scientific-research institutions in the republics and oblasts.

"The participants recommended that the Veterinary Administration of the Ministry of Agriculture USSR review the acting instructions for the control of foot-and-mouth disease, supervise correct quarantine-prophylactic measures, type the epizootic strains of the virus in time, not allow the unsystematic vaccination and revaccination of animals, use means of specific prophylaxis only after consideration of the organization-agricultural characteristics of the kolkhozes and sovkhozes and the concrete epizootic situation in each republic, kray, oblast, and rayon, and also conduct general epizootic examinations for the purpose of exposing all possible sources of infection on farms and at establishments of the meat-dairy industry and determine ways of eradicating them.

"The Board of the Ministry of Agriculture USSR instructed a special commission to work out concrete measures for the complete eradication of foot-and-mouth disease from the territory of the Soviet Union in a short period of time

138. Recent Soviet Conferences in Medicine and Biology

The Conferences listed below were reported or announced in recent issues of Soviet periodicals. Included in the listing are the date and location of the conference, sponsoring organizations, and source. Unless otherwise indicated, it is assumed that there was no non-Soviet participation in the conferences.

a. First All-Union Congress of Pathophysiologists; September-October 1964, Tbilisi (announcement); sponsored by the All-Union Society of Pathophysiologists. (Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 5, Sep/Oct 62, p 101)

b. First Congress of Phthisiatrists of Uzbekistan; December 1962. (Pravda Vostoka, 11 Dec 62, p 5)

c. Fifth Conference of Central Asiatic Republics and Kazakhstan on Problems of the Natural Foci of Diseases and Parasitology; 24-28 September 1962, Frunze; sponsored by the Institute of Zoology of the Academy of Sciences Kirgizskoy SSR and the Society of Parasitologists of Kazakhstan. (Vestnik Akademii Nauk SSSR, No 2, Feb 63, p 71)

d. Symposium on Medical Genetics; 29-31 October 1962, Leningrad; sponsored by the Institute of Experimental Medicine of the Academy of Medical Sciences USSR; French participation. (Priroda, No 1, Jan 63, p 114)

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e. Conference on the Fauna and Flora of the Region of the Asiatic Seas, Based on Results of the Study of the Natural Resources of the North-western Part of the Pacific Ocean; 9-13 September 1962, Leningrad; sponsored by the commissions of the USSR, CPR, KPDR, DRV, and MPR on Fishery Research of the Western Part of the Pacific Ocean and the Zoology Institute of the Academy of Sciences USSR; participation by the above named countries; will be held annually. (Vestnik Akademii Nauk SSSR, No 2, Feb 63, p 105)

f. First Scientific Conference of Zoologists of Pedagogical Institutes of the RSFSR; 21-25 August 1962, Moscow; sponsored by the Moscow State Pedagogical Institute imeni V. I. Lenin; next conference in Krasnodarsk. (Zoologicheskii Zhurnal, Vol 42, No 1, 1963, p 155)

g. Conference on the Individual Development of Agricultural Livestock; 20-25 September 1962; sponsored by the Institute of Animal Morphology imeni A. N. Severtsov of the Academy of Sciences USSR, the department of Animal Husbandry of the All-Union Academy of Agricultural Sciences imeni Lenin, the All-Union Scientific-Research Institute of Animal Husbandry, and the All-Union Scientific Society of Anatomists, Histologists, and Embryologists. (Vestnik Akademii Nauk SSSR, No 12, Dec 62, p 108)

139. All-Union Congress of Pathophysiologists in 1964

Announcement signed by Prof I. R. Petrov, President of the Board of the All-Union Society of Pathophysiologists; Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 5, Sep/Oct 62, p 101

The First All-Union Congress of Pathophysiologists will take place in Tbilisi, in September-October 1964. According to a resolution of the board, the program theme of the congress will be "Pathological Physiology of the Cardiovascular System." It is proposed that six special problems be delineated within the framework of the given theme.

1. The pathophysiology of cardiac insufficiency (change in the function, structure, and metabolism of myocardium under the effect of defects of the heart valves, myocardites, and infectious diseases, intoxications, penetrating radiations, etc.).

2. The Pathophysiology of coronary circulation (coronary insufficiency, myocardial infarct, coronary vessel neuroses).

3. Disturbance of hemodynamics in different pathological conditions (diseases of the cardiovascular system, internal organs, infectious diseases, endocrine disturbances, intoxications, penetrating radiations, etc.).

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4. Pathophysiological regulation of vascular tonus (hypotension and hypertension, shock and collapse, disturbance of regional blood circulation, etc.).

5. The pathophysiology of the vessel walls (disturbances in metabolism, permeability, physical properties, changes in the vessel wall in metabolic diseases, and atherosclerosis).

6. Artificial regulation of the function of the heart and circulation, (controllable cessation of the heart, hypothermy, electrostimulation of the heart, etc.).

In addition, two symposiums will be organized at the congress.

The board of the All-Union Society of Pathophysiologists requests that preliminary declarations to present reports be submitted before 1 December 1962.

140. Second Conference of Zoologists in 1964

"First Scientific Conference of Zoologists of Pedagogical Institutes of the RSFSR," by A. V. Mikheyev; Moscow, Zoologicheskii Zhurnal, Vol 42, No 1, 1963, pp 155-157

The First Scientific Conference of Zoologists of Pedagogical Institutes of the RSFSR was held in Moscow from 21 to 25 August 1962. The conference was sponsored by the chair of zoology of the Moscow State Pedagogical Institute imeni V. I. Lenin. Chairman of the organization committee was Prof S. P. Naumov (Moscow). It was agreed that such conferences should be called every 2 years and that the next conference would be held in 1964 at the Krasnodarsk Pedagogical Institute.

14¹. All-Union Conference of Medical Officers of Industrial Sanitary Service

"The Physician and Industry: The Industrial Sanitary Service Under New Conditions," by V. Kol'tsov; Moscow, Meditsinskaya Gazeta, 21 Dec 62, p 2

This article covers the all-union conference of medical officers of the industrial sanitary service, held in Kazan. Scientific-Research Institutes of Industrial Hygiene and Occupational Diseases, medical and sanitary units, chairs of medical vuzes, and central committees of trade unions sent their delegates to this conference. This conference was called to discuss how to improve the industrial sanitary service in the USSR.

L. V. Yanin read the report of the State Sanitary Inspectorate Ministry of Health USSR, which pointed out that demands upon the industrial sanitary service have increased considerably since the 22nd Congress of the CPSU. Continued technological progress in industry and agriculture is placing greater demands upon sanitary officers who must help to eliminate manual operations in industry and get rid of the harmful effect of noise, vibration, and electromagnetic fields.

K. F. Simirov, the head of the State Sanitary Inspectorate and a member of the Collegium of the Ministry of Health USSR, spoke on the subject of reorganizing the industrial sanitary service.

Although much effort has been exerted in the past few years to prevent occupational diseases both in industry and in agriculture, considerable laxity and inefficiency still exist. This was stressed in the main report read by L. V. Yanin and in reports read by L. S. Rozanov, G. Ye. Tsapko, and a number of other delegates to the conference. L. S. Rozanov represented the Main Sanitary-Epidemiological Administration of the Ministry of Health RSFSR, and G. Ye Tsapko represented the Main Sanitary-Epidemiological Administration of the Ministry of Health Ukrainian SSR.

The prevalence of silicosis, bursitis, and diseases of the bones, muscles, and joints was reported at the conference. An increase in the incidence of occupational dermatitis, occurring mainly in industries manufacturing new chemicals, was also reported. It was stated that the incidence of vibration sickness doubled the number of cases of illness reported for 1960.

The number of industrial hygiene officers increased somewhat since 1960 in the RSFSR, in the Belorussian SSR, and in the Latvian SSR. In the USSR as whole, however, the number of industrial hygienists was reported to be insufficient, and the turnover of such personnel was reported to be very high.

Active member of the Academy of Medical Sciences USSR L. K. Khozyanov discussed the scientific principles and methods of eradicating occupational diseases. "The job of Soviet hygienists is specific and difficult," he said. "There exists no basis for the belief that the organism is capable of adjustment and adaptation to occupational diseases and to the action of chemical substances. Results of observations show that this adjustment is illusory and that it is attained at a high price, not only in the form of weakening of the immunological reaction of an organism, but also in the form of disturbance in functions of various organs and systems. It is with this view precisely that the industrial sanitary service must proceed with its planning."

142. Czechoslovak Virological Conference

"Third National Virological Conference"; Prague, Casopis Lekaru Ceskych, Vol 102, No 2, 11 Jan 63, p 55

The CSAV (Czechoslovak Academy of Sciences), in cooperation with the Ministry of Health, the Ministry of Education and Culture, and the Ministry of Agriculture, Forestry, and Water Management, will conduct the Third National Virological Conference in Bratislava on 1-4 October 1963. The conference, commemorating the tenth anniversary of the establishment of the Institute of Virology of the CSAV, will be devoted to "Pathogenesis and Resistance in Virus Diseases." The program will be as follows:

- I. 1. "Infections Caused by Myxoviruses," in the morning of the first day (panel discussion led by L. Borecky, Institute of Virology of the CSAV in Bratislava).
2. "Infections Caused by Plant Viruses," in the morning of the second day (panel discussion led by Ct. Blatný of the UEB [probably the Institute of Experimental Biology] of the CSAV in Prague).
3. "Infections Caused by Arboviruses," in the morning of the third day (panel discussion led by H. Libikova, Institute of Virology of the CSAV in Bratislava).
4. "Infections Caused by Enteroviruses," in the morning of the fourth day (panel discussion led by K. Zacek of the UEM [probably the Institute of Experimental Medicine] in Prague).

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II. 1. "Bedson Infections," in the afternoon of the first day (colloquium led by J. Strauss, UEM in Prague).

2. "Infectious Hepatitis," afternoon of the second day (colloquium led by Professor Kubelek of the MU /not explained/ of the Medical Faculty of Charles University in Prague).

3. "Infections Caused by the Aujeszky Virus," afternoon of the second day (colloquium led by Academician Brauner of the Institute of Virology of the CSAV in Bratislava).

4. "Viruses and Tumors," afternoon of the third day (symposium led by V. Thurzo, corresponding member of the CSAV, of the Research Institute for Oncology in Bratislava).

Those interested in active participation in panel discussions and in the colloquia are requested to contact the leaders of the appropriate panel groups by 30 January 1963. All other interested individuals are to apply not later than 30 April 1963 to Dr M. Jhnata of the Institute of Virology of the CSAV. It is anticipated that after introduction of the topic of each panel session, the leader of the panel will ask panel members (and perhaps other conference participants) to express their views on the given problem (thus eliminating the method used heretofore where each panel member would give an independent report on results of his work). In the colloquia, the chairman will give a general introductory address on the given problem and invite other specialists participating to also give talks on the topic. (FOR OFFICIAL USE ONLY)
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143. Czechoslovak Congress in Industrial Medicine

"Medical Societies"; Prague, Casopis Lekaru Ceskych, Vol 102, No 5, 1 Feb 63, p 136

The Eighth National Congress of the Section for Industrial Medicine of the Czechoslovak "Jan Ev. Purkyne" Medical Society will be held in Mariánské Lázně from 30 October to 1 November 1963. Quarters and meals will be provided by the Donbas and Horník hotels.

The program includes the following:

1. Problems of labor physiology.
2. Effects of physical factors on the organism at work.
3. Effects of ionizing radiation on humans.

Preliminary applications for active or passive participation and titles of papers to be presented at the congress are to be submitted by the end of February 1963. Original works are to be submitted in triplicate by the end of April 1963. Full texts of addresses to be delivered are to be submitted by the end of August 1963. All of the above are to be submitted to František Huzl, Division of Occupational Diseases, State Medical Faculty, Plzeň, Marxova 13. (FOR OFFICIAL USE ONLY) (COPYRIGHT by the State Medical Publishing House, 1963)

144. Conference on Anesthesiology in Hungary

"International Conference on Anesthesiology To Be Held" Budapest, Orvosi Hetilap, Vol 103, No 52, 30 Dec 62, p 2496

The Hungarian Society of Anesthesiologists will hold an international symposium in Budapest from 25 to 28 September 1963. The topic will be the selection of anesthetics for various types of surgery. This subject will be discussed as it pertains to the fields of obstetrics and gynecology, urology, ophthalmology, pediatrics, otorhinolaryngology, neurology, and neurotraumatology.

A round-table discussion on the morning of 28 September will deal with the problems of organizing the anesthesiological service.

A preliminary program may be obtained by writing to the following address: Symposium Internationale Anaesthesiologiae, Sebészeti Klinika [Surgical Clinic], Ulloi út 78, Budapest, VIII.

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Miscellaneous

145. Frogs and Guinea Pigs Flown to Sverdlovsk

"Unusual 'Passengers'", Moscow, Vechernyaya Moskva, 25 Jan 63,
p 2

The Sverdlovsk Medical Institute received 200,000 frogs from the South and 500 guinea pigs from Moscow. They were flown by a "TU-104" plane.

Publications

146. Subject Schedule for ZhMEL in 1963 Published

"Toward New Achievements in the New Year"; Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 1, Jan 63, pp 3-5

This introductory article to the 1963 volume of Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii reviews such national goals as increasing the number of hospital beds per 1,000 persons (now 6.9), providing physicians with advanced training to increase their competence (37,000 per year currently receive advanced training at the state's expense), and further reducing the incidence of infectious diseases. The fundamental task of the journal for 1963 will be to publicize all aspects of experience in the control of infectious diseases in general and the eradication of particular ones. Unresolved problems confronting microbiologists, immunologists, virologists, and infectious disease specialists are study of the mechanisms of the distribution of infectious diseases in a socialist society, discovery of mechanisms of immunity for each disease and for disease in general, and early diagnosis and rational therapy of infectious diseases. The key to success in these pursuits, the article notes, is the dialectic unity of all these sciences and the close relationship of scientists of all specialties. The genetics of microorganisms is also mentioned as a primary problem.

The following subjects are listed for 1963 issues:

No 1 -- Problems of microbiology, methods of laboratory diagnosis, and indication of pathogenic microorganisms in the environment.

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No 2 -- The microbiology, epidemiology, and prophylaxis of enteric infections.

No 3 -- Problems of immunity and the specific prophylaxis in infectious diseases.

No 4 -- The microbiology, epidemiology, and prophylaxis of infections of the respiratory tract.

No 5 -- The microbiology, epidemiology, and prophylaxis of blood infections, including diseases with natural foci.

No 6 -- Problems of general epidemiology. Experience in the prophylaxis of infectious diseases in the USSR. Preparation of cadres.

No 7 -- Problems of chemotherapy and chemoprophylaxis. Disinfection, disinsection, and deratization.

No 8 -- The microbiology, epidemiology, and prophylaxis of enteric infections.

No 9 -- The microbiology, epidemiology, and prophylaxis of infections of the respiratory tract.

No 10 -- Problems of the immunity and specific prophylaxis of infectious diseases.

No 11 -- Problems of the microbiology, methodology of laboratory diagnosis, and indication of pathogenic microorganisms in the environment.

No 12 -- Experience in the prophylaxis of infectious diseases in the USSR. The prophylaxis of blood infections, including diseases with natural foci.

* * *

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Central Intelligence Agency



Washington, D.C. 20505

7 September 2004

Ms. Roberta Schoen
Deputy Director for Operations
Defense Technical Information Center
7725 John J. Kingman Road
Suite 0944
Ft. Belvoir, VA 22060

Dear Ms. Schoen:

In February of this year, DTIC provided the CIA Declassification Center with a referral list of CIA documents held in the DTIC library. This referral was a follow on to the list of National Intelligence Surveys provided earlier in the year.

We have completed a declassification review of the "Non-NIS" referral list and include the results of that review as Enclosure 1. Of the 220 documents identified in our declassification database, only three are classified. These three are in the Release in Part category and may be released to the public once specified portions of the documents are removed. Sanitization instructions for these documents are included with Enclosure 1.

In addition to the documents addressed in Enclosure 1, 14 other documents were unable to be identified. DTIC then provided the CDC with hard copies of these documents in April 2004 for declassification review. The results of this review are provided as Enclosure 2.

We at CIA greatly appreciate your cooperation in this matter. Should you have any questions concerning this letter and for coordination of any further developments, please contact Donald Black of this office at (703) 613-1415.

Sincerely,

A handwritten signature in dark ink, appearing to read "Sergio N. Alcivar".

Sergio N. Alcivar
Chief, CIA Declassification Center,
Declassification Review and Referral
Branch

Enclosures:

1. Declassification Review of CIA Documents at DTIC (with sanitization instructions for 3 documents)
2. Declassification Status of CIA Documents (hard copy) Referred by DTIC (with review processing sheets for each document)

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Processing of OGA-Held CIA Documents

The following CIA documents located at DTIC were reviewed
by CIA and declassification guidance has been provided.

OGA Doc ID	Job Num	Box	Fldr	Doc	Doc ID	Document Title	Pub Date	Pages	Decision	Proc Date
AD0463342	78-03109A	55	1	2	88	Consolidated Translation Survey For April 1965	4/1/1965	190	Approved For Release	3/25/2004
AD0465168	78-03109A	55	1	3	89	Consolidated Translation Survey For May 1965	5/1/1965	245	Approved For Release	3/25/2004
AD0467068	78-03109A	55	1	4	90	Consolidated Translation Survey For June 1965	6/1/1965	221	Approved For Release	3/25/2004
AD0468849	78-03109A	55	1	5	91	Consolidated Translation Survey For July 1965	7/1/1965	218	Approved For Release	3/25/2004
AD0471155	78-03109A	55	1	6	92	Consolidated Translation Survey For August 1965	8/1/1965	236	Approved For Release	3/25/2004
AD0473500	78-03109A	55	1	7	93	Consolidated Translation Survey For September 1965	9/1/1965	221	Approved For Release	3/25/2004
AD0474384	78-03109A	55	1	8	94	Consolidated Translation Survey For October 1965	10/1/1965	181	Approved For Release	3/25/2004
AD0475860	78-03109A	55	1	9	95	Consolidated Translation Survey For November 1965	11/1/1965	305	Approved For Release	3/25/2004
AD0477388	78-03109A	56	1	1	96	Consolidated Translation Survey For December 1965	12/1/1965	181	Approved For Release	3/25/2004
AD0478471	78-03109A	56	1	2	97	Consolidated Translation Survey For January 1966	1/1/1966	198	Approved For Release	3/25/2004
AD0479675	78-03109A	56	1	3	98	Consolidated Translation Survey For February 1966	2/1/1966	354	Approved For Release	3/25/2004
AD0481681	78-03109A	56	1	4	99	Consolidated Translation Survey For March 1966	3/1/1966	237	Approved For Release	3/25/2004
AD0334379	78-03117A	191	1	37	4255	Status And Activities Of Prominent Scientists In Communist China In 1962	1/29/1963	53	Approved For Release	3/29/2004
AD0333974	78-03117A	190	1	35	4212	Scientific Information Report Outer Mongolia (1)	1/17/1963	27	Approved For Release	3/29/2004
AD0335202	78-03117A	195	1	13	4394	Scientific Information Report Outer Mongolia (2)	3/13/1963	27	Approved For Release	3/25/2004
AD0332657	78-03117A	183	1	13	3924	Scientific Information Report Biology And Medicine (22)	10/12/1962	76	Approved For Release	3/29/2004
AD0333147	78-03117A	185	1	30	4020	Scientific Information Report Biology And Medicine (23)	11/16/1962	90	Approved For Release	3/29/2004
AD0333427	78-03117A	188	1	13	4112	Scientific Information Report Biology And Medicine (24)	12/13/1962	84	Approved For Release	3/29/2004
AD0334160	78-03117A	190	1	10	4187	Scientific Information Report Biology And Medicine (25)	1/10/1963	69	Approved For Release	3/29/2004
AD0334612	78-03117A	193	1	10	4310	Scientific Information Report Biology And Medicine (26)	2/20/1963	112	Approved For Release	3/29/2004
AD0335309	78-03117A	195	1	32	4413	Scientific Information Report Biology And Medicine (27)	3/20/1963	110	Approved For Release	3/29/2004
AD0336242	78-03117A	198	1	16	4509	Scientific Information Report Biology And Medicine (28)	4/12/1963	81	Approved For Release	3/29/2004
AD0332575	78-03117A	184	1	6	3957	Scientific Information Report Chemistry And Metallurgy (22)	10/23/1962	47	Approved For Release	3/29/2004
AD0333164	78-03117A	187	1	2	4061	Scientific Information Report Chemistry And Metallurgy (23)	11/28/1962	65	Approved For Release	3/25/2004
AD0333857	78-03117A	189	1	22	4160	Scientific Information Report Chemistry And Metallurgy (24)	1/2/1963	57	Approved For Release	3/29/2004
AD0334310	78-03117A	191	1	20	4238	Scientific Information Report Chemistry And Metallurgy (25)	1/28/1963	52	Approved For Release	3/29/2004