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SCIENTIFIC INFORMATION REPORT

Biology and Medicine

(25)

Summary No. 4187

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Prepared by

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SCIENTIFIC INFORMATION REPORTBiology and Medicine (25)

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 six series. Of these, four, Biology and Medicine, Electronics and Engineering, Chemistry and Metallurgy, and Physics and Mathematics, are issued monthly. The fifth series, Chinese Science, is issued twice monthly, and the sixth series, Organization and Administration of Soviet Science, is issued every 6 weeks. Individual items are unclassified unless otherwise indicated.

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I. FEATURE ITEM

1. Partial Table of Contents of "Voyenno-Meditsinskiy Zhurnal"
No 8 and 9, 1962

The following is a reconstruction of the table of contents of Voyenno-Meditsinskiy Zhurnal, No 8 and 9, 1962, as cited in Letopis' Zhurnal'nykh Statev, Vol 46 and 47, 1962. The numbers in parentheses following the article titles refer to the title number in the yearbook.

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2. "More Attention to the Tactical-Special Preparation of the Medical Staff of the Army" (editorial) (131599)	7-10
3. "The Medical Provision of the Russian Army in the War of 1812," by S. A. Semeka (131600)	11-18
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5. "Action of Small Doses of Radiation on the Human Organism" (survey of the literature), by V. V. Rozin (131249)	22-28
6. "Radiation Sickness From Internal Irradiation," by E. B. Zakrzhevskiy and E. I. Safronov (131238)	29-35
7. "Acute Form of Radiation Sickness With a Syndrome of Predominant Affection in the Gastrointestinal Tract" (survey of the literature), by V. A. Rezontov, A. V. Popov, and P. S. Ponomarev (131247)	36-39
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9. "Healing Closed Bone Fractures in Chronic Radiation Sickness" (experimental examination), by A. B. Rusakov (131240)	44-46

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13. "On the Epidemiological Significance of Atypical Strains of Dysentery Pathogens," by P. S. Sal'nikov and M. M. Yakuba (131394)	55-56
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21. "On the Reasons for the Repeated Hospitalization of Patients Suffering From Dysentery," by S. V. Krakht and M. S. Amirov (131373)	75-77
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6. "On the Medical Evacuation of the Wounded and the Sick in the Military Group of the Medical Service" (response to an article by O. K. Gavrilov, "The Simplification of Medical Evacuation of the Wounded and the Sick in the Military Group of the Medical Service," published in <u>V-M Zh.</u> , No 7, 1961), by E. R. Dzhashitov (133679)	26-28

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7. "On Simplification in the Military Group of the Medical Service" (response to an article by O. K. Gavrilov, "The Simplification of Medical Evacuation of the Wounded and the Sick in the Military Group of the Medical Service," published in <u>V-M Zh.</u> , No 7, 1961), by A. D. Sokolov and I. I. Barbetov (133683)	29-30
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10. "Indirect Massage of the Heart and Its Significance in Reanimatology," by V. A. Negovskiy, bibliography p 46 (133532)	39-46
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13. "Chemotherapy of Malignant Tumors," by Art. T. Rozhkov, bibliography p 58 *133579)	51-58
14. "The Etiology, Clinical Aspects, Therapy, and Prophylaxis of Neuroses," by K. F. Kanareykin (133613)	58-63
15. "Experiment in the Organization and Execution of Measures for the Reduction of Acute Intestinal Diseases in the Troops of a District," by S. V. Krakht (133440)	64-67
16. "On Indexes of Gas Metabolism Among Soldiers," by V. P. Zagryadskiy, T. N. Zheludkova, O. Yu. Sidorov, and Z. K. Sulimo-Samuylo (133680)	67-71
17. "On Therapeutic and Expert Tactics in Chronic Suppurative Otitis Media," by K. I. Bashmakov (133601)	72-75
18. "The Application of a New Cycloplegic Preparation (Amisil) in Determining Refraction," by L. M. Rel' (133598)	75-78
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21. "A Field Medical Laboratory," by N. A. Shluger, K. P. Vezno, N. I. Komin, and N. D. Kuz'mina (133681)	86-88
22. "The Equipment and Use of Hospital Ships in the American Navy" (survey of the literature), by A. A. Shipkin, bibliography on p 91 (89-91)	89-91

II. BIOLOGY

Basic Biology

2. Pigment Changes Caused by Irradiation of Chlorella

"The Composition and Quantity of a Number of Chlorella vulgaris Mutants," by N. N. Varasova and K. V. Kvitko; Leningrad, Vestnik Leningradskogo Universiteta, Seriya Biologii, No 3, 1962, pp 119-124

A study of five Chlorella vulgaris mutants which had lost the capacity for photosynthesis following ultraviolet irradiation in the genetics laboratory showed that all mutants which contained no violoxanthine grew in darkness but perished when exposed to light. All mutants were grown in darkness with organic carbon sources. One mutant contained only yellow pigments and no chlorophyll. Some mutants had no violoxanthine, and some, no neoxanthine. All strains were isolated from a single irradiated clone. The varied pigment systems obtained made it possible to study pigment functions and their interrelationships in biosynthesis.

3. Chemical Composition of Algae

"The Effect of Light and Darkness on the Chemical Composition of Scenedesmus quadricauda Green Algae," by M. V. Pakhomova and G. P. Serenkov, Chair of Biochemistry; Moscow, Vestnik Moskovskogo Universiteta, Biology and Soil Sciences Series, No 4, Jul/Aug 62, pp 44-47

Dark and light cultures of algae (Scenedesmus quadricauda) were found to be identical in qualitative content of carbohydrates, but to differ in the quantitative content of these substances. In these algae cultures, the carbohydrates comprise the main mass of organic matter. In the initial culture, in which the source of carbon was carbon dioxide, the main mass of organic material (52.32%) was protein.

Biochemistry

4. Reactions of Vitamin B₁₂ in the Organism

"Role of Vitamin B₁₂ in Metabolism," by V. N. Bukin, Sb. Vitamin. Resursy i Ikh Ispolzovaniye (Collection on Vitamin Resources and Their Application), 5, Moscow, Academy of Sciences USSR, 1961, pp 5-18 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 20, 10 Oct 62, Abstract No 20 S265, by A. Trufanov)

"The differences in the structure of vitamin B₁₂ and its coenzyme form are reported. The participation of vitamin B₁₂ in the reduction of the disulfide groups, synthesis of methyl groups, synthesis of desoxyribosides, biosynthesis of protein in isomerization reactions is examined."

Marine Biology

5. Studies of Marine Animal Noises

"Fish Conversations," by I. Sabel'nikov; Moscow, Komsomol'skaya Pravda, 17 Nov 62, p 4

Candidate of Biological Sciences Vladimir Protasov, at the Institute of Animal Morphology, Academy of Sciences USSR, and Candidate of Physical Sciences Yevgeniy Romanenko, at the Acoustics Institute, Academy of Sciences USSR, have been studying the "voices" of fish for several years.

They have discovered that fish emit very diverse sounds and that each kind of fish has its own characteristic sounds. The biological signals that they send are especially interesting. These constitute the fish's "conversation." The signal significance of many sounds has now been finally established.

The problem of how fish "hear" has been solved, the author reports. Fish can orient themselves excellently in the direction of a sound source. This phenomenon is called hydrolocation, that is, the detection of obstacles with the help of sound, and is strongly developed in most fish. The white sturgeon, for example, was found to emit a whistle which radiated from it as do concentric circles from a stone that has been dropped into water.

The swim bladder of the fish serves as the sound transmitter. The fish produces sound by emitting water from the swim bladder or by tapping along it with special bones. The body of the fish does not impede sounds -- it is "transparent" for them. The inner ear of the fish and the lateral

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lines act as the "receiver." Along the body of the fish under the skin there are mucous canals with a thick nap of auditory nerves inside, through which the fish perceives audible signals. However, the receiving-transmitting relation in fish is still not completely clear.

The decoding of the signals of fish and their study opens up wide possibilities for the fishing industry. It is possible to hunt fish by their voice. The first attempts have already been made. With the help of hydrophones the research submarine Severyanka was aimed toward herring.

V. Protasov and Ye. Romanenko suggested the idea of creating a cybernetic automaton -- a self-propelling and self-directing torpedo. This torpedo will track a school of fish by sound, and the direction finder on the trawler will catch the signals of its radio station.

It also should be possible to imitate voices of fish and thus entice them away from such things as the turbines of hydroelectric stations and into nets.

Finally, the author concludes, if it turns out to be possible to understand the arrangement and action of the organs of generating and receiving sound in fish completely, then it will be possible to create completely original acoustical instruments.

"Reporting From Neptune's Kingdom"; Tallin, Sovetskaya Estoniya,
17 Nov 62, p 4

This article reports on a recent expedition of the All-Union Scientific Research Institute of Maritime Fisheries and Oceanography (VNIRO), which was led by Ye. V. Shishkov. The small Soviet expeditionary ship Balaklava spent the summer [of 1962] in the Black and Azov seas recording the voices of fish.

The data obtained by the expedition will serve as a basis for the creation of an instrument which will enable fishermen to discern, unerringly, which fish are hidden in the depths of the sea, how many there are, and the direction in which they are traveling.

• "This Is Interesting To Know"; Moscow, Trud, 15 Nov 62, p 3

"Crustaceans are no less 'talkative' than fish. Crabs can emit as many as 30 kinds of sounds, similar to chirring. The 'chirring' of the shrimp is - so strong that the waves it creates can shatter glass. Up to now these 'cries' have not been interpreted. It is possible that they are a means of self-protection or an animal 'language.'"

Microbiology6. Viability of Foot-and-Mouth Virus

"The Viability of Foot-and-Mouth Disease Virus in Slaughter Products," by S. Poplaukhin, Altay Scientific Research Veterinary Station; Sel'skoye Khozyaystvo Sibiri, No 9, Sep 62, pp 65-66

"samples of bones (lumbar and thoracic vertebrae, pelvic and hip bones) and tongues from cattle which had had foot-and-mouth disease and which had been killed at a meat combine in October 1958 were examined to determine the duration of the viability of foot-and-mouth disease virus in slaughter products. The meat was preserved on the meat combine in a refrigerator at -14° C; samples were collected in January, i.e., 3 months after slaughter of the animals.

"The methodology of the investigation was as follows: 0.5 g pieces were cut with a knife from cancellous bone tissue and the epithelium of tongues which had no aphthae; the pieces were ground and pulverized in a mortar with the addition of glass and 4 ml of physiological solution. After pulverization of the tissues, 6 more ml of physiological solution was added and a suspension was prepared. The prepared suspension was left in the mortar for 10-15 minutes.

"To test the virulence of the foot-and-mouth disease virus, four guinea pigs weighing 350-400 g were infected with the suspension by tunneling the plantar surface of the paw. After the first test in January, the guinea pigs infected with material from the pelvic bone tissues, lumbar vertebrae, and tongue epithelium contracted foot-and-mouth disease with the appearance of aphthae at the site of introduction of the suspension.

"Further samples were preserved in a refrigerator at -4° C. The survival rate of the virus in these samples was determined on guinea pigs after 144-244 days, 156-226 days, and 163-234 days. Results of the observations are presented in a table.

"The pigs became ill with foot-and-mouth disease within 48 hours after infection with the appearance of aphthae at the sight of introduction of the suspension. After infection of the guinea pigs with suspensions from tissues preserved more than 244 days, the temperature increased only one degree, appetite diminished, but aphthae did not form. The guinea pigs could not be infected by suspensions prepared from thoracic vertebrae and pelvic-hip bones.

"Thus, frozen meat and subproducts from cattle with foot-and-mouth disease can be a source of infection. Foot-and-mouth disease virus in tongue epithelium, tissues of pelvic bones and thoracic vertebrae at 4-14° below zero maintain viability up to 8 months or more, which must be taken into account by workers of the veterinary service of meat combines."

7. Tick-Borne Encephalitis Virus Studies

"The Effect of Conditions of Formalin Inactivation of Tick-Borne Encephalitis Virus Purified With Alcohol on Its Capacity to Fix Complement," by Yu. V. Fedorov, Tr. Tomskogo N.-I. In-ta Vaktsin i Syvorotok (Works of Tomsk Scientific Research Institute of Vaccines and Sera), No 13, 1961, -- 286-288 (from Referativnyy Zhurnal -- Biologiya, No 21, Nov 62, Abstract No 21B27)

"Antigen was prepared from the brains of mice infected with the Sof'in strain by precipitation with methyl and ethyl alcohol. Each series of antigen was poured into a flask to which formalin was added in a concentration of 1:1,000, 1:1,500, and 1:2,000. Each dilution of formalin was tested at 40, 20, and 37° C. The presence of live virus was determined by titration on mice after 1, 2, 4, 5, 6, and 7 days. The complement fixation reaction was set up simultaneously. It was shown that the best temperature for rapid and successful inactivation of the virus was 20° C. At this temperature, virus precipitated with methyl alcohol is completely inactivated in a 1:2,000 dilution on the 7th day, and in a 1:1,500 dilution, on the 6th day. After precipitation with ethyl alcohol, the virus was completely inactivated at a formalin concentration of 1:15,000 on the 5th day, and 1:2,000, on the 6th day. The antigen titer after treatment with formalin in a dilution of 1:1,500 decreased by four times, and 1:2,000, by two to three times."

"A Search for Optimum Conditions for Rendering the Tick-Borne Encephalitis Virus Harmless for the Purpose of Using It in Vaccine Production," by L. D. Ovchinnikova, M. I. Khomullo, L. I. Nevzorova, and G. S. Loseva, Tr. Tomskogo N.-I. In-ta Vaktsin i Syvorotok (Works of the Tomsk Scientific Research Institute of Vaccines and Sera), No 13, 1961, pp 278-281 (from Referativnyy Zhurnal -- Biologiya, No 21, Nov 62, Abstract No 21B28)

"Mice were infected cerebrally with Sof'in strain. The mice were sacrificed on the 4th day and 10% and 5% virus suspensions were prepared. The dynamics of virus inactivation with formalin (0.1 and 0.2%) at 37, 18-20, and 4-12° C were studied. The virus was inactivated after 3 days at 37° C, after 15 days at room temperature, and after 20 days at 4-12° C. The duration of inactivation did not depend on the percent of the content

of brain tissue. The areactivity of the suspension depends on the percent of brain tissue and the temperature regimen. Five percent brain suspensions with 0.2 and 0.1% formalin kept at 37° C for 7 and 10 days and at 20, 18, 12, and 4° C for 30 days were areactive. Ten percent brain suspensions of virus under the same conditions caused reactions after intraperitoneal introduction to guinea pigs."

8. Work on Plague Bacteriophage

"The Problem of the Diagnosis of Plague in Rodents by the Bacteriophage Isolation Method," by N. M. Sokolova, Tr. Gos. N.-I. In-ta Mikrobiol. i Epidemiol. Yugo-Vost. SSSR (Works of the State Scientific Research Institute of Microbiology and Epidemiology of the Southeastern USSR), No 3, 1959, pp 85-92 (from Referativnyy Zhurnal -- Biologiya, No 18, Sep 62, Abstract No 18B13)

"Plague bacteriophage was observed in the organisms of guinea pigs and mice suffering from acute and lingering forms of plague. Methods of detecting phage were studied comparatively. The use of the serological method suggested by Y. N. Aleshina (Referaty N.-I. Rabot. Rostovskiy-na-Dony Gos. N.-I. Protivochumn. In-t [Abstracts of Scientific Research Works of Rostov-na-Donu State Scientific Research Antiplague Institute], 1949) is limited because of the difficulty of collecting strains of the microorganism capable of adsorbing phage. It is suggested that phage be observed by adsorbing it on different substances (aluminum hydroxide, kaolin, animal charcoal) for further examination by the direct method or the enrichment method."

9. Studies at Elista Antiplague Station

"Methodological Bases for Study of the Biological Properties of the Plague Pathogen," by M. I. Levi, Sb. Nauchn. Rabot. Elistinsk. Protivochumn. St. (Collection of Scientific Works of the Elista Antiplague Station), No 2, 1961, pp 9-36 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B396, by Yu. Ignatov)

"The basis of the methodology of studying the biological properties of *P. pestis* is the theory of the mono-host nature of natural foci of plague and the theory of the adaptative modifiability of the pathogen. The methodology consists of four procedures: determination of virulence and of cultural properties, and a study of bacteremia and of the antigenic structure of *P. pestis*. The virulence of *P. pestis* is a relative concept and depends on the species of animal on which it is tested. In titration

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for virulence, the selection of an infecting dose of *P. pestis* and the number of experimental animals should take into account subsequent treatment of the data obtained by methods of variation statistics. In studying the cultural properties, it is necessary to consider the conditions of isolation of a strain and its passage on artificial culture media and laboratory animals. Use of the infection sensitivity and bacteremia index as a characteristic of the pathogen itself is suggested to resolve the question of the origin of each *P. pestis* strain. This index is also used to evaluate the epidemiological significance of a given infected animal.

"Bacteremia is quantitatively determined by the extent of seedability of the blood of a rodent with the pathogen during the course of the entire acute period of infection. Assuming that a completely saturated flea consumes 0.2 mm^3 of the blood of a rodent, bacteremia in which one mm^3 of the blood of the rodent contains five to ten microbial bodies is considered epidemiologically significant: in this case, each flea receives one or two microbial bodies. To exclude the effect of the physiological condition of the animal on the results of study of bacteremia and virulence, it is desirable to perform simultaneous experiments with comparable strains.

"To study the antigenic structure of each strain of *P. pestis*, immune rabbit serum was obtained by immunizing the animal first with a killed and then with a live *P. pestis* culture. Formol vaccine made from the *P. pestis* strain being studied and containing 10^9 microbial bodies per ml was introduced intravenously in amounts of 1, 2, and 3 ml at 3-day intervals for three courses of treatment with one week between each course. Immunization with a live 72-hour agar culture of *P. pestis* was performed in three cycles beginning one week after termination of immunization with the formol vaccine. *P. pestis* was introduced in amounts of 10^3 , 10^4 , 10^5 (first cycle), 10^5 , 10^6 , 10^7 (second cycle), 10^7 , 10^8 , 10^9 (third cycle) microbial cells with a 3-day interval between injections, and one week between cycles. After such an immunization regimen, the following serum titers were obtained: in the agglutination reaction, 1:160-1:280; in the precipitation reaction, 1:10-1:20; in the Lemagglutination titer reaction, 1:10,000-1:40,000; in the complement fixation reaction, 1:320-1:1280."

"A Medium for Differential Diagnosis of *Pasteurella pseudotuberculosis* and Geographic Variants of *Pasteurella pestis*," by S. I. Zaplatine, A. S. Filimonova, Sb. Nauchn. Rabot Elistinsk. Protivochnn. St. (Collection of Scientific Works of the Elista Antiplague Station), No 1, 1959, pp 173-175 (from Referativnyy Zhurnal -- Biologiya, No 17, Sep 62, Abstract No 17B397, by Yu. Ignatov)

"The authors suggest a modification of the Devin and Boivin medium which contains: Hottinger's agar, pH 7.2 (100 ml), rhamnose (1 g), glycerin (0.2 g), KNO_3 (0.2 g), 2% alcohol solution of bromthymol blue, (2 ml), a 4% solution

of NaOH until the medium turns green. This reaction permits the differentiation of three variants of *P. pestis* and the rodent pseudotuberculosis pathogen in 4 hours according to the fermentation of glycerin, rhamnose, and the nitrate reduction test."

10. Triphenyltetrazole as Aid in Bacteria Counting

"Determination of the Total Number of Bacteria in Water on Membrane Ultrafilters With the Application of Triphenyltetrazole," by Yu. T. Loshakov, Candidate of Medical Sciences, Chair of Public Hygiene Kharikov Medical Institute; Moscow, Gigiyena i Sanitariya, Vol 27, No 11, Nov 62, pp 48-49

The unsatisfactory results obtained in the effort to determine the total number of bacteria in water because of the use of dyes which colored the bacteria, coloring the white background of the ultrafilters at the same time, prompted a search for a dye which would color the bacteria without affecting the surface of the filter used. Satisfactory results were obtained when the dye 2,3,5-triphenyltetrazole chloride was tested. On contact with live cells of the organism, the dye is transformed into formazan, an intense dark red compound. The new compound is toxic bacteria and arrests not only their ability to propagate, but their ability to form spores as well. Different species of bacteria exhibit different degrees of sensitivity to the preparation. Best results are obtained when a one percent solution of the dye is used.

Ornithology

11. Institute of Animal Morphology Studies Bird Flight

"Collaboration of Biologists and Designers"; Moscow, Moskovskaya Pravda, 11 Nov 62, p 2

The Institute of Animal Morphology imeni A. N. Severtsov is conducting research on the flight mechanisms of birds. The study was first suggested in the works of Doctor of Biological Sciences G. S. Shestakovaya. Prof S. E. Kleyenberg is the director of the institute's laboratories.

In the study special attention is being given to the structure and work of the wings and to their surface structure. The research has established that the very structure and singular arrangement of the bird's feathers are conducive to a very streamlined body and to the increased carrying (lifting) capacity of the wing. The extension of the terminal feathers and the formation of the gaps between them play a large role in flapping flight; the form of the gaps also increases the lifting capacity.

These and other characteristics of "innate mechanisms" are considered in the construction of various types of flapping wings and in the creation of new models of orinthopters on the principle of bird flight. It is hoped that the collaboration of biologists and designers will lead to the creation of original and more economical flying apparatus.

Phytopathology

12. Electron Microscope Used to Study Plant Pathogen

"The Use of Electron Microscopy in a Study of the Biology of *Ustilago tritici* Pers Fungus--the Pathogen of Wheat Smut," by I. M. Polyakov and N. K. Klaptsova, Materialy Simpoziuma po Primeneniyu Biofiz. v Obl. Zashchity Rast. (Data From a Symposium on the Use of Biophysics in the Field of Plant Protection), Leningrad, 1961, pp 15-16 (from Referativnyy Zhurnal -- Biologiya, No 19, Oct 62, Abstract No 19G511)

"Theses. Whith the aid of an electron microscope, it is possible to detect eclipsed wheat smut infection of both seeds and plants in the phase of the third stool shoot."

"The Possibilities of Electron Microscopy in Phytopathology," by A. Ye. Protsenko, Materialy Simpoziuma po Primeneniyu Biofiz. v Obl. Zashchity Rast. (Data From a Symposium on the Use of Biophysics in the Field of Plant Protection), Leningrad, 1961, pp 14-15 (from Referativnyy Zhurnal -- Biologiya, No 19, Oct 62, Abstract No 19G499)

"Theses. The use of electron microscopy in studies of virus diseases of plants. Institute of Microbiology, Academy of Sciences USSR."

Radiobiology

13. Experiments Measure Amount of Useful Radiation Falling on Estonian Corn Fields

"Laboratory in a Corn Field"; Riga, Sovetskaya Latvija, 21 Aug 62, p 1

"Tallin -- On clear days original scientific research is conducted in the corn fields of the Sovkhoz imeni V. I. Lenin near Tartu. The sun's rays, passing through the juicy stems and leaves, fall on electronic 'laboratory assistants' placed in the field. The instruments calculate

and communicate the amount of useful radiation the plants receive. These experiments are being conducted by Estonian scientists and a complex expedition from the Academy of Sciences USSR.

"The original automatic and semiautomatic instruments for the experiment were created by physicists at the Academy of Sciences Estonian SSR."

Miscellaneous

14. New Method for Preparing More Infectious Anti-Insect Viral Strains

"Future Use of Viruses in the Struggle with Insect Pests," by E. V. Orlovskaya, junior scientific coworker of All-Union Institute for Plant Protection; Moscow, Zashchita Rasteniy ot Vrediteley i Bolezney, No 10, 1962, pp 20-23

The article summarizes work in the field of insect viral infection from 1950 to 1961. The author then describes a method for preparing more infectious viral strains.

A virus is generally considered specific against a certain insect. Experimenters, however, infected gypsy moths with a virus of the willow tussock moth and obtained an experimental strain. They also collected a strain from gypsy moths infected by their specific virus. Seven successive comparative tests showed the experimental strain to be more effective than the native strain against gypsy moths.

During field tests, in triple passage of the two strains through the moths, 0.2-0.3 ml of a polyhedron suspension of a specified concentration was injected in the ovipositor of each moth before the birth of the caterpillar. When the moths emerged, the death rate from the experimental strain was significantly higher than from the native strain of virus. Observations made the following July on the experimental moths showed the number of living individuals among those treated with the native strain to be 65; among the controls, 50; and among those treated with the experimental strain, there was only one living moth.

Successive tests show the experimental strain to be more effective than the native even when the former is administered in smaller doses than the latter.

III. CONTROL SCIENCES

15. Department of Biological Sciences, Academy of Sciences USSR, Discusses Application of Cybernetics to Biology

"Cybernetics and Biology," by V. G. Kocherzhevskii, Candidate of Biological Sciences; Moscow, Zhivotnovodstvo, No 6, 1962, pp 82-84

This article discusses a session of the general meeting of the Department of Biological Sciences of the Academy of Sciences USSR which was devoted to a discussion of the first steps of the introduction of cybernetics into biology.

The session was opened by N. M. Sisakyan, academician-secretary of the Department of Biological Sciences of the Academy of Sciences USSR, who emphasized the necessity of the broad utilization of cybernetics in the solution of the main problems facing biology -- the elucidation of the essence of the phenomena of life, the revelation of the biological mechanisms of the development of the organic world, the study of the physics and chemistry of a living being, the development of various ways of controlling the vital processes, etc.

A. I. Berg noted that present-day science will follow a trend of the application of mathematical and mathematical-logical electronic machines. The symbiosis of mathematics and electronics is opening up unprecedented possibilities and prospects for the accelerated development of all sciences, including and in particular, biological science. Berg noted the tremendous quantity of scientific information that has been accumulated by biology, and said that only the introduction of electronic-computing technique into biology is making possible the analysis, processing, and classification of this material.

It is becoming possible to study more rapidly such problems of contemporary biology as the nucleotide sequence of nucleic acids and the biosynthesis of proteins, the laws of growth and development of living organisms, the transmission of hereditary traits to progeny, the etiology and pathogenesis of various diseases, aging, mastering the metabolic processes, etc.

There were detailed discussions of separate questions and trends in modern physiology at the session. The author notes that the cooperation of physiologists with physicists, engineers, and scientists is not only important for the solution of the broad complex problems facing present-day physiology, but also is demanded by the interests of the further successful development of science itself.

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

Prof M. N. Livanov obtained interesting results from the application of electronic-computing technique to the analysis of the bioelectric processes in the brain. With the help of multichannel systems developed for this purpose, he succeeded in obtaining simultaneously information from 50 or even 100 studied points of the cerebral cortex.

Using an electronic computer, he was able very quickly and completely to single out exactly the synchronous parts of the cerebral cortex of animals and human beings, that is, those parts which correlate with respect to bioelectric activity. These may be distributed compactly in the cortex, but can be shared by those parts of the cerebral cortex which are located outside the sphere of synchronous activity. Several synchronous systems are present simultaneously in the cortex but are not synchronous among themselves. The characteristics of the correlation in activity of separate parts of the cerebral cortex in the process of generating conditioned reflexes in a rabbit, in the process of mental activity in man, and under the influence of some pharmacological agents which have therapeutic significance were elucidated. Similar research offers the possibility of clearing up the most "intimate" processes which take place in the cerebral cortex, which in the long run may have significance for the diagnosis and treatment of nervous-psychic illnesses.

At the session A. V. Napalkov spoke on the problems of the processing of information in the brain -- the algorithms of the work of the brain. E. B. Babitskiy spoke on the application in physiological research of automatically operating devices which can collect, process, and analyze physiological information without inflicting upon the organism any sort of damage that would disturb the normal course of the vital processes in natural conditions.

Engineers in cooperation with physiologists are already creating automatic devices which are able to read and perceive the spoken word and to recognize visual images and are capable of working out separate concepts. Achievements in the construction of such machines, and likewise in the construction of teaching and self-teaching control systems, will come only in the event that the principles of the operations of the brain are utilized for their creation. Thus, the development of cybernetics opens up new possibilities in the study of the mechanisms of the work of the brain.

The remarks of A. N. Bernshteyn and P. K. Anokhin also should be mentioned in the section on cybernetics and physiology. According to a hypothesis of A. N. Bernshteyn, the program of action (the motor act) is coded in the brain, but the motor activity itself of the organism is considered to be a predetermined, purposeful action upon the environment (external conditions). P. K. Anokhin states that one of the most important elements of self-regulation -- feedback ("reverse afferentation") -- has existed in nature from the moment of the appearance of life on earth and was studied by physiologists long before the birth of cybernetics.

The work devoted to the study of biological analyzor systems -- visual analysors -- was interesting and prospective. G. V. Gershuni, N. D. Nyuberg, A. L. Byzov, and V. D. Glezer are mentioned in this connection.

How does the preliminary processing of visual information take place in the retina of the vertebrate eye, by which neural mechanism is it accomplished, how do the electrical impulses which carry information about the forms of the external world to the higher sections of the brain like "telegrams" arise in the separate nerve cells? These are only some of the many questions which are being solved with the help of cybernetic devices. All of this has more than theoretical significance. An understanding of the mechanisms of the processing of visual information in the retina and of the principles and mechanisms of the transmission and processing of this information in the brain is related to the development of various technical devices, particularly to the development of various technical devices, particularly to the development of artificial sense organs.

No less prospective are the experiments in training machines and automata to recognize visual images (M. A. Ayzerman, V. I. Varshavskiy and others), and in modeling the process of training recognition on computers (M. M. Bongard). A universal program for training machines to recognize letters written in different handwriting, numbers, portraits, geometric figures, etc. was developed by Prof M. A. Ayzerman. In 85-100% of the cases the machine gives the correct answers. The results of these experiments apparently are aiding the study of the psychological and physiological aspects of the process of training living organisms. Corresponding research has begun on the base of the Institute of Surgery imeni A. V. Vishnevskiy, Academy of Medical Sciences USSR.

I. M. Gel'fand, L. V. Krushinskiy, B. V. Gnedenko, and others reported on the first attempts to realize mathematical modeling in biological experiments, on the experiment to apply mathematical methods in processing the results of biological research, and on some present-day hypotheses of mathematics which have been applied in biology.

The report of Member of the Academy of Medical Sciences USSR V. V. Parin devoted basic attention to the practical application of cybernetics to biology and medicine. The use of apparatuses for artificial respiration and circulation, an automatic "artificial arm," and other automatic devices, in addition to the above-mentioned automatic devices which are capable of recognizing visual images and the spoken word, in medical practice, is beginning. A medical diagnostic apparatus with the automatic processing of information is being constructed.

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

As a result of research carried on in the past years, Corresponding Member of the Academy of Sciences USSR G. M. Frank reported, complex structure was explained, a connection was established between the metabolic processes and structural organization of the cell, and the complex system of its self-regulating "devices" is being studied. The self-adjustment of the cell to the most optimal conditions of work takes place in conformity with the changing conditions of the environment.

The report of A. S. Spirin, in which he discussed the newest achievements in the study of the problem of protein biosynthesis, due in particular to elucidation of the nature of the code of the nucleotide sequence of nucleic acids, provoked a good deal of interest. Definite specific combinations of these nucleotides -- triplets -- correspond to each amino acid of formed protein. At present, the concrete amino acids to which more than 20 nucleotide triplets correspond has been shown experimentally.

The session summarized for the first time the works of biologists in which the methods and means of cybernetics were successfully applied. Along with this, the session defined the prospects for research in the area of biocybernetics and outlined the questions and trends for the solution of which the application of cybernetic methods is especially promising. The basic ones are: the study of the molecular bases of biological processes; the interaction of structure and function in the processes of regulation on subcellular and cellular levels; and research into the activity of the sense organs, the phenomena of heredity and variability, the role of the central nervous system in the control of the vital functions of the whole organism, and the study of the development of populations and of interaction in plant and zoological associations.

The session showed that the application of the ideas, methods, and means of cybernetics is an important condition for new achievements in biology and for scientific and technical progress.

IV. MEDICINE

Aerospace Medicine

16. Scientific Session Envisions Expansion of Programs in Space Medicine

"The Goal for Tomorrow," by A. Zhigarev and A. Iordanskiy;
Moscow, Nedelya, No 40, 30 Sep-60Oct 62, p 3

This article covers briefly the scientific session on space biology which was arranged by the Department of Biological Sciences, Academy of Sciences USSR. Representatives of many sciences attended this conference.

The report of Doctor of Biological Sciences O. G. Gazenko and Prof V. I. Yazdovskiy discussed the results of biological and physiological studies conducted on rockets and artificial earth satellites. It was stated that the physiological reactions to stress encountered by living organisms in outerspace were not of a pathological nature. Both the human astronauts and the experimental space animals remained healthy and well following their re-entry.

The report of Candidate of Medical Sciences F. D. Gorbov and M. A. Novikov and that of Candidate of Medical Sciences N. N. Gurovskiy dealt with results of psychological observations and special methods of conditioning astronauts. The dual Soviet man-in-space operation was discussed in their report. Although that operation is considered important, it is thought that future operations will surpass it.

How the crew of a space vehicle would be able to tolerate isolation in combination with weightlessness for a longer period remains yet to be determined. Some results of research along this line were reported by Candidate of Medical Sciences N. A. Agadzhanian and Prof A. G. Kuznetsov.

A. A. Nichiporovich and V. Ye. Semerenko discussed in their report the problems involving the development of closed ecologies.

Artificial reduction of body temperature was discussed in the report of G. D. Glod, V. S. Organov, and Candidate of Medical Sciences N. N. Timofeyev. It was stated that the organism apparently is able to tolerate G forces and oxygen deficiency much better when its temperature is reduced.

17. Two Books on Medicobiological Aspects of Manned Space Flights Published

"Knowledge Acquired in Outer Space"; Moscow, Izvestiya, 5 Oct 62, p 4

"Knowledge acquired by Soviet science in the course of space flights is becoming the property of all scientists, of all mankind. Detailed reports concerning results of scientific investigations conducted in the Soviet Union with the aid of satellites and space vehicles are being published in various collections, in periodicals, and in newspapers.

"The Publishing House of the Academy of Sciences USSR had had two new collections published by the time 5 years expired since the launching of the first artificial earth satellite. They are: 'The First Manned Space Flights' and 'Problems in Space Biology' (Volume 1).

"Material on medicobiological investigations conducted during preparation for and actual space flights of Yu. Gagarin and G. Titov is presented in the first collection. Questions connected with engineering and design are discussed. Results of medical examination of both cosmonauts during training and after their flights in space vehicles are discussed in detail in this collection.

"The material in the collection 'Problems of Space Biology' consists of a theoretical survey of the principal tasks of this young science and the results of experiments conducted on space vehicles launched during 1960 and 1961. Investigations conducted on earth by biologists, medical personnel, and engineers who are devoting their time to the mastery of outer space are also presented."

18. Device for Collection of Excrement Described

"Removal and Collection of Dog Excretions in an Experiment Lasting Several Days," by O. G. Gizenko, A. A. Gyurdzhian, G. A. Zakhar'yev, and L. I. Karpova; Moscow, Byulleten, Eksperimental'noy Biologii i Meditsiny, Vol 54, No 10, Oct 62, pp 123-126

A device made of rubber-impregnated knitted fabric and designated for the collection and removal of urine and feces from experimental dogs is described. Excretions are collected in a special reservoir. Two designs, one for male and one for female dogs, were tested and functioned well without traumatizing the animals or interfering with their movements for 20 days. A diagram and illustrations are provided.

Diagnosis

19. Diagnosis of Cardiac Diseases

"Special Methods of Diagnosing Cardiac and Vascular Diseases," by Prof B. V. Petrovskiy, G. M. Solov'yev, I. Kh. Rabkin, R. N. Lebedeva, and L. A. Mayorova, Chair of Hospital Surgery, First Moscow Medical Institute imeni I. M. Sechenov; Moscow, Sovetskaya Meditsina, Vol 26, No 9, Sep 62, pp 3-9

The successful development of cardiac and vascular surgery would have been impossible without the development of new methods of diagnosis. Among the special methods now used in the diagnosis of various cardiac and vascular diseases are roentgenography, roentgenokimography, roentgenoelectrokimography, angiocardiology, aortography, radiocardiography with the application of isotopes, roentgenocardiography, phonocardiography, and blood coagulation studies. Reliable as these are, however, it should be borne in mind that they are only supplements to detailed clinical observation.

Epidemiology

20a. African Swine Fever Studied

"African Swine Fever," by Ya. R. Kovalenko, All-Union Institute of Experimental Veterinary Medicine; Moscow, Veterinariya, No 11, Nov 62, pp 79-82

The appearance of African Swine Fever in Spain and Portugal in 1960 prompted the adoption of measures by other European countries (France, Switzerland, and Luxembourg) to confine the outbreak to its original limits. The following aspects of the disease are discussed in detail: distribution, etiology, natural infection, susceptibility, clinical picture, pathological-anatomical changes, diagnosis, immunity, and control measures. Within the past year, the disease is reported to have appeared in Angola, the Congo (Katanga), Mozambique, Nyasaland, and Southern Rhodesia.

According to this article, "this disease does not appear in our country, but considering the importance and urgency of studying African swine fever, the Ministry of Agriculture USSR, through the International Epizootic Bureau, has obtained a strain of the virus isolated in Portugal. Experiments on certain properties of this virus have been set up on the experimental base of VIEV (Vsesoyuznyy Institut Eksperimental'nogo Meterinariii, All-Union Institute of Experimental Veterinary Medicine) on Lisiy Island."

The author notes that the only effective means of control is the systematic and complete slaughter of all swine in areas where this disease appears because surviving swine are virus carriers and constitute a great menace to healthy animals. The possibility of contact between wild and domestic swine must also be eliminated. Products prepared from swine slaughtered during the incubation or febrile periods contain virus. If disease appears among swine vaccinated against hog cholera, these animals should be removed and the proper measures against African swine fever taken.

In the absence of specific agents for controlling African swine fever and in view of the high virulence of the pathogen, the International Epizootic Service has adopted recommendations specifying mandatory slaughter of diseased swine and swine which have been contacted by them, with subsequent burning of the carcasses.

20b. Tick-Borne Encephalitis Outbreak Reported in Bulgaria

"Natural Foci of Tick-Borne Encephalitis in the Eastern Part of the Stara Planina Mountains," by P. Andonov, M. Rusakiyev, T. Khristova, A. Prodromov, V. Petkov, St. Pachev, and N. Gr'ncharov, *Khigiyena (Hygiene) (Bulgarian)*, Vol 4, No 6, 1961, pp 23-25 (from *Referativnyy Zhurnal -- Biologiya*, No 17, Sep 62, Abstract No 17K133, by G. Boshko)

"An outbreak of tick-borne encephalitis among humans and also among agricultural animals (cattle, goats, and sheep), in which specific antibodies were observed in the blood, is reported in the village of Iskra Pervomayskiy. The basic occupations of the people who contracted the disease were farming, animal husbandry, and forestry. Ixodes ticks are vectors of the pathogen."

21. Plague Among Wild Rodents

"Serological Investigations in Plague; Report IV: The Significance of Immunological Methods for Investigating Wild Rodents in Natural Foci of Plague," by M. I. Levi, Ye. I. Novikova, Yu. G. Suchkov, N. P. Dorosh, A. I. Shtel'man, G. M. Orlova, A. F. Optyakova, and G. B. Minkov, *Sb. Nauchn. Rabot Elistinsk. Protivochumn. St. (Collection of Scientific Works of Elista Antiplague Station)*, No 2, 1961, pp 199-205 (from *Referativnyy Zhurnal -- Biologiya*, No 12, Jun 62, Abstract No 12K165, by T. Tomilova)

"Skin reactivity to the introduction of plague toxin (0.1 mg) and the passive hemagglutination reaction for observing antibodies to *P. pestis* antigen were studied on gerbils (*Meriones meridianus* Pallas) and susliks

(*Citellus pygmaeus* Pallas). The cutaneous reactivity method cannot be used at present for epizootiological purposes since a cutaneous reaction was obtained in a number of control gerbils the sera of which did not contain specific antibodies and since positively reacting animals were trapped in very different sites. Fractions of IA or II virulent *P. pestis* strains were used as antigen for the hemagglutination reaction. Positive results were obtained with 10 sera out of 1,719 in titers of 1:40-1:80. The method is evaluated as useful for general bacteriological purposes. The authors consider possible an investigation of an emulsion of freshly saturated ticks within 24 hours after feeding by the use of the hemagglutination reaction method."

22. Incidence of Disease in Czechoslovakia

"News"; Prague, Casopis Lekaru Ceskych, No 49, 7 Dec 62,
p 1464

The article reviews the epidemiological situation in Czechoslovakia for September 1962. Among the diseases reported during this period were the following: brucellosis, 8 cases; ornithosis, 14 cases; and anthrax, 2 cases.

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

West Berlin, Informationsbuero West, 22 Nov 62, p 2

Authorities in Bezirk Gera are constantly introducing new measures to combat rapidly spreading foot-and-mouth disease. All towns which are not located on main highways have been directed to erect roadblocks on their main access roads which must be manned by a guard during the day. Side roads leading to the towns which are not frequently used must be blocked completely.

During the past several days, new infection centers were discovered in Kreise Stadroda and Eisenberg. Up to now, the epidemic has not abated in any of the affected Kreise. Losses among swine have been termed "very high" by the Bezirk Gera Council.

A dysentery-type disease also occurred again in Bezirk Gera several weeks ago, requiring additional protective measures.

24. Edema Spreading Among Swine in East Germany

"New Danger for Herds of Swine in East Germany: Edema";
West Berlin, Informationsbuero West, 23 Nov 62, p 2

In addition to foot-and-mouth disease, herds of swine in Bezirk Magdeburg are endangered by a new disease. According to announcements by the veterinarian for Kreis Gardelegen, published in the SED (Socialist Unity Party of Germany) paper Altmark-Echo, a disease about which farmers know little or nothing has spread among swine during the past several weeks. This disease, "for which there is no name as yet in the German vernacular, is called coli-enterotoxemia." It is a type of edema which affects almost exclusively young pigs several days or weeks after they have been weaned, and it frequently occurs among the best herds.

25. Dysentery Cases Reported in East German District

"Intestinal Diseases in Bezirk Gera"; Gera, Volkswacht,
21 Nov 62, p 2

The Ministry of Public Health announces the following; Cases of infectious intestinal disease have recently occurred in several communities in Bezirk Gera. Of the persons who reported for medical treatment, 128 cases were diagnosed as dysentery. The disease is generally mild in nature. However, it can easily be communicated through personal contact. Therefore, it is imperative that all hygiene rules be strictly observed. Moreover, the Ministry of Public Health calls on all GDR citizens to refrain, for the time being, from traveling, including vacation trips, to and from Bezirk Gera. All central and Bezirk-level events in Bezirk Gera have been cancelled temporarily. The Ministry of Public Health and local state organs have taken all necessary measures to effectively combat the disease.

The Department of Public Health and Social Welfare of the Gera Bezirk Council has issued the following announcement in connection with the intestinal disease which has occurred in the area: No significant increase of new cases has been noted at present, owing to the health measures taken in this connection. The disease has occurred in all Kreise of Bezirk Gera.

Several cases of intestinal disease were diagnosed as dysentery caused by the Flexner III/6 dysentery bacillus. The disease is not dangerous if medical treatment is sought promptly and treatment is administered in a hospital. Hospitalization is required not only to prevent the spread of the disease, but to ensure the most favorable conditions for recovery.

Investigation of the cause of the disease in order to determine its origin led to extensive safety measures, including the closing of some food stores and restaurants.

26. Increased Incidence of Ornithosis Infection Expected

"Pneumonia Resulting From Mass Ornithosis Infection," by Dr Bela Ference, report of the X-Ray Department (Dr Jozsef Halmi, senior physician), Hospital of the Gyor-Sopron Megye Council (Dr Janos Szasz, hospital superintendant); Budapest, Magyar Radiologia, Vol 14, No 5, Sep 62, pp 285-288

A series of unexpected illnesses occurred at the local poultry dressing enterprise. The enterprise processed ducks, hens, and chickens. When 22 of the workers were unexpectedly taken ill, ornithosis infection was immediately suspected. X-rays of 10 of the 22 patients actually should widespread atypical pneumonia and changes in the hilus.

The author warns that due to concentration and centralization of poultry dressing operations, the chances for this type of infection have increased; consequently, physicians should consider the possibility of ornithosis more frequently when there are pulmonary changes combined with anamnestic data.

ESP

27. Sharp Criticism of B. Kazhinskiy's Book "Biologicheskaya Radiosvyaz"

"Once Again on Telepathy," by K. Ivanov-Muromskiy, senior scientific worker of the Biocybernetics Department of the Institute of Cybernetics of the Academy of Sciences Ukrainian SSR; Kiev, Pravda Ukrainy, 15 Nov 62, p 4

This article is a critique of B. Kazhinskiy's recent book Biologicheskaya Radiosvyaz' (Biological Radiocommunication).

The reviewer begins by noting the great public interest in telepathy. Often, however, people have incorrect ideas about the nature of telepathy, which they acquire not only from uncritical reading of the older literature, but also from many incorrect contemporary presentations of the subject. They begin to consider it a means for the active control of the brain, the thorough development of mental facilities, and even the training of the personality. In the reviewer's opinion, Kazhinskiy's book just adds to his confusion.

First of all there is a question of principle -- is it possible to transmit "thought" by an electromagnetic wave? Having found analogues with radio engineering components in elements of the nervous system, having "discovered" elements of an oscillatory circuit in microscopic preparations of the nervous system, and having experimented with mental suggestion in animals across a screen and without one, Kazhinskiy stubbornly defends his hypothesis.

The first thing we note, the reviewer says, is that biocurrent is so negligible that its emission is very faint. Even if the bioelectric processes in the brain are characterized by electromagnetic emission, in order to telepathic communication to occur these oscillations must enter the brain of the person with whom the communication is taking place. This, the author states, is impossible: the cutaneous and muscular covering of the skull is a shielding case for these oscillations.

Experiments have been done in which these very biocurrents were drawn from the brain, strengthened, and then applied to the brain of another person. Thought could not be transmitted from man to man. Moreover, such a method was not effective for the transmission of every "summary" states of excitation or inhibition.

But, the reviewer continues, this fact would have been clear even without experiments. The formulation of the question is methodologically incorrect. An electroencephalogram cannot reflect thought -- it is the

summary expression of the physiological activity of many millions of nerve cells. As Prof D. S. Vorontsov said, "The most important thing in the mechanism of the activity of the cortex -- the interrelationship of its neurons -- is not reflected on the electroencephalogram."

The reviewer charges that Kazhinskiy completely ignores the difference between thought and electromagnetic waves, confusing the ideal and the material. He calls Kazhinskiy's concept of a third signal system "incorrect," and his statement that the pineal gland is one of the organs of biological radiocommunication in man and the vertebrates "absolutely unsubstantiated."

Kashinskiy completely ignored the experiments on telepathy done in the Soviet Union and abroad, the reviewer continues. These experiments showed that telepathy, if it is perceived, will pass through any screen, and that the effectiveness of its reception is not determined by distance.

It is possible, he says, that the conclusion of Prof L. L. Vasil'yev [the author of Vnushenive na Rasstovanii (Telesthesia), 1962] that telepathic communication is some sort of atavism, a remnant of our historic past, is correct.

It is the reviewer's concluding that the publication of Kazhinskiy's book was a mistake.

28. Soviet Research on ESP

"Concerning Professor Vasilyev's Thought Transference Experiments," by Tibor Lukacs; Orszag-Vilag, Budapest, Vol 6, No 35, 29 Aug 62, pp 10-11 and Vol 6, No 37, 12 Sep 62, pp 10-11

In parts two and three of a three-part article on experiments done by Leonyid Leonyidovich Vasilyev in the physiology department of Leningrad State University, Professor Vasilyev tells the Hungarian reporter how he first became interested in thought transference. He says that the charge of "idealism" which scientists usually raise when objecting the research in this area does not change the facts which, in his opinion, support the existence of telepathy. He cites the experiments of Upton and Mary Sinclair and tells of his own work with Vladimir Bekhtyev and Pyotr Lazarev in the 1930s. He says that in the most recent series of Soviet experiments he aimed at consciously reproducing the more spontaneous forms of thought transference, and he cites an instance in which a girl who was absent-mindedly sketching while talking to him reproduced the images he was trying to transmit.

It is Professor Vasilyev's opinion, based on his own work and on the experiments done in the submarine Nautilus, that thought transference is independent of distance and natural and artificial obstacles. He adds immediately, however, that the phenomenon should not therefore be regarded as "supernatural," and he hypothesizes that brainwaves are transmitted by some thus far unknown form of energy or physical field. He cites gravitational fields as an analagous example, and adds: "It is possible, however curious it may appear, that the energy released has some connection to the gravitational field." The Kossuth Prize-winning Hungarian Academician Elemer Szadecky Kardoss has suggested that the waves released by the brain are transmitted as a modulation of the gravitational field or a similar force field. Professor Vasilyev's laboratory is equipped with an electroencephalograph which is being used in an attempt to cast light on this problem.

Professor Vasilyev then describes an experiment with a rare moth. Using a female as bait, he captured 64 males, marked a few of them with dye, carried them 6-8 kilometers away, and they returned within 40-45 minutes. Males deprived of their antennae did not return to the female. In this case, he points out, the "radio connection" is important for the survival of the species, but in man this biological role, necessary for development of the faculty, no longer exists. Thus the faculty of thought transference is rudimentary in man, not a higher development. He notes a correlation between good "receivers" and psychoneurotic disturbances.

The article reports that the Leningrad University Press will soon publish Professor Vasilyev's book "Experimental Investigations of Thought Transference" (Russian title not given).

Immunology

29. Criteria for Determining Vaccine Effectiveness

"The Question of the Scientific Basis for the Degree of Epidemiological Effectiveness of Different Vaccines," by O. V. Baroyan, Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR; Moscow, Vestnik Akademii Meditsinskikh Nauk, Vol 17, No 9, Sep 62, pp 76-84

The evaluation of any immunogenic preparation is a complex process of epidemiological investigations and observations based on the biological properties of the pathogen, the mechanism of transmission of the infection in question, the susceptibility of the host, and environmental and social conditions. Objective and accurate results depend not only on the methods

With regard to the contraindications referred to in the instructions for using the smallpox vaccine and Instructions No 4020 of 28 November 1961, every stage of pregnancy should be considered an absolute contraindication.

Medical Equipment

32. Surgical Polygraph Performs Eight Operations Simultaneously

"Novelties in Technology"; Tbilisi, Zarya Vostoka,
5 Aug 62, p 4

This article briefly describes a surgical polygraph, or medical "combine," which can perform eight operations simultaneously. The functions mentioned are the automatic checking of blood pressure, pulse and breathing rate, the amount of oxygen in the blood, the work of the heart, and the depth of anesthesia.

33. Electronic Machines at Institute of Surgery imeni A. V. Vishnevskiy

"Side by Side With the Patient ... the Engineer," by Al. Vasina, Central Scientific-Research Institute of Sanitary Education; Riga, Sovetskaya Latvija, 2 Nov 62, p 4

This article discusses the various applications of electronics at the Moscow Institute of Surgery imeni A. V. Vishnevskiy. The head of the cybernetics laboratory at the institute is M. L. Bykhovskiy.

In the laboratories a new television microscope which would allow a surgeon to see a piece of tissue enlarged many times under a microscope without having to leave the operating table is being tested.

Color television is used to enable students to watch operations.

Electronic diagnostic machines help the doctor to achieve as correct a diagnosis as possible. The engineer translates the data from the analyses into the language of numbers and puts them into the "electronic brain" of the cybernetic machine. The machine has two logical systems, as if two specialists thinking differently were trying to find the answer to the same problem.

of investigation, but also on the approach selected for analysis of the facts accumulated. A method of specific prophylaxis for eradicating any infectious disease should be selected on the basis of two questions: is it possible to eradicate the pathogen of a particular disease by direct action on it, or only by such drastic changes in ecological conditions that it cannot survive? And, can the proposed preparation appreciably increase the collective immunity of the population to render it absolutely nonsusceptible to the given infection?

An objective approach to evaluating the degree of epidemiological effectiveness of any prophylactic preparation can lead to the development and widespread use of the most economical and effective measures of specific prophylaxis directed toward the fulfillment of state requirements for decreasing the infectious disease incidence.

Poliomyelitis epidemics in the US, Switzerland, Finland, Sweden, and the USSR are analyzed.

30. Antibotulinum Serum Tested

"The Preparation of Hyperimmune Serum Against Type C_B Botulinum and Testing of Its Activity," by M. S. Polykovskiy, A. V. Lyaushkin, and V. M. Podkopayev, Tr. Vses. In-ta Eksperim. Veterinarii (Works of the All-Union Institute of Experimental Veterinary Medicine), No 25, 1961, pp 411-425 (from Referativnyy Zhurnal -- Biologiya, No 19, Oct 62, Abstract No 19B447)

[No abstract given.]

31. Smallpox Vaccinations in Bulgaria

"Vaccination and Revaccination of the Populace"; Sofia, Zdraven front, 20 Oct 62, p 3

The Ministry of Public Health and Social Welfare in Bulgaria has issued instructions to okrug and urban health sections concerning vaccination and revaccination of the populace against smallpox. According to Ministry Order No 50 of 9 January 1962, women 20-45 years of age must be vaccinated or revaccinated between 1 and 30 November 1962. All males 20-45 years of age subject to vaccination or revaccination according to the provisions of Order No 3660 of 28 October 1961, are to be vaccinated. All children under 5 years old including those who have not previously been vaccinated are to be vaccinated. Persons 5 to 17 years old who have not been vaccinated against smallpox are not to be vaccinated until a second order is issued. Particular attention should be given to vaccinating eligible children within one year.

34. A Syringe for Introduction of Roentgenocontrast Substances into Abdominal Cavity

"Instrument for Translumbar Angiography," by L. I. Kukushkin, B. N. Gulin, and I. I. Borodko, Scientific-Research Institute of Experimental Surgical Apparatuses and Instruments; Moscow, Meditsinskaya Promyshlennost' SSR, Vol 16, No 10, Oct 62, pp 57-60

A syringe for the introduction of roentgenocontrast substances into the abdominal cavity, making possible the visual examination of the vessels, has been designed at the Scientific-Research Institute of Experimental Surgical Apparatuses and Instruments and is described in the article. Similar instruments making possible the angiography of cerebral and peripheral vessels have been designed.

35. Production of New Medical Equipment

"The Artificial Hearth Functions"; Leningrad, Leningradskaya Pravda, 13 Oct 62, p 4

A number of new medical instruments are now being assembled at the Krasnogvardeyets Plant. These include an apparatus for artificial blood circulation, ISL; photo equipment for endoscopic instruments, making it possible for the physician to photograph and visually examine different cavities of the human organism; electrokimographs which will register the pulsations of different parts of the heart and lungs.

36. Modern Medical Theory and Practice is Result of Development of Many Disciplines

"Technology and Medicine," by Prof A. Fedorovskiy, Honored Scientist of the Ukrainian SSR; Kiev, Pravda Ukrainy, 11 Oct 62, p 3

It is reported in this article that physics, chemistry, biochemistry, mechanics, mathematics, and electronics have contributed much toward the development of medical theory and toward effective and efficient medical science. Technology has made automatic diagnostic systems possible and has created plastic blood vessels and spare parts for the human body.

A fully automated system is now available for the analysis of electrocardiograms. Instruments are now being used to measure and record the oxygen saturation of the blood. Electronics has been used in investigations of electric currents in various organs, to record vibrations in the walls of blood vessels, and to determine exact fluctuations in temperature.

Radiotechnicians helped to design an "intracardiac microphone" which can be pushed to the heart: it transmits noises from the heart which can be used in diagnosis. This instrument was constructed under the supervision of Prof P. A. Kupriyanov. It is claimed that this apparatus is superior to any similar model used outside the Soviet Union.

An "artificial heart-lung" is now widely used during cardiac surgery. Another apparatus is the "artificial kidney," used to replace a defective kidney when the patient's life is endangered. Also, an apparatus that administers anesthesia and automatically determines and maintains the necessary dose of ether is in use.

Electrotherapy, the utilization of high frequency electromagnetic and mechanical oscillations, i. e., ultrasound, has been successfully used in treating ischias, plexitis, postnatal mastitis, paronychia, carbuncles, and furuncles.

Polymers of high molecular weight have been utilized in medicine. Chemists have devised synthetic blood substitutes which have proved to be effective in treating shock and have been used effectively in cases of low blood pressure or loss of a large amount of blood. Synthetic blood substitutes often produce better results than whole blood transfusion.

Various protien substances obtained from blood protein of animals are coming to the aid of physicians. They have astringent properties and have been used in burn cases and during surgery on nerves, cerebrum, and the spinal cord.

Considerable progress has been made in the use of human tissue substitutes made of such synthetic material as nylon, kapron, lavsan, and teflon. Polyvinyl polymer has been used to replace injured or destroyed blood vessels.

The author of this report complains, however, that all this material can be obtained only in a round-about way. Plastic medical equipment is displayed only at various exhibits. The State Planning Commission has formulated no plans for mass production of plastic medical equipment. Many hospitals and outpatient clinics have modern equipment, but no repair shops can be found anywhere in case of breakdown.

37. New Clinical Analysis Instrument Developed in East Germany

"Forty-Five Blood Tests per Hour Without Centrifuges or Pipettes"; Berlin, Neue Ziet, 21 Nov 62, p 5

An automatic analysing instrument for clinical laboratories, developed by physicians and technicians at the Pharmacological Institute of the Medical Academy in Magdeburg, will save about 60 percent of laboratory work involved

in routine examinations, such as blood sugar, hemoglobin, bicarbonate, and residual nitrogen analyses. The new instrument, with which up to 45 blood tests per hour can be made, eliminates the use of centrifuges, pipettes, and test tubes.

Seeking information about world-wide standards of clinical laboratory techniques, scientists and technicians discovered an instrument whose basic concept they used and developed further. They used elements available in the GDR to construct an automatic system. Glasses containing the test material pass in succession through a suction device. Their contents are mixed with chemical liquids and the analysis, obtained through coloration, is registered by a recorder. Physicians believe that this automatic analysis device may also be used during operations for continuous control of the blood composition.

Oncology

38. Neocid in Therapy of Cerebral Tumors

"Therapeutic Properties of Neocid," by V. S. Derkach, Chair of Microbiology, Kharkov Medical Institute and the Microbiological Department of the Kharkov Scientific-Research Institute of Vaccines and Sera imeni I. I. Mechnikov; Moscow, Antibiotiki, Vol 7, No 9, Sep 62, pp 813-815

The application of natural neocid to patients suffering from tumors of the central nervous system produced highly beneficial results: symptoms of intoxication were alleviated, the appetite and sleep improved, biochemical indices were restored to normal. In most cases, neocid was administered to patients following surgical interference. It was beneficial, however, in inoperative cases as well. Considerable improvement in the condition of patients suffering from tumors of various localizations following the administration of neocid was also noted. Tests of the preparations are being continued.

39. Therapy of Crocker's Sarcoma

"Effect of Certain Inhibitors on the Growth of Crocker's Sarcoma in Albino Mice," by I. S. Belonosov, Sb. Dokl. 2-y Nauchn. Konferentsii Fiziologov, Biokhimikov, i Farmakologov Zap.-Sib. Ob'yed. Posv. XXII S'yezdu KPSS (Collection of Reports on the Second Scientific Conference of Physiologists, Biochemists, and Pharmacologists of the Western Siberian Association Dedicated to the 22d Session of the Communist Party of the Soviet Union), Tomsk, Tomsk University, 1961, pp 173-174, (from Referativnyy Zhurnal -- Biologiya, No 12, 25 June 62, Abstract No 12 S1492, by V. Vasilevskiy)

"Investigations were conducted to determine the effect of inhibitors of glycolysis on the growth of Crocker's sarcoma in albino mice. After the animals were inoculated with the tumor they received daily NaF, ICH_2COOH (0.1 milliliters of a 0.1 percent solution), phenylhydrazine (I), and semicarbazide (II; 0.1 milliliters of a 2 percent solution of each), Na malonate (III), and Na arsenate (IV; 2-5 milligrams). It was found that II prolonged the lives of the animals by 10 to 14 days as compared with the control animals; it reduced the total content of N, and the concentration of residual N in the tumor. I, NaF, and ICH_2COOH were found to be less effective. III and IV were ineffective."

40. Effect of Antibiotic 323/58 on Tumors

"Experimental Investigation of the Antitumorous Action and Effect on the Organism of Antibiotic 323/58," by L. Ye. Gol'dberg, O. K. Rossolimo, M. S. Stanislavsakaya, T. P. Vertogradova, N. A. Blyumberg, V. Ye. Kremer, and I. P. Belova, Laboratory for the Experimental Study of the Therapeutic Properties of New Antibiotics, Institute for the Search of New Antibiotics, Academy of Medical Sciences USSR; Moscow, Antibiotiki, Vol 7, No 10, Oct 62, pp 884-888

Mice and rats were used in the experiments which were carried out to determine the antitumorous action and effect on the organism of antibiotic 323/58 isolated from *Actinomyces reeseofulvus* var. *tauricus*. The antitumorous action of the antibiotic was studied on seven types of tumors: Crocker's sarcoma, solid form of Ehrlich's adenocarcinoma, lymphosarcoma, myeloleukosis, Guerin's carcinoma, sarcoma 45, and Tarashchansk rat sarcoma. The antibiotic was administered to the animals subcutaneously in daily doses ranging from 7.5 to 180 units per kilogram body weight at various periods following the implantation of the tumors. The experiments established that antibiotic 323/58 has an inhibiting effect on the development of lymphosarcoma and Crocker's sarcoma; it only slightly affected the development of Ehrlich's tumors; it has an inhibiting effect on the growth

of mouse myeloleukosis; the antibiotic had no effect on the growth of Guerin's carcinoma, sacroma 45, and Tarashchank rat sarcoma in rats; the antibiotic induced the development of leukocytosis; the antibiotic induced the fatty degeneration of the liver according to the results of the histopathological examination of the organs of the animals.

41. Anticancerous Substance From Osage Orange

"Osage Orange -- Conqueror of Cancer"; Tass Report, Riga, Sovetskaya Latvia, 4 Nov 62, p 4

"Turkmen botanists are investigating an insignificant looking plant with dark-green leaves widely distributed in the republic. The plant is known as osage orange and bears an orangelike fruit. Preliminary investigations disclosed that the fruit of this plant contains a substance which has a destructive effect on cancerous cells. The scientists are now striving to isolate new medicinal substances from the fruit."

42. New Device Aids Cancer Recognition

"An Apparatus Establishes Diagnosis"; Moscow, Leninskoye Znamya, 9 Oct 62, p 2

"It is not always possible for a physician to recognize symptoms of cancer early enough. The disease is insidious: it asserts itself much too late. Naturally, it is important to recognize cancer early and not let its sinister tentacles spread to vital neighboring tissue."

"Here is where the 'RUM-1p,' a new diagnostic roentgen apparatus, can render invaluable service. The new apparatus was displayed publicly at the exposition held in the Park of Culture and Rest imeni Gor'kiy during the Eighth International Cancer Congress."

43. Czechoslovak Study of RNA Content of Tumors

"Oncogenic Activity and Ribonucleic Acid Content of Partially Purified Virus Preparations From Chick Tumors," by J. Smida of the Research Institute for Oncology in Bratislava; Bratislava, Bratislavske Lekarske Listy, No 8, Oct 62, pp 449-454

By means of differential centrifugation, partially purified preparations of oncogenic viruses were isolated from chick tumors B77 and MH₂. Estimates of the oncogenic activity of the preparations showed that the average ID₅₀/ml content of the preparation from the B77 tumor was higher than that from the MH₂. The virus preparations with higher RNA content proved to exhibit also higher average oncogenic activity. This finding is discussed.

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

Attempts at isolating the infective RNA from partially purified B77 preparations failed as the isolated RNA produced no discernable changes in the experimental chicks within 60 days from inoculation. (FOR OFFICIAL USE ONLY.) (COPYRIGHT) by the Publishing House of the Slovak Academy of Sciences, 1962)

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

Pharmaceuticals and Biologicals44. Therapy of Traumas With Preparations With Curarelike Action

"Concerning the Application of Preparations with Curarelike Action in Traumatology and Orthopedics," by B. Lepekhuu; Tallinn, Zdravookhraneniye Sovetskoy Estonii, No 4, July Aug 62, pp 9-12

The application of preparations with curarelike action has been found to be highly beneficial in traumatic and orthopedic cases in which the relaxation of the muscles is required; they have been found to be helpful in cases which require the setting of fractures, the correction of dislocations, as well as the correction of contractions in orthopedic patients; they act as antispasmodics in tetanus, and have been found to be valuable in the therapy of shock. Ditilin, listenon, and miorelaxin are recommended for use in cases which require the setting of fractures and the correction of dislocations; diplacin and d-tubocuraremine for the therapy of tetanus. Because of the possibility of complications the substances are to be used only under conditions in which intubation is possible.

45. Coamide -- a Compound of Co and Nicotinic Acid

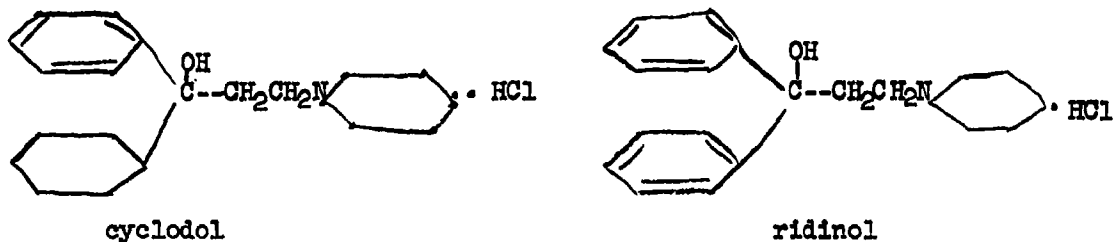
"Coamide in the Therapy of Some Eye Diseases," by L. V. Kal'ginbayeva, V sb. Materialy 2-y Vses. Konferentsii Oftal'mologov (Collection of Reports of the Second All-Union Conference of Ophthalmologists), 1961, Tbilisi, Republican Scientific Association of Ophthalmologists, 1961, pp 303-304 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 12, 25 Jun 62, Abstract No 12 S1449

"The author ascribes the therapeutic effect of coamide (a complex compound of Co and nicotinic acid) when applied in the therapy of the atrophy of the optic papilla and the pigmentary degeneration of the retina to the vasodilating action of nicotinic acid and the effect of Co on nervous tissue metabolism. Coamide may be administered intramuscularly and subcutaneously in doses of one milliliter. The course of therapy is 20 to 25 days."

46. Cyclodol and Ridinol -- New Preparations

"Cyclodol and Ridinol -- Preparations for the Therapy of Parkinsonism," by A. I. Polezhayeva, All-Union Scientific-Research Institute imeni S. Ordzhonikidze; Moscow, Meditsinskaya Promyshlennost' SSSR, Vol 16, No 10, Oct 62, pp 54-55

Cyclodol and ridinol were synthesized by N. A. Kopylova at the Laboratory of Mixed Organic Substances of the All-Union Scientific-Research Chemicopharmaceutical Institute imeni S. Ordzhonikidze. Both are white crystalline powders, readily soluble in water; the melting point of cyclodol is 243-245 degrees; that of ridinol -- 229-234 degrees. Their chemical structures are as follows:



Both preparations exhibited a peripheral cholinolytic action when administered to animals. In doses of 1 to 5 milligrams per kilogram body weight administered intravenously to mice and rabbits they completely abolished hyperkinesia and spasms induced by arecoline; in doses of 30 milligrams per kilogram body weight they prevented the development of nicotine induced spasms in mice. In larger doses side reactions in the form of dizziness, dryness in the mouth, and increased pulse rate occurred. The LD_{50} for mice when intravenously administered is 39 milligrams per kilogram body weight for cyclodol, and 34.5 milligrams per kilogram body weight for ridinol.

47. Dibiomycin in Therapy of Trachoma

"Therapy of Trachoma in Tadzhikistan with Dibiomycin, a New Preparation," by A. S. Vaysblat, A. A. Dzhumabayeva, and N. N. Livanskaya, Chair of Microbiology, Central Institute for the Advanced Training of Physicians and the Republic Trachomatous Out-Patient Clinic, Ministry of Health Tadzhik SSR; Moscow, Antibiotiki, Vol 7, No 9, Sep 62, pp 829-891

Trachoma is a disease that is widespread among the rural population of the Tadzhik Republic, and the search for an effective remedy for its control is an urgent matter. Recently, dibiomycin, a chlortetra-

cycline compound of prolonged action, has been found to be highly effective in the therapy of trachoma. The application of dibiomycin in the form of one percent ointment cured 59.3 percent of trachoma patients within 4 to 7 months. It was found to be particularly effective when applied to patients suffering from trachoma in the third stage with residual symptoms of infiltration.

Pharmacology and Toxicology

48. Frenolon -- a New Neurosedative Preparation

"Our Experience with the Application of Frenolon in the Therapy of Neurological Diseases," by T. Lehoczky and M. Halasy, Ideggyog. Azle (Hungary), 1962, 4, pp 110-114 (from Meditsinskiy Referativnyy Zhurnal, Section 9 No 11, Nov 62, Abstract No 2852, by A. N. Ivanov)

"The results of the therapeutic application of frenolon to 100 hospitalized and ambulatory patients are reported. Frenolon is a new tranquilizer being produced by the Hungarian pharmaceutical industry; it is derived from perphenazine by the esterification of the latter with trimethoxybenzoic acid. Chemically it is the [N¹-beta-hydroxyethyl-(N¹-(N¹)-3-(3¹-chlorophenothiazinyl (propyl)-3,4,5-ester of trimethoxybenzoic acid)]. Pharmacological investigations established that the neurosedative effect of frenolon is greater than that of chlorpromazine and perphenazine; it is considerably less toxic than the latter two. The preparation was administered to 100 patients : 39 of them suffered from neuroses which developed on a background of organic diseases; 40 -- suffered from other neuroses or psychopathic reactions; 11 were afflicted with neuroses caused by cerebral sclerosis; 6 -- suffered from climactic neurasthenia. Most of the patients (85) were treated with daily doses of 15 milligrams; 15 of the patients required doses of 30 milligrams daily. The course of treatment continued for periods of 4 to 5 weeks. Excellent results were obtained in 21 of the patients; considerable improvement was noted in 27 of the patients; only slight improvement was noted in 23 of the patients. No toxic or side reactions were observed; all the patients tolerated the drug well. The authors regard frenolon as a highly effective preparation in the therapy of the above-mentioned diseases."

49. Giparez -- a Preparation for the Therapy of Hypertension

"Giparez," by N. Kipshidze, Director of the Institute of Experimental and Clinical Therapy, Tbilisi; Moscow, Meditsinskiy Rabotnik, 21 Sep 62, p 3

Giparez, a preparation containing 25 milligrams of hypotiazid, 25 milligrams of apressin, 0.1 milligram of reserpine, and 300 milligrams of potassium chloride, has been successfully applied in the therapy of hypertension in all states. No side reactions were noted.

50. Gumizol' -- an Antiinflammation Preparation

"Gumizol', a New Therapeutic Preparation Prepared From Estonia Sea Mud," by E. Keel, Tr. In-ta Eksperimen. Med. AN LitSSR (Works of the Institute of Experimental Medicine, Academy of Sciences Lithuanian SSR), 8, 1961, pp 269-275 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 17, Sep 62, Abstract No 17 S1513)

"Gumizol' (a mud preparation) contains a fraction which is rich in humic acids (33 to 40 percent) and exhibits considerable anti-inflammation action. The administration of the humic fraction to albino rats (500 gamma per kilogram body weight) induced an increase in the excretion of 17-ketosteroids with urine. Small doses of the fraction (2 to 10 gamma per kilogram body weight) caused a decrease in the elimination of the ketosteroids. In doses of 125 to 250 gamma per kilogram body weight, it decreased the concentration of ascorbic acid in the suprarenal glands. The author, however, does not link the biological properties of gumizol' with its content of humic acids and effect on the hypophysis-adrenal system. A complex of active substances deprived of humic acid but 250 times more potent than the fraction has been isolated from the humic fraction. In the author's opinion, the therapeutic mud contains biologically active substances of an oligodynamic character."

51. Melipramie -- an Antidepressant

"Melipramie Therapy of Depression," by S. Soos, Orv. Hetil. (Hungary), 7, 1962, pp 310-312 (from Meditsinskiy Referativnyy Zhurnal, Section No 11, Nov 62, Abstract No 2862, by A. N. Ivanov)

"Information on melipramine, a new Hungarian preparation derived from imipramie [N-(3¹-dimethylaminopropyl-1,10,11-dihydro-5-dibenzoazepine HCl)], is given. The preparation was therapeutically applied

to 32 ambulatory patients afflicted with depression which was found to be resistant to therapy by other ataractic and tranquilizing preparations. In most cases, the depression developed on a background of climactic or organic diseases (hypertension, cardiocerebroscerosis, hyperthyrosis, stomach ulcers, and chronic colitis). The dosage of the preparation administered was on a strictly individual basis; all the patients, however, received intramuscularly one milligram of the preparation every other day (the injections were alternated with the administration of the drug in dragee form; three dragees twice daily). The course of treatment continued for periods of 2 to 6 months. Improvement, however, was already noted during the first week after therapy was begun. Good results were obtained in all of the patients with the exception of one who was suffering from cephalgia. The general outlook and appetite of the patients improved; they felt better; they began to enjoy life and became active, and a psychic balance was restored. It was noted also that as a result of these effects somatic diseases lent themselves to therapy more readily. No toxic effects as a result of the administration of the drug were noted. Muscular debility of brief duration developed in four of the patients; some developed low blood pressure; one -- diaphoresis. All of the patients developed dryness in the mouth following the primary intramuscular administrations of the drug. It is the author's opinion, based on observations, that melipramine is therapeutically as effective as tofranyl, its analogous preparation."

52. Effect of Penicilin on the Subarachnoid Fluid

"Modifications of the Cellular Composition of the Fluid Following the Prophylactic Administration of Penicillin (Clinical-Experimental Investigation)," by G. A. Zhukov, Voyenn-Med. Zh (Military Medical Journal), No 2, 1962, pp 25-29 (from Referativnyy Zhurnal -- Biologiya, No 20, Oct 62, Abstract No T 234, by G. Kosach)

"Observations of 110 patients suffering from traumas of the cerebrum and its membranes were conducted. All of the patients received prophylactic injections of penicillin into the subarachnoid fluid system. Following the injections, 14 of the patients developed high temperatures and headaches of brief duration, intense symptoms of membrane irritation, vomiting, bradycardia, and epileptic spasms. A change in the cellular composition of the subarachnoid fluid constituted the most sensitive index of the organism's reaction to penicillin. Pleocytosis developed in 65 of the patients; no reaction to the penicillin occurred in 28 of the patients; pleocytosis decreased in 17 of the patients. The affection developed during the first hours and reached its maximum within 6 to 12 hours after the injection of the penicillin. The number of cells was restored to normal within the following 2 days. Pleocytosis

began to develop after the first injection of penicillin; it failed to develop or developed only to an insignificant degree after a second administration of the drug. The degree to which pleocytosis developed depended on the size of penicillin dose administered. Small doses of the drug (10,000 to 25,000 units) either failed to induce pleocytosis or developed it in a mild form. Large doses (50,000 to 100,000 units) induced pleocytosis to an extent of 5,000 to 30,000 cells in one cubic millimeter; the fluid became cloudy, resembling a pus-containing fluid; it differed, however, from the purulent meningitis fluid in that it was sterile. Experiments which were carried out on 38 dogs confirmed the clinical data which were obtained."

53. Plegangine -- a New Hypotensive

"Clinical Experimental Investigation of Plegangine, a new Hypotensive Preparation," by Prof Ts. A. Levina and A. I. Romanovskaya, a Candidate of Medical Sciences, Joint Chair of Propedeutics of Internal Diseases, Odessa Medical Institute imeni N. I. Pirogov; Moscow, Kardiologiya, Vol 2, No 4, Jul/Aug 62, pp 31-35

Pleganine is a new hypotensive drug prepared in Hungary. Chemically it is the hydrochloride of 3-methylaminoisocamphane. Pharmacologically it is a ganglioblocking preparation. It was administered to 38 patients suffering from second- and third-degree hypertension with the following results:

1. There was an improvement in the general condition of the patients; sleep became normal; headaches disappeared.
2. Arterial pressure, both systolic and diastolic, was reduced.
3. The tendencies for cardiac and cerebral crises diminished.
4. Favorable shifts of the indexes of the electrocardiograph were noted.

Plegangine may be considered as an effective drug in the therapy of patients suffering from prolonged forms of hypertension.

54. Quateron -- a New Ganglioblocking Preparation

"Data on the Clinical Application of Quateron, a New Ganglioblocking Preparation in the Therapy of Patients Suffering From Angina Pectoris," by N. M. Davidovskiy, Chair of the Therapeutic Faculty, First Leningrad Medical

Institut imeni I. P. Pavlov and the Institute of Fine Organic Chemistry; Moscow, Terapevticheskiy Arkhiv, Vol 34, No 10, Oct 62, pp 55-58

Quateron, the iodoethylate of the alpha, beta-dimethyl-gamma-diethylamino propyl ester of parabutoxybenzoic acid, was synthesized at the Institute of Fine Organic Chemistry under the guidance of Professor Midzhoyan. It was administered to 125 patients suffering from angina pectoris with the following results: It was found to be an effective preparation in the therapy of angina pectoris whether under hospitalized or ambulatory conditions; its effectiveness is reduced when administered to patients with angina pectoris who are at the same time afflicted with chronic cholecystitis, ulcers, and other diseases. Because of its cumulative properties, overdosage with the drug is possible. It is, therefore, recommended that its administration be started with a dose not exceeding 0.02 gram and a daily dose not exceeding 0.06 to 0.08 gram; an interval is desirable after 3 weeks of treatment. The drug is only slightly hypotensive and has no effect on blood content of cholinesterase.

55. Effect of Rauwolfia Alkaloids on Renal Circulation

"Effect of Rauwolfia Alkaloids on the Renal Functions of Patients Suffering From Hypertension," by P. I. Mishchenko, Chair of Propedeutics of Internal Diseases, Pediatric Faculty Second Moscow Medical Institute imeni N. I. Pirogov; Moscow, Kardiologiya, Vol 2, No 4, Jul/Aug 62, pp 80-82

The effect of Rauwolfia alkaloids on renal functions in patients suffering from hypertension was the object of investigations the results of which are reported in this article. The alkaloids were administered to 120 patients suffering from first, second, and third degrees of hypertension. The observations established that Rauwolfia alkaloids have a positive effect on the renal functions of patients suffering from hypertension; renal circulation in patients afflicted with first-degree hypertension was restored to normal; renal circulation in most patients suffering from second degree hypertension was restored to normal; as light increase in renal circulation was noted in some of the patients with the third degree of the disease; albuminuria, microhematuria, and leukocyturia diminished or completely disappeared in patients afflicted with second and third degrees of hypertension; the alkaloids had no effect on nycturia in patients suffering from the second and third degrees of the disease.

56. Expedition Discovers Medicinal Plant

"Various Things in Brief"; Moscow, Moskovskaya Pravda, 2 Oct 62, p 3

The dog rose, a rare plant with medicinal properties, was discovered in the Bayan-Aul mountains by an expedition of the Central Genetics Laboratory imeni Michurin and the Botanical Garden of the Moscow State University. The fruits of the dog rose contain a high percentage of vitamin P [bioflavonoid], an agent for reducing blood vessel permeability and vitamin C, used as an antiscorbutic agent. Besides this, they found large thickets of the black-fruit dog rose, an excellent raw material for the production of natural dyes.

57. ACTH Synthesized in Hungary

"Corticotropin Synthesized in Hungary," abstract from Austrian pharmaceutical periodical; Zagreb, Farmaceutski glasnik, No 8-9, 1962, p 347

A group of research scientists in the Kobanya research laboratory in Budapest has succeeded in synthesizing the polypeptide ACTH. It was necessary to work out 81 different intermediary products to create this polypeptide. Production of this hormone in great volume has already begun.

Physiology58. Regulation and Compensation of Functions in Rats During Radial Accelerations Discussed

"Changes in the Content of Some Biologically Active Substances in Rats During the Action of Radial Accelerations," by I. M. Khazen and I. L. Vaysfel'd, Moscow, Voprosy Meditsinskoy Khimii, Vol 8, No 5, Sep/Oct 62, pp 493-497

The nature and significance of histopathological Changes observed in the intestinal mucosa, the lungs, and the brain tissue of rats subjected to single and repeated positive and negative accelerations are discussed. Comparison of data collected on the dynamics of change in the content of biologically active substances showed that neurohumoral mechanisms of regulation and compensation of functions play an important role in the tolerance of a living organism to accelerations for a given period.

The experiments were conducted on four groups of rats, which were subjected accelerations of 10 Gs for one minute.

59. Environmental Temperature and Sensitivity to Anoxia Discussed

"The Role of 'Natural' Hypothermia During Anoxia and the Effect of Low Environmental Temperature on Its Course," by Ye. V. Gubler (Leningrad); Moscow, Uspekhi Sovremennoy Biologii, Vol 53, No 3, May/Jun 62, pp 306-322

This report surveys the literature dealing with "natural" hypothermia in unanesthetized animals and humans. The report discusses also the possibility of intensifying hypothermia by exposing living organisms to low environmental temperature to increase their tolerance. The condition of thermoregulating centers chilling is one of the principal factors which determine the effect of hypothermia. If thermoregulating centers are inhibited sufficiently during anoxia, intensification of hypothermia by lowering environmental temperature leads to a decrease in the demand for oxygen and a decrease in sensitivity to its insufficiency. This is unattainable when the body temperature is normal.

Experiments were performed on cats and rodents. The role that hypothermia plays in human during severe anoxia at room temperature and particularly at low environmental temperature requires further study.

60. Changes in Higher Nervous Activity in Dogs During Stress Reaction Discussed

"The Effect of Stress Reaction on Higher Nervous Activity,"
by N. A. Nikolov, Chair of Pathophysiology, Higher Medical
Institute imeni I. P. Pavlov, Plovdiv (Bulgaria); Moscow,
Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 54,
No 10, Oct 62, pp 63-66

The author describes in this article the changes that took place in the higher nervous activity of four experimental dogs in response to a stress reaction produced by 2 milliliters of a 10% solution of formalin injected into the foot of the right front leg. Marked inhibition in the cerebral cortex and subcortex of the experimental animals was observed during the first day, and the eosinophil count dropped by more than 50%, causing shock. Arrest of shock was noted within the next 3 days, and a period of resistance followed. The nervous system became inhibited again at the stage of exhaustion. The excitation that followed the stage of exhaustion manifested itself less in the cerebral cortex than in the subcortex. This is explained by the fact that, in the evolution of the animal organism, the nerve ganglia in the subcortex developed much earlier than did the nerve formation in the cerebral cortex and is, therefore, more resistant to strong irritations.

61. Book on Acclimatization to Cold Environment Reviewed

Klimat i Zdorov'ye Cheloveka na Kraynem Severe (Climate and Human Health in Far North), edited by N. N. Litvinov, Medgiz, 15 printed pages; Moscow, Gigiyena i Sanitariya, No 10, Oct 62, inside back cover

"The book is intended for scientific workers, hygienists, and clinicians. The material presented in the book covers the results of studies of the principal questions on the hygiene of human acclimatization and peculiarities, clinical aspects, and treatment of some pulmonary, cardiovascular, and communicable diseases peculiar to conditions existing in far northern regions. Epidemic control, sanitary and hygienic, and other measures for increasing preventive medical effort against diseases are cited."

62. Relationship Between Posture and Tolerance of High Environmental Temperature by Rabbits

"The Relationship Between Respiratory Changes Under High Environmental Temperature Conditions and the Animal's Position," by A. O. Novakatikyan, Laboratory of Clinical Physiology, Donetsk Scientific-Research Institute of the Physiology of Labor; Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 54, No 10, Oct 62, pp 60-63

This report describes two series of experiments conducted on 17 rabbits to determine to what extent the position of these animals influences their respiration when the environmental temperature is increased. Results of these experiments showed that thermal tachypnea does not depend on the position in which the rabbits may be placed. A considerable increase in the respiration rate was noted in rabbits, however, when they were not tied to their bench; their respiration rate decreased when they were tied to the bench in a supine position. This was observed both when the environmental temperature was normal and when it was high. It was also noted that the variation coefficient of respiratory frequency decreased and the body temperature increased in rabbits when they were exposed to high environmental temperature.

63. Effect of Eserine on Some Visual Processes

"Effect of Eserine on the Light Sensitivity of the Eye and Its Adaptation to Dark," by Candidate of Medical Sciences M. S. Trusov, Eye Clinic Khabarovsk Medical Institute; Kiev, Oftal'mologicheskii Zhurnal, Vol 17, No 6, 1962, pp 366-371

The results of the experiments which were conducted in order to determine the effect of eserine, an anticholinesterase preparation, on optical processes are reported in the article. There were 114 investigations conducted. They established that the subcutaneous injection of 0.1 aqueous solution of eserine in doses of 0.5 to 0.8 milliliter intensified the light sensitivity of the eye and accelerated the process of its adaptation to dark; this action of eserine reached its maximal effectiveness within 1.5 to 2.0 hours and continued for a period of 6 to 12 hours; to produce this effect, eserine should be administered in doses considerably smaller than those applied therapeutically; the intensified light sensitivity and the acceleration of adaptation to dark following the application of eserine are due to the increase in the content of endogenic acetylcholine in the synapses.

64. Book on Metabolic Changes in the Brain During Dying and Resuscitation To Be Published

Biokhimiya Mozga Pri Umiranii i Ozhivlenii Organizma
(Biochemistry of the Brain During Dying and Resuscitation of an Organism), by M. S. Goyevskaya, Medgiz, ten printed pages; Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 54, No 10, Oct 62, inside back cover

"The experimental data presented in this monograph reflect the changes that take place in carbohydrate-phosphorus and nitrogen metabolism within the cerebrum during dying due to hemorrhage and during restoration of the vital functions of an organism following clinical death. The effect of artificial hypothermia of various levels on metabolic changes in the brain, during dying and on the process of its normalization, during resuscitation, is also indicated."

65. Physiological Shifts Caused by Noise in a Human Organism Discussed

"The Combined Effect of Vibration and Noise on Man," by Candidate of Medical Sciences A. A. Arkad'yevskiy, Moscow Scientific-Research Institute of Hygiene imeni F. F. Erisman of the Ministry of Health RSFSR; Moscow, Gigiyena i Sanitariya, No 10, Oct 62, pp 25-29

The author of this report describes the study he conducted, under laboratory conditions, to determine the effect of noise of medium frequency and an intensity of 85 decibels and of general vertical vibration of 50 cycles and an amplitude of 15 microns on the human organism. Results of his study showed that vibration by itself and noise by itself produced no marked shifts in the organisms of five healthy young people from 19 to 24 years of age. The combined action of these factors produced physiological shifts in the auditory analysors and in the cortical and vegetative branches of the central nervous system.

The study consisted of four series of tests the aim of which was to evaluate the following: (1) the effect of conditions under which vibration and sound were absent; (2) the effect produced by noise alone; (3) the effect produced by vibration alone; and (4) the combined effect of noise and vibration.

Psychology66. Development of Psychology in Bulgaria

"Conference on Psychology"; Sofia, Narodna Armiya, 12 Dec 62,
p 3

On 10 December 1962, a national conference was held at the Bulgarian Academy of Sciences to consider prospective developments in the field of psychology and its present status in Bulgaria. In the report given by Prof G. Pir'ov, corresponding member of the academy, it was pointed out that Bulgaria is seriously lagging in the theoretical development of psychology, as well as in its practical application. Because psychology has been grossly underrated, personnel and laboratory equipment needed to carry out experimental work are lacking.

However, by about 1965, after various sections for child, labor, and sports psychology have been organized, a psychology institute is to be created under the Bulgarian Academy of Sciences. This will require that the training of appropriate scientific personnel begin immediately and that postgraduate work in Bulgaria and in other socialist countries be extensively utilized for this purpose.

Docent-Colonel D. Yosifov reported on the status of military psychology in Bulgaria, acquainting the conference with the immense successes that have been achieved in this field in Bulgaria. Others who spoke included Academician Sava Ganovski, Academician G. Uzunov, Prof Dr K. Cholakov, Prof Dr Matev, Professor Bunkov, Docent E. Geron, A. Petkov, and Khr. Bonev.

Radiation Sickness67. Amides as Antiradiation Agents

"Antiradiation Properties of Amide Compounds," by Iv. Nikolov, Il. Bayev, D. Zografov, Sv. Todorov, and St. Robev, Khigiyena (Bulgaria), 4, No 5, 1961 pp 31-43 (from Referativnyy Zhurnal -- Biologiya, No 20, Oct 62, Abstract No 20 T168)

"A review. Works on the antiradiation action of amides, published in the period of 1958-1960, are analyzed. Experiments to determine the antiradiation action of amides conducted on mammals and insects are reviewed. The relationship between the chemical structure of the amides and their antiradiation action has been established. Bibliography -- 42 titles."

68. Radiation Immunity

"Radiation Resistance of the Organism Upon Multiple Irradiation by Roentgen Rays," by J. Lambrew, Folia Med. (Bulgaria), 4,1, 1962, pp 13-16 (from Meditanskiy Referativnyy Zhurnal, Section 6, No 11, Nov 62, Abstract No 1789, by A. Mitov)

"A study of the radiation resistance of eggs and larvae of the silkworm (*bombyx mori*) established that preliminary irradiation with small and sublethal doses does not develop "radiation immunity." A single lethal dose administered to nonirradiated animals caused a smaller number of fatalities than did its administration to animals previously irradiated with small or moderately large doses. The effect of a lethal dose is not modified by the preliminary administration of small or moderately large doses. A single administration of a dose of 1800 r to animals previously irradiated with 10+10, 50+50, 100+100, and 200+200 r caused the same number of fatalities among the irradiated and nonirradiated animals."

69. Effect of Penicillin on Radiation Affections

"Subarachnoidal Administration of Penicillin in Cases of Combined Radiation Affections," by G. K. Mikushkin, Voyenn.-Med. Zh. (Military-Medical Journal), No 2, 1962, pp 30-32 (from Referativnyy Zhurnal -- Biologiya, No 20, Oct 62, Abstract No 20 T170, by V. Shashkov)

"Penicillin was subarachnoidally administered to dogs during the critical period of acute radiation sickness induced by Roentgen (400 to 500 r) or gamma (250 to 400 r) irradiation. An injection of penicillin in a dose of 700 units per kilogram body weight administered to the control animals induced spasms. The minimal spasm-inducing dose of penicillin for animals which were subjected to irradiation was found to be 800 to 1,300 units per kilogram body weight. Following irradiation, the duration of the concealed period of the spasmodic reaction to penicillin was doubled; motor reaction was weakly expressed during the epileptic attacks; motor stimulation was absent after the spasmodic attack. The animals, however, died earlier than the control animals. The characteristics of the spasmodic reaction to penicillin in radiation sickness depend on the modifications of the functional conditions of the central nervous system (diminution of the stimulation processes and the domination of the inhibition processes). The passage of the penicillin from the subarachnoid fluid into the blood, following irradiation is apparently due to the increased in the permeability of the vessels and the cerebral membrane, ependyma, and the vascular plexus of the ventricles. Penicillin may be recommended for use in the therapy of infectious complications of cranial-cerebral traumas on a background of radiation sickness."

70. Antiradiation Action of Some Antibiotics

"Concerning the Application of Streptomycin for the Prophylaxis of Acute Radiation Sickness," by L. F. Semenov, Institute of Experimental Pathology and Therapy, Academy of Medical Sciences USSR, Sukhumi; Moscow, Antibiotiki, Vol 7, No 10, Oct 62, pp 912-916

The results of the experiments which were conducted on mice in order to determine the effectiveness of streptomycin, dihydrostreptomycin, and the combination of streptomycin and penicillin when used for the prophylaxis of acute radiation sickness are reported in the article. Radiation sickness was induced in the animals by subjecting them to irradiation by radio-cobalt rays in doses of 1,050 to 1,100 r. Solutions of the antibiotics were administered to the mice in doses of 0.2 to 0.4 milliliter. The experiments established that a single administration of streptomycin, dihydrostreptomycin, and combination of streptomycin and penicillin prior to irradiation was ineffective when applied for the prophylaxis of acute radiation sickness; the administration of the antibiotics in combination with sulfur- and amine-containing substances reduced the effectiveness of the latter in the prophylaxis of radiation sickness; the therapeutic application of streptomycin 2 days irradiation had a positive effect and potentiated the prophylactic effectiveness of prophylactically effective agents.

Resuscitation71. Restoration of Vital Functions in Dogs Following Clinical Death Caused by Chilling

"Restoration of Vital Functions in Animals Following Prolonged Periods of Clinical Death Under Conditions of Isolated Chilling of the Brain," by V. I. Soboleva, N. V. Semenov, and B. O. Gorokhovskiy, Laboratory of Experimental Physiology on Resuscitation of an Organism; Moscow, Byulleten'noy Biologii i Meditsiny, Vol 54, No 10, Oct 62, pp 33-36

This report describes experiments performed on 15 dogs of both sexes to determine whether it is easier to restore cardiac activity and respiration following clinical death when the temperature of the brain is lower than that of the rest of the body. It was observed that after clinical death lasting 30 minutes, the dynamics of restoration of cardiac activity and respiration in dogs did not differ materially when the temperature of the brain was the same as that of the rest of their body from when the brain was chilled to 4°C to 8.6°C lower than the rest of the body. Following clinical death lasting 60 minutes, restoration of cardiac activity and respiration took place with less difficulty when chilling of the animals was general.

This is attributed to the accumulation of incompletely oxidized metabolic products in the body during prolonged period of severe hypoxia which exert an unfavorable effect on the subsequent restoration of vital functions in revived animals.

Before the experiments were begun, all dogs were given subcutaneous injections of 0.1 milligram of a 2% solution of pantopon and 0.1 milligram of an 0.1% solution of atropine per one kilogram of weight.

Therapy

72. Starvation Therapy of a Number of Diseases

"Therapy by Starvation," by R. S. Kolesnikova, Tr. In-ta Grudnoy Khirurgii (Works of the Institute of Thoracic Surgery), Academy of Medical Sciences Georgia SSR, No 6, 1961, pp 236-239 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 20, 25 Oct 62, Abstract No 20, S1199, by N, Tolkachevskaya)

"Therapy by complete starvation was applied to 76 patients (4 to 15 days) with 54 of them suffering from diseases of the suprarenal glands and bile ducts; 16, from chronic coronary insufficiency; and six, from a variety of afflictions. Borzhom water [a mineral water obtained from springs at the Borzhom group of resorts located in Georgia along the Kury river, Bolshaya Sovetskaya Entsiklopediya, Vol 5, p 573] (up to 2 liters) was administered to the patients. The transition to a normal diet was gradual: a low-calorie protein-carbohydrate diet on the first day; a protein rich diet during the following 2 days; diet normal for the condition of the patient after that. During the starvation period, investigations were conducted on the bilirubin, cholesterol, proteins, protein fractions, urea, sugar, NaCl, K, Na, urine diastase, prothrombin, and Takara-Ata reaction. There was a general and clinical improvement in the condition of the patients, and the biochemical indexes were restored to normal. Therapy by starvation is recommended."

73. Yugoslav 3-Day Rabies Treatment

"Treatment of Rabies Takes Only 3 Days," Tanjug dispatch;
Belgrade, Borba, 11 Dec 62, p 6

When rabies was discovered in nine locations in the Vojvodina, Dr Milan Nikolic, director of the Pasteur Establishment (Pasteurovi zavod) in Novi Sad, reported that the vaccine for this disease has been so much improved in this establishment that treatment takes only 3 days. He added that there are even prospects for discovering a method for a single injection treatment.

The Pasteur Establishment's success is directly connected to the scientific work begun by its first director, Dr Adolf Hempt, after whom the Yugoslav method of rabies inoculation is named. The importance of this method, which was later improved by Dr Nikolic, lies in the fact that the time required for treatment was reduced from 27 to 7 days. Formerly, only live virus was used in the vaccine, and treatment with this vaccine often had unpleasant effects. According to Hempt's method, however, the vaccine was prepared from killed virus.

The greatest advantage in Hempt's method of rabies treatment is that his vaccine can be transported, and treatment of persons bitten or injured by a suspicious animal can be given in the most remote village, if it has a doctor.

Dr Nikolic has been head of the Pasteur Establishment for over 30 years and has continued the work of his predecessor in reducing the time required for treatment from 7 to only 3 days. The Pasteur Establishment's method of treatment has been used in many countries. Many foreign scientists have based their advanced research on neurotropic viruses on concepts and interpretations set forth by this scientific institution in Novi Sad.

Toxicology74. Effect of 2-Amino-2-Phenylindandione-1, 3 Derivatives on the Central Nervous System

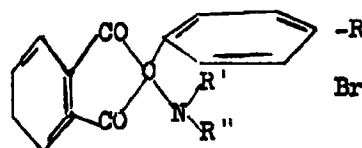
"Relationship Between the Chemical Structure and the Effect of 2-Amino-2-Phenylindandione-1,3 Derivatives on the Central Nervous System," by S. Germane, V.sb. "Tsiklich. Beta-Diketony Collation on Cyclical beta-Ketones), Riga, AN Latv SSR (Academy of Sciences Latvian SSR), 1961, pp 359-364 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 11 10 Jun 62, Abstract No 11 S1345, by A. Travin)

"Through the interaction of 2-bromo-2-phenylindandione-1,3 and 2-bromo-anisoylindandione with ammonia and primary, secondary, and tertiary amines, the following substances are synthesized:

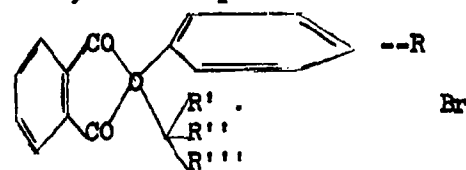
(a) 2-amino-2-phenyl-indandione-1,3 derivatives (I) in which R, R', and R'' are H, H, H; CH₃O, H, H; H, CH₃, H (Ia); CH₃O, CH₃, H; H, C₂H₅, H; CH₃O; H, CH₂CH₂OH; H; CH₃O, CH₂CH₂OH, H; H, n-C₃H₇, H (Ib); CH₃O, n-C₃H₇, H (Ic); H, cyclohexyl, H (Id); CH₃O, cyclohexyl, H (Ie); H, CH₃, CH₃; CH₃O, CH₃, CH₃.

(b) quaternary salts (II) in which R, R', R'', and R''' (or R, and R'+R'+R''') are H, CH₃, CH₃, CH₃; CH₃O, CH₃, CH₃, CH₃; H, pyridinium; CH O, pyridinium; H, isoquinoline; CH O isoquinoline.

Pharmacological investigations established that Id, Ie, and all of II are spasm-inducing poisons. All the remainder of the compounds possess anesthetic, analgesic, or antispasmodic properties. With the exception of Ib and Ic, all the compounds which do not have a CH₃ group in the phenyl radical are anesthetically more potent than the compounds with a CH₃ group. Of considerable interest are the compounds of the Ia group which possess a wider spectrum of action than luminal, nenbutal, and thiopental."



I



II

75. Correlation Between the Chemical Structure and the Pharmacological Properties of 3-Oxyquinuclidine

"Synthesis and Pharmacological Properties of Esters of 3-Oxyquinuclidine," by M. V. Rubtsov, M. D. Mashkovskiy, Ye. Ye. Mikhlina, K. A. Zaytseva, and V. Ya. Vorob'yeva, All-Union Scientific-Research Chemico-pharmaceutical Institute imeni S. Ordzhonikidze; Moscow, Meditsinskaya Promyshlennost' SSSR, Vol 16, No 10, Oct 62, pp 14-18

The synthetic process and the pharmacological properties of some of the esters of 3-oxy-3-oxymethyl and 3-(beta-oxyethyl)-quinuclidine containing fatty, aromatic, fatty-aromatic, and heterocyclic acids, as well as carbamic esters and certain quaternary salts of the above compounds are described in the article. Quinuclidone-3 is the initial substance used for the derivation of these compounds. This substance is formed through the intramolecular cyclization of 1-carboethoxymethyl-4-carboethoxypiperidine in the presence of either of the ethylate of butylate of potassium. The pharmacological properties of the esters were determined in experiments of cats. A definite correlation between the chemical structures of the compounds and their pharmacological properties was established. The more active of the esters of 3-acetoxyquinuclidine -- a potent cholinomimetic preparation; diphenylpropionate of 3-oxyquinuclidine -- a potent cholinolytic substance; and 3-benzoyloxyquinuclidine -- a sedative and hypotensive preparation.

76. Effect of Some Herbicides on the Blood and Circulation

"Concerning Blood and Arterial Pressure Modifications Under the Influence of the Butyl Ester and Amine Salt of 2,4-D Derivatives," by P. V. Isbavitelev, Belorussian Scientific-Research Sanitary-Hygienic Institute; Moscow, Sovetskaya Meditsina, Vol 26, No 9, Sep 62, pp 87-91

Investigations were conducted to determine the effect of the butyl ester and the amine salt derived from 2,4-dichlorophenoxyacetic acid, on the organism. The investigations established that the above herbicides selectively affect the blood and circulation systems: the number of erythrocytes is sharply reduced; a considerable shift to the right takes place in the white blood; maximal and minimal arterial pressures are modified. Further investigations in regard to the toxic effects of the herbicides on the animal and human organism are recommended in order to solve the problem of their wide utilization in agriculture. The toxicity of the herbicides can be reduced by decreasing the amount of harmful admixtures used. Blood examinations of workers before and after the handling of the herbicides is urged.

77. Toxicology of Cadmium Sulfate

"Case of Acute Intoxication by Cadmium Sulfate," by I. Fatkhullayev, Sb. Tr. Klinich. Bol'nitsy Neotlozhn. Pomoshchi, M-vo Zdravokhr. UzSSR, (Collection of Works of the Clinical Emergency Hospital, Ministry of Health Uzbek SSR), 2, 1961, pp 38-40 (from Referativnyy Zhurnal -- Khimiya, Biologicheskaya Khimiya, No 20, 25 Oct 62, Abstract No 20 S1361)

"A high degree of leukocytosis (16,000 per cubic milliliter) and albuminuria (6.6 percent) were noted in a patient after he had swallowed 50 grams of cadmium sulfate. A histological examination of the corpse disclosed signs of acute hemorrhagic erosive-necrotic gastroenteritis, hemorrhaging of the red infarct type in the lungs, and hemorrhaging in the brain and pancrea and a necrotic focus in the pancreas."

V. Conferences

78. 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. Fourth Ecological Conference; 2-7 April 1962, Kiev; sponsored by the Kiev State University imeni T. G. Shevchenko; representatives from Poland, Rumania, and the GDR. (Entomologicheskoye Obozreniye, Vol 41, No 3, 1962, p 704)

b. Estonian Republic Conference of Veterinary Physicians, Devoted to Problems of Parasitology; September 1962 (2 days), at the Estonian Agricultural Academy. (Sovetskaya Estoniya, 15 Sep 62, p 4)

c. Joint Scientific Session on Problems of Harvest Protection; 11-12 June 1962; sponsored by the Department of Biological Sciences of the Academy of Sciences USSR and the All-Union Academy of Agricultural Sciences imeni Lenin. (Vestnik Akademii Nauk SSSR, No 9, Sep 62, p 138)

d. Third Seminar on Electron Microscopy; May 1962, Moscow; sponsored by the Laboratory of Electron Microscopy under the Department of Biological Sciences of the Academy of Sciences USSR. (Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, Sep/Oct 62, p 812)

e. Conference on the Use of Microorganisms for the Control of Forest and Agriculture Pests; 24-25 April 1962, Moscow; sponsored by the All-Union Microbiological Society. (Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 5, Sep/Oct 62, p 809)

f. Ukrainian Republic Scientific-Technical Conference on Problems of Controlling Contamination of Rivers, Reservoirs, and the Atmosphere by Chemical Products and the Use of Industrial Waste Waters in Agriculture; 19-? November 1962, Kiev. (Pravda Ukrainy, 21 Nov 62, p 4)

79. Symposium on Heart Surgery Held

"Forum of Medical Personnel"; Moscow, Vechernyaya Moskva,
22 Nov 62, p 2

The first symposium to be held in the Soviet Union on the topic of the surgical treatment of coronary diseases convened recently [in Moscow?]. Scientists, physicians, surgeons, therapists, and physiologists participated in the symposium, which lasted for 2 days.

Academician A. N. Bakulev reports that the symposium was organized by the Institute of Cardiovascular Surgery of the Academy of Medical Sciences USSR, where for the past 2-3 years many operations have been conducted on coronary vessels in cases of stenocardia and myocardial infarct. He also explained that the forum would discuss the anatomical-physiological bases of operations for these diseases and the newest methods of diagnosis and surgical treatment.

Foreign scientists also attended the symposium.

80. Surgeons Meet in Yerevan

"To the Transcaucasian Conference of Surgeons in Yerevan," by I. Gevorkyan, chief surgeon of the Ministry of Health of Armenia, Corresponding Member of the Academy of Sciences Armenian SSR; Yerevan, Kommunist, 17 Oct 62, p 4

This article previews the sixth Transcaucasian Conference of Surgeons, which was held on 18-22 October in Yerevan. More than 400 surgeons of Armenia, Azerbaydzhan, Georgia, and other republics were to take part. The four topics to be discussed were "organization of specialized surgical assistance to the population of Transcaucasian republics," "surgery of regional diseases," "thyrotoxicosis," and "innovations in surgery."

The chief surgeons of the Ministries of Health of Armenia, Azerbaydzhan, and Georgia were to report on the further development and improvement of surgical assistance in the Transcaucasian republics.

Reports on echinococcosis and diseases of the spleen were to be given by S. M. Buachidze, M. E. Komakhidze, D. G. Mamatavrishvili, E. S. Martikyan, B. M. Makhmudbekov, R.L. Paronyan, D. P. Shotadze, F. A. Efendiyev, and others.

D. I. Berezhiani, I. Kh. Gevorkyan A. I. Kutubidze, Z. M. Mamedov, S. S. Sharimanyan, K. D. Eristavi, and others were to report on the problem of thyrotoxicosis.

Professors G. K. Aliyev, N. V. Antelava, I. S. Ginzburg, V. O. Sarukhanyan, M. A. Topchibashev, and K. D. Eristave and others were to deal with problems of anesthesiology. Professors A. V. Dzhorbanidze, V. A. Malkhasyan, and I. K. Pipiya and others were to report on surgery of the stomach.

G. Ye. Bokeriya, Ye. V. Charchyan, and others were to present materials dealing with experimental research on surgery of the heart and vessels, and problems of pre- and post-operative procedures were to be covered by N. K. Galankin, K. A. Kyandaryan, A. L. Mikayelyan, and others.

M. B. Abiyev, I. G. Isaakyan, G. R. Kurbanov, S. S. Oganesyan, A. D. Tokhiyan, and others were to report on restorative surgery.

81. Conference of Estonian Surgeons Held in Tartu

"Conference of Surgeons"; Tallin, Sovetskaya Estoniya, 1 Nov 62,
p 4

"The Eighth Republic Scientific-Practical Conference of Surgeons of the Estonian SSR took place at Tartu University. Physicians, medical scientists, and also students of the medical department of the university participated....

Prof S. A. Kolesnikov, director of the Institute of Cardiovascular Surgery, Academy of Sciences USSR, spoke about the newest operations in open heart surgery and demonstrated these with special films.

"Other guests, the most prominent surgeons of Moscow and Leningrad, also spoke -- Prof B. V. Petrovskiy, member of the Academy of Medical Sciences USSR; Prof V. I. Struchkov, Corresponding Member of that academy; Prof V. I. Kolesov; docents Yu. N. Shanin and M. V. Ivanitskaya; and Candidates of Medical Sciences O. D. Kolyutskaya and v. I. Burakovskiy.

"Among the Estonian surgeons who spoke was one of the pioneers in cardiovascular surgery in our country, Tartu Prof A. Ya. Linkberg, and his pupils K. A. Pyder, Kh. M. Tikhane, Kh. Kh. Tikko, and N. N. Kherman.

"At the conclusion of the conference, elections for the Presidium of the Republic Surgical Society were held. Prof A. Ya. Linkberg, dean of the Medical Department of Tartu State University, was elected chairman of the society. Prof S. A. Kolesnikov from Moscow, Prof V. I. Kolesov from Leningrad, and Prof A. P. Biyezin' from Riga were elected honorary members of the society."

82. Scientists Discuss Diseases of the Liver

"In the Name of Man's Life and Health"; Dushanbe, Kommunist Tadzhikistana, 10 Nov 62, p 4

During a 5-day all-union symposium which was held in Dushanbe, representatives of scientific-research medical establishments and clinics of Moscow, Leningrad, Kiev, Riga, and other cities discussed the results of research on liver diseases and related diseases of the intestines.

At the symposium, the director of the Institute of Regional Medicine, Academy of Sciences Tadzhik SSR, Prof Kh. Kh. Mansurov, told about a method of studying the liver with the aid of a special needle developed at the institute and about the results of its application, features, and prospects for its introduction into clinical practice.

Candidate of Medical Sciences I. D. Mansurova reported on biochemical studies of blood serum.

Interesting results obtained during the study of prolonged forms of Botkin's disease were reported by D. G. Rudy and G. S. Kotova, associates of the institute, and also by L. P. Briyedis (Riga).

The research of R. A. Mil'zidinova and R. P. Molchagina (Dushanbe) was devoted to the problem of the condition of metabolism during inflammation of the liver.

Prof M. N. Fateyev from the Institute of Radiology of the Academy of Medical Sciences USSR, a specialist in research with the aid of radioisotopes, reported on methods of using "tagged atoms" to study the functional condition of the liver.

The reports of M. Kh. Khodi-zade, Z. F. Eytsev, L. V. Shipilova (Dushanbe), M. Ye. Semendyayeva (Moscow), and others dealt with problems of using hormones and vitamins for treating diseases of the liver.

Candidate of Medical Sciences Ya. A. Makarevich (Dushanbe) reported on contemporary views of the problem of the origin of colitis and its nature.

83. Traumatologists Meet

"Joint Scientific Session"; Yevevan, Kommunist, 1 Dec 62, p 2

A joint scientific session of the Scientific-Research Institutes of Traumatology and Orthopedics of the Ministries of Health of the Republic and the USSR began its work on 29 November in the House of Architects

in Armenia. Among the guests from various cities of the Soviet Union were professors M. Volkov, A. Kaplan, Ya. Dubrov, M. Mikhel'man (Moscow), Ya. Yusevich (Leningrad), B. Parin (Gor'kiy), and others.

The session was to consider problems of traumatism and measures for treating diseases and injuries of the limbs. The session was opened by N. Agadzhanian, deputy minister of health Armenian SSR.

A. Dvorkin (Moscow) presented a report entitled "Problems of Preventing Traumatism and Organization of Traumatological-Orthopedic Assistance."

U. Bogdanovich, director of the Institute of Traumatology and Orthopedics in Kazan, also presented a report.

84. Session of Physiology To Be Held in Czechoslovakia

"Medical Societies"; Prague, Casopis Lekarů Ceských, No 48, 30 Nov 62, p 1439

The 11th Physiological Days will be held in buildings of the new theoretical institutes at Sasinkova 4, Bratislava, on 28-30 January 1963. Applications for housing during this period are to be addressed to the "Turista" Enterprise, Stalinovo namesti 14, Bratislava. Applications for presentation of papers are to be addressed to Dr P. Duda, Sienkiewiczova, 1, Bratislava, by 8 December 1962; these applications should be accompanied by a one-page resume (in duplicate) of the paper for publication in Ceskoslovenska Fysiologie.

85. Forthcoming Congress of Czech Roentgenologists

"Congress of Czech Roentgen Society"; Budapest, Orvosi Hetilap, Vol 103, No 45, 11 Nov 62, p 2158

The Czech Roentgen Society will hold a congress from 10 to 14 June 1963 in Karlovy Vary.

The topics of the congress will be the following:

1. Ateriographic and venographic investigation of the spleen, liver, kidneys, and pancreas
2. Transeptal, sinistro-cardiography, coronarography
3. Lymphography and its practical use

4. Therapy of tumors of the bladder and kidneys.

Papers intended for the congress must be submitted in triplicate, no later than 31 December 1962, to: Dr Joseph Roesch, Prague 6, Borocove 2.

86. Fifth Czechoslovak Psychopharmacological Seminar

"Medical Societies"; Prague, Casopis Lekaru Ceskych, No 49, 7 Dec 62, p 1462

The Fifth National Psychopharmacological Seminar will be held on 9-13 January 1963, at the Priessnitz Sanatorium, at the Jesenik Spas. The seminar will be divided as follows: pharmacology and neurophysiology, biochemistry, and clinic.

Applications for housing are to be submitted directly to the directorate of the Priessnitz Sanatorium.

87. Third Czechoslovak Biochemistry Congress

"Medical Societies"; Prague, Casopis Lekaru Ceskych, No 49, 7 Dec 62, p 1463

The Czechoslovak Biochemical Societies of the Czechoslovak Academy of Sciences in Prague, in cooperation with Palacky University in Olomouc and the Clinical Chemical Section of the Czechoslovak "Jan Ev. Purkyne" Medical Society in Prague, will conduct the Third National Biochemistry Congress (with international participation) in Olomouc on 1-5 July 1963. Individual sections of the congress will be formed on the basis of works which are submitted for presentation. Symposiums will be organized on the following topics in the course of the congress:

1. "Biochemistry of Viruses"
2. "Biochemistry of Cancer"
3. "Biochemistry of Sulphydryl Solutions"
4. "Biotransformation of Drugs"
5. "Enzymes in Clinical Diagnosis."

Applications for active participation in the congress, including a summary (not to exceed 30 lines) of any presentations, are to be submitted, not later than 15 January 1963, to Dr B. A. Lang, Chemistry Institute of the Medical Faculty of Palacky University, Olomouc, Hnevotinska 3.

88. Czechoslovak Internal Medicine Congress

"Medical Societies"; Prague, Casopis Lekaru Ceskych, No 48,
30 Nov 62, p 1439

The Internal Medicine Section of the Czechoslovak "Jan Ev. Purkyne" Medical Society will hold a Congress on Rehabilitation in Internal Medicine, in Karlovy Vary, on 2-4 October 1963. The topics to be considered will be: physiological bases for rehabilitation; means of rehabilitation; organization of rehabilitation care; and rehabilitation in cardiology and in vascular, pulmonary, digestive tract, locomotor, kidney, urinary, and geriatric diseases.

Preliminary applications for presentation of papers are to be submitted to Docent Dr Antonin Mecl, Internal Medicine Hospital, Prague 1, Klimentsskaulice 1, not later than 1 February 1963.

89. Czechoslovak Session on Pediatric Neurology

"Medical Societies"; Prague, Casopis Lekaru Ceskych, No 49,
7 Dec 62, p 1463

The Commission for Pediatric Neurology of the Neurology Section of the "Jan Ev. Purkyne" Central Medical Society will hold the Seventh Pediatric Neurology Days, in Olomouc, on 23-24 May 1963. The topic of this session will be "Rehabilitation in Children's Nerve Diseases." Applications for active participation in the session, including a brief summary of any presentations, are to be submitted, not later than 15 February 1963, to Dr Farkova, Pediatric Clinic of the Medical Faculty, Olomouc. Applications for passive participation are to be submitted to the same address by 1 April 1963.

* * *

UNCLASSIFIED
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 cursive script that reads "Sergio N. Alcivar for".

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