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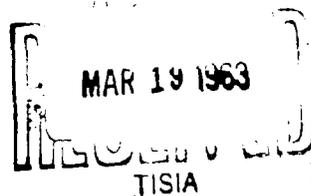
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551. Mikhov, A. P., An increase in the sensitivity of the precipitin reaction as a method for detecting tularemia and brucella antigens in the organs of animals. Zh. mikrobiologii, etc. 32 (1961) 10: 80-85. (From the Mechnikov Institute of Epidemiology and Microbiology, Odessa.)

As noted by the author, Zarch (see Gigiena i epidemiologia, 1930, 8-9: 40) was the first to recommend the use of the precipitin reaction for the detection of tularemia epizootics among the water-rats and this diagnostic method has been amply used by subsequent workers.

At first the antigen for these reactions was prepared by boiling a suspension of the minced test material in normal saline, but afterwards improved methods were recommended for the extraction of the antigen. Thus Bergof (Zh. mikrobiologii, etc. 1946, 7: 63) obtained better results when adding 2 drops of 4/N trichloroacetic acid per ml of the suspensions.

The present author used instead this acid in a concentration of 5%. He afterwards boiled the suspensions and neutralized them with a 10% soda solution with the aid of bromthymol blue as indicator. The suspensions were then filtered in a syringe through asbestos and the transparent fluids thus obtained were used for the precipitin tests.

As shown by preliminary observations, for which various amounts of tularemia bacilli were added to the minced organs of normal guinea-pigs, precipitin tests with trichloroacetic extracts gave a positive result in the presence of only 100,000 tularemia bacilli in the suspensions, whereas the extracts made with normal saline proved positive of not less than 100 million of organisms were present.

The author next made two series of tests for which wild guinea-pigs were infected with (a) 500 million of the vaccinal tularemia strain 15 or (b) 10 organisms of the virulent tularemia strain 9. To assess the value of the modified precipitin reaction (made with extracts of the organs of the test animals killed at various intervals after infection and with anti-tularemia serum raised in horses) at the same time cultivations were made from the organs of the animals in the fluid egg-yolk medium of Drozhevkina (see Mikrobiologiya tulariemii, Rostov-on-Don, 1947). As shown by the author in two tables, in most of the animals tested the precipitin reactions gave equally good results as the cultivation method, being already positive in a large part of the animals sacrificed on the first or third day after infection. Simultaneously made tests with anti-brucellosis serum invariably gave a negative result.

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To assess the value of the precipitin reaction in mixed tularemia and brucellosis infection, two series of analogous tests were made, in which guinea-pigs were infected simultaneously with either the vaccinal strains Br. abortus BA-19 and B. tularensis 15 or with virulent strains of both organisms. Precipitin tests were made with the above mentioned anti-tularemia serum and an antigenic-brucellosis serum. To cultivate the brucellae, glucose-glycerol liver infusion broth and agar were used. The results of these and control tests were summarized by the author in the form of the following table:

<u>Infection</u>	<u>No. of Specimens Tested</u>	<u>Percentage of Positive Precipitin Reactions</u>		<u>Positive Cultures</u>	
		<u>Brucellosis Serum</u>	<u>Tularemia Serum</u>	<u>Brucellae</u>	<u>B.tularensis</u>
Brucellosis + tularemia	296	27.3	33.4	15.5	27.3
Brucellosis	152	25.6	-	18.9	-
Tularemia	144	-	28.4	-	25.6

Thus, the author claimed, the precipitin reactions gave a higher percentage of positive results than the cultivation method. No cross reactions were observed.

The formal conclusions of the author were:

1. The precipitin reaction with antigens obtained with the aid of 5% trichloroacetic acid is a sensitive method for the diagnosis of tularemia.
2. The reaction is specific, no cross reactions having been observed in tests with anti-tularemia and anti-brucellosis sera.
3. The precipitin reaction with antigens extracted with the aid of 5% trichloroacetic acid can be used for an accelerated diagnosis of tularemia and brucellosis infection.

552. Martinevskii, I. L. et al., Experimental study of the susceptibility of the big gerbils to tularemia and some peculiarities of the course of the infection in these animals. Zh. mikrobiologii, etc. 32 (1961) 10: 91-96. (From the Central-Asiatic Scientific Research Anti-Plague Institute, M., USSR.)

As the authors stated in the introduction to their article, the existence of natural tularemia foci had been proved in the valleys of the Amu-Darya, Syr-Darya, Chu, Ili and Karatel rivers, which were contiguous with areas settled by big gerbils (Rhombomys opimus). It seemed essential, therefore, to investigate the degree of susceptibility of these rodents to tularemia and to study the peculiarities of the course of the infection and the intensity of bacteremia in them.

As quoted by the authors, previous observations had shown that three species of gerbils (sharp-clawed gerbils, Meriones meridianus and M. tamariscinus) were highly susceptible to experimental tularemia infections, while Olsuf'ev and Golor (1947) had shown that big gerbils were apt to contract this disease through the bite of infected mosquitoes.

For their own studies the authors used 70 gerbils, which were infected subcutaneously, intracutaneously or percutaneously with the following results:

<u>Dosages</u> <u>(Number of</u> <u>Organisms</u>	<u>Subcutaneous</u> <u>Infection</u>		<u>Intracutaneous</u> <u>Infection</u>		<u>Percutaneous</u> <u>Infection</u>	
	<u>No. of Animals</u> <u>Tested</u>	<u>Died</u>	<u>No. of Animals</u> <u>Tested</u>	<u>Died</u>	<u>No. of Animals</u> <u>Tested</u>	<u>Died</u>
0.1	10	5	-	-	-	-
1	10	10	-	-	-	-
10	10	10	-	-	-	-
100	10	10	5	3	-	-
1,000	-	-	5	0	1	0
10,000	-	-	-	-	2	4

Thus the big gerbils proved very sensitive to subcutaneous infection with B. tularensis, a dosage of one organism sufficing to kill all animals tested, but were more resistant when infected intracutaneously or percutaneously. The subcutaneously infected animals began to sicken on the 3rd day after infection and succumbed within 5-10 days.

As summarized by the authors, characteristic morbid features found at autopsy of the infected animals were congestion of the subcutaneous tissues, enlargement of the lymph nodes adjacent to the site of infection and presence of numerous whitish nodules in the enlarged and congested spleen as well as in the liver.

As shown by smear examinations and cultivation on egg-yold media, infection of the big gerbils with B. tularensis led almost invariably to an invasion of the blood and the organs by the causative organisms.

In order to study the rapidity with which the bacteremia developed, the authors infected 24 animals subcutaneously with doses of 100 organisms and killed 18 of the animals at intervals of 1-6 days after infection. As shown by tests made in white mice with the organs of the sacrificed gerbils, signs of bacteremia began to become manifest already 24 hours after infection. Examinations of the organs of the sacrificed animals with the aid of smears and cultures gave much less reliable results.

The formal conclusions reached by the authors were that

1. The big gerbils are highly susceptible to tularemia infection.

2. Characteristic for the presence of this infection in the big gerbils is the formation of numerous small whitish nodules in the spleen and liver.

3. Subcutaneous infection of the big gerbils with a dose of 100 virulent tularemia bacilli led to a generalization of the process already at the end of the first day after infection.

4. The high susceptibility of the gerbils to tularemia, the invasion of their blood and internal organs by the causative organisms, the rapid course of the infection, the wide spread and population density of the animals and their closeness to the natural tularemia foci render these rodents potentially rather dangerous.

552. O Ivanov, L. D., The spread of Q-fever in the Kirghiz SSR. Zh. mikrobiologii, etc. 92 (1961) 10: 96-100.  
(From the Institute of Zoology and Parasitology, AS, Kirghiz SSR.)

Though, as stated by the author in the introduction to the article, Q-fever manifestations are met with in the European as well as in the Asiatic part of the Soviet Union and the presence of this infection among the domestic animals had been known since the end of World War II, it has been maintained by some workers that this disease is of no economic importance and of little concern for the veterinary authorities.

Disputing this view, the author referred to a Q-fever outbreak during the lambing season in the Kamensk Oblast which led to the death of over 100 ewes and over 500 newborn lambs.

In the Kirghiz Republic the presence of Q-fever was detected in 1953, when the members of an expedition under Chumakov isolated Rickettsia burneti from the blood of patients and from ticks of the species H. anatolicum. Complement fixation tests with the sera of 2,896 heads of cattle collected by the author in 1958 and 1959 in 8 raions of the republic gave 8% positive results on an average and positive reactors were also found during this period among sheep, horses and camels.

Special reference is made by the author to one cow examined at the time of calving. Its placenta and milk proved infectious for intraperitoneally infected guinea-pigs.

In an attempt to detect a rodent reservoir of Q-fever, the author examined 27 domestic mice, 33 hamsters (Cricetus migratorius) and 45 voles (Microtus socialis) caught in the vicinity of the settlement where the above mentioned cow was kept. He used the pooled spleens of groups of these rodents for intraperitoneal infection of guinea-pigs. Serological evidence of Q-fever infection was obtained in this manner in one of 6 guinea-pigs injected with a suspension of pooled spleens of 13 voles. The author assumed therefore that M. socialis might be a reservoir of Q-fever. It was noteworthy that the rodents of this species mainly inhabited territories used for grazing the domestic herds.

Examining ticks of the species Haemaphysalis warburtoni and Dermacentor pavlovskii, the author was able to isolate a strain of R. burneti from a specimen of D. pavlovskii. Possibly this tick played an important role in the perpetuation of Q-fever in the mountain raions of the Kirghiz Republic, where evidently a natural focus of this infection existed.

554. Shterngol'd, E. IA., Use of microagglutination with R. burneti for the diagnosis of Q-fever. Zh. mikrobiologii, et al. 22 (1961) 10: 136. (From the Tashkent Vaccine and Serum Institute.)

As stated in this short note, examinations were made of the sera of 79 patients suspected to have Q-fever and of 208 sera of sheep or goats from a raion where this disease was endemic, with the aid of three methods--complement fixation tests; agglutination in test-tubes and microagglutination on slides.

Out of the 79 sera from patients 55 gave a positive complement fixation test; 53 of the latter specimens proved positive in microagglutination tests and only 28 in tube agglutination tests. Out of 24 sera reacting negatively in complement fixation tests two gave a positive result in microagglutination tests.

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Out of the 208 sera from domestic animals complement fixation tests gave a positive result in 96 instances, microagglutination tests 92 times, tube agglutination tests only 37 times.

Thus, the author concluded, the method of microagglutination was almost as reliable as that of complement fixation.

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Kartasheva, A. L. et al., On the suitability of dry agar for the diagnosis of plague, cholera and anthrax. Trudy Sredne-Aziatskogo nauchno-issledovatel'skogo probi-vochnogo instituta (Transactions of the Central Asian Scientific Research Anti-Plague Institute), Alma-Ata 5 (1959) :117-123.

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556. Iarovoi, M. A. et al., Clinical and epidemiological characterization of a familial encephalitis outbreak. Sovetskaia meditsina 25 (1961) 10:130-131. (From the Clinic of Infectious Diseases and the Clinic of Nervous Diseases of the Stavropol' Medical Institute.)

The authors dealt mainly with the clinical features of an encephalitis outbreak observed in 1958 in a village of the Malo-Karachaevskii Raion, which involved five members of one family. They reached the conclusion that

"the observed familial outbreak falls neither clinically nor epidemiologically into the pattern of the known types of encephalitis and has to be considered as endemic encephalitis, the source of which were mice. The infection of man occurred by the alimentary route."

557. Gaidamovich, S. IA. et al., Observation of the tick-encephalitis virus in tissue cultures with the aid of the fluorescent antibody technique. Voprosy virusologii 6 (1961) 4:399-404. (From the Laboratory for the Diagnosis and Indication of Viruses of the D. I. Ivanovskii Institute of Virology, AMS, USSR, Moscow.)

As described in detail by the authors, they used the indirect method of Coons and associates (Proc. Soc. Exp. Biol., New York, 1941, Vol. 47, p. 200) for detecting the virus of tick-borne encephalitis in tissue cultures with the aid of the fluorescent antibody technique. Best suited for this purpose were cultures of trypsinised kidney cells of sheep embryos.

Discussing the results of their observations, the authors stated that with the aid of the technique adopted by them they were able to produce specific luminescences and to study the localization and development of the virus in the culture cells. In reference to the process of development the authors recorded that

"examination of the cultures immediately after contact with the virus and 3,6,9,12,15,18,24,48,72, 96, and 120 hours after infection permitted detection of stages in the character and intensity of the luminescence, which apparently corresponded to differences in the localization of the virus. At first the luminescence appeared in the form of a narrow ring situated in the zone round the nucleus and consisting of separate very small lumps (1st stage). Then the luminescence increased in intensity and became manifest in a wider zone round the nucleus. The form of the luminescent zone was somewhat elongated, its outline sharply defined, its illumination even (2nd stage). In the following stage of the development of the virus the outer border of the luminescent zone was more sharply defined, becoming hollowed out and, as it were, cut asunder--3rd stage. Further the illuminated mass became torn, its separate parts moved away from the nucleus towards the periphery of the protoplasm--4th stage; finally there remained only in various parts of the protoplasm of the infected cells detached and little luminescent lumps--5th stage."

As maintained by the authors, the above described stages I and II corresponded to an intracellular localization of the virus, while during stages III-V the virus was present also outside the cells. This was in accordance with the results of complement fixation tests made with the culture fluids which, as shown by the authors in a table, became positive only when the third stage of luminescence had been reached. As shown by experiments on white mice, an increase of the virus titer in the cultural fluid was noted at the same time.

Evaluating their method, the authors stated that it might be advantageous for the rapid demonstration and identification of viruses. As noted in the text,

"the basic condition for the demonstration of virus antigens with this method is a high concentration of the antigens in parts of the infected tissues. Such conditions are created by in vitro cultivation of the virus. Even if the multiplication of

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the virus is of so low a degree that it can not be detected with serological methods, in some of the cells the antigen may become so concentrated as to be detectable with the aid of the fluorescent antibody technique."

558. Andzhaparidze, O. G. and Stepanova, L. G., Interaction between the tick-encephalitis virus and susceptible cells. Report III. Plagues produced by the virus in tissue cultures of swine embryo kidneys. Voprosy virusologii 6 (1961) 4:404-408. (From the Moscow Scientific Research Institute of Virus Preparations.)

Using the elaborate technique described the authors were able to produce plaque-forming growths of the tick-encephalitis virus in the case of two out of three strains examined. As stated in the article's conclusions, it had been possible to demonstrate the specificity of the plaques and the suitability of this method of examination for titrations of the virus and the antibodies.

559. Karpovich, L. G., Studies on the hemadsorptive properties of the viruses of the tick-encephalitis group in tissue cultures. Voprosy virusologii 6 (1961) 4:423-427. (From the D. I. Ivanovskii Institute of Virology, AMS, USSR.)

Testing 3 strains of tick-borne encephalitis, one strain each of two-wave meningo-encephalitis, of Scottish sheep encephalomyelitis and of the Omsk hemorrhagic fever, two strains of the Kyasanursk forest disease and one strain isolated from ticks in Malaya which antigenically resembled the tick-encephalitis virus, the author found that

1. All these strains possessed hemadsorptive properties, giving positive reactions in cultures of human embryonal skin-muscle tissues with the erythrocytes of man, sheeps, guinea-pigs, rabbits and one-day old chicks.

2. The specificity of the hemadsorption reaction could be proved through its neutralization and inhibition by specific immune sera.

3. The early appearance of positive hemadsorption reactions (within 48-72 hours of cultivation of the virus) and the possibility of confirming their specificity with the aid of neutralization and inhibition tests may be of practical value for the purposes of an accelerated diagnosis of tick-borne encephalitis and related diseases.

560. Levkovich, E. N. and Izotov, V. K., On hemagglutination tests with the virus of tick-borne encephalitis. Voprosy virusologii 6 (1961) 4:428-431. (From the D. I. Ivanovskii Institute of Virusology, AMS, USSR, Moscow.)

Though, as briefly discussed by the authors in the introduction to their article, the virus of tick-borne encephalitis had been found to possess hemagglutinating properties, to date hemagglutination and hemagglutination inhibition tests have not been used for the laboratory diagnosis of this infection, for which up to now advantage has been taken of complement and virus-neutralization tests.

To demonstrate the practical value of the first mentioned two methods, the authors made tests with the sera of experimental animals infected with, or immunized against the tick-encephalitis virus as well as with the sera of 26 persons who had recovered from this infection. Summarizing the results of these tests, the technique of which they described in considerable detail, the authors stated that

1. The virus of tick-encephalitis agglutinates a 0.5% suspension of goose erythrocytes in a buffer solution at a pH of 6.6-7.0.
2. Advantage can be taken of the hemagglutinating properties of the tick-born encephalitis virus for the performance of hemagglutination inhibition tests.
3. Comparative tests of this kind made with the sera of experimentally immunized animals and those of persons recovered from tick-borne encephalitis gave similar results. A definite parallelism was found to exist between the results of the hemagglutination inhibition tests and virus-neutralization tests.
4. In view of these findings attention ought to be paid to the possibility of using the hemagglutination inhibition reaction for the laboratory diagnosis of tick-borne encephalitis.

561. Semenov, B. F. and Rezepova, A. I., The action of beta-propiolactone on the tick-encephalitis virus. Voprosy virusologii 6 (1961) 4:432-434. (From the Moscow Institute of Virus Preparations.)

According to the introductory statements of the authors it had been found that

1. Beta-propiolactone inactivates many viruses, including those of poliomyelitis, hepatitis, herpes, measles, parotitis, rabies, equine encephalitis and influenza.

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2. Advantage can be taken of this compound for the preparation of vaccines against rabies, parotitis, influenza, and poliomyelitis.

In view of these findings the present authors studied the influence exerted by beta-propiolactone on the infective, immunogenic and hemagglutinate properties of the tick encephalitis virus.

Through preliminary tests with 2.5% brain suspensions of mice infected with tick encephalitis (strain Sof'in) it was found that in concentrations of 1:1000 and 1:2000 beta-propiolactone lowered the infectivity of the virus within one hour "tens of million times." At the same time it was established that through treatment of the brain suspensions with the compound in concentrations of 2:1000 or 3:1000 for 4 hours one could obtain highly immunogenic and innocuous preparations.

Analogous experience were also gained with tissue cultures of the tick-encephalitis strain pan.

The virus suspensions inactivated with beta-lactopropionate in concentrations of 0.5-1.0:1000 fully retained the property of agglutinating goose erythrocytes.

"On the whole," the authors stated, "these findings show that by the use of properly selected beta-propiolactone doses one can obtain non-infective suspensions of the tick-encephalitis virus, which possess a marked immunogenicity and hemagglutinating activity."

The authors added that they proposed to deal in future publications with the use of a series of antigens prepared with the aid of beta-propiolactone for hemagglutination tests and experimental vaccination against tick-borne encephalitis.

562. Bolotovskii, V. M., Theoretical premises of the work of the aerosol chamber IVK-1 for the study of experimental respiratory infections. Report I. Dynamics of the work of the aerosol chamber. Voprosy virusologii 6 (1961) 4:454-458. (From the D. I. Ivanovskii Institute of Virology, AMS, USSR, Moscow.)

The aerosol chamber IVK-1, to which the present paper refers, has been described by I. I. Terskikh and his associates in 1958 (see Zh. mikrobiologii, etc. No. 9, p. 130). As the present author states, the use of this and other aerosol chambers

"poses a number of problems of a physical nature, without the solution of which the work with infectious aerosols may be not fully valuable. Among these problems are the determination of the time at which an equilibrant (maximal) aerosol concentration in the chamber is reached, the time of removal of the aerosol from there after the experiment, the time of preservation of the aerosol in the chamber, the weight of the dispersed virus-containing material, the amount of this material taken in by the animals and many other problems. Moreover, a knowledge of the physical peculiarities of the work with the chamber is indispensable for framing technical rules of safety without which work with an aerosol apparatus is impossible."

The purpose of the present communication was to discuss the fundamental theories concerned in the work with the chamber IVK-1 which are valid also when using other similar chambers. For this purpose the author resorted to elaborate mathematical calculations, with which it is impossible to deal in this review. His conclusions were that

1. The dynamics of function of the aerosol chamber IVK-1 have been studied and a mathematical evaluation of its work has been presented.

2. When making experimental studies of aerosols containing virus or bacterial materials, it is indispensable to take account of the time at which an equilibrant (maximal) concentration is effected.

3. After completion of the work with infectious materials the length of airing the chamber must correspond to the maximally possible (99.9%) removal of the infectious material from the chamber.

4. The data furnished permit a calculation of the time at which an equilibrant aerosol concentration is reached and of the time of "blowing through" the chamber.

563. Bolotovskii, V. M., Theory of the work with the aerosol chamber IVK-1 for the study of experimental respiratory infections. Report II. Evaluation of the aerosols according to some physical parameters. Voprosy virusologii 6 (1961) 4:458-463. (From the D. I. Ivanovskii Institute of Virusology, AMS, USSR, Moscow.)

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According to the introductory paragraph of this article, the purpose of the author was to determine the weight of the virus-containing material in the chamber and the amount of aerosols passing through the respiratory system of various animals. Attention was paid also to the stability of the aerosols according to some physical standards, since in aerosol work account has to be taken of physical as well as of biological factors.

The conclusions reached in this important article, the text of which can not be adequately condensed for the purposes of a brief review, were that

1. Taking account of the respiratory capacity of the various animals, determinations were made of the quantity of virus-containing material which they take in when in contact with aerosols in an aerosol chamber.

2. The loss undergone by the aerosol cloud through settling down of particles takes place according to Stokes' law.

3. As demonstrated, it is possible to produce with the chamber under test stable, finely dispersed aerosols.

564. Terskikh, I. I. et al., Peculiarities of aerosol infection in ornithosis. Voprosy virusologii 6 (1961) 4:463-469.  
(From the D. I. Ivanovskii Institute of Virusology, AMS, USSR, Moscow.)

The conclusions reached by the authors through elaborate studies on a large number of white mice and also through work with 5 monkeys (species not stated) were that

1. Aerosol infection with ornithosis virus in the IVK-1 chamber produced in the animals under test a generalized infection with a characteristic lung infection.

2. The initial signs of such infections were inflammatory changes in the tissue of the lungs, followed by such in the liver and the spleen. Involvement of the kidneys and the intestinal tract took place considerably later and did not reach a high degree.

3. The dynamics and sequence of the development of the affections in the different organs was related to the dynamics of accumulation of the virus in the organs in question.

4. Peculiar features of the aerosol infection are a diffuse inflammatory affection of the lungs followed by the formation of numerous small pneumonic foci and their rapid consolidation, especially in the marginal parts of the lungs.

5. The outstanding pathological process resulting from the aerosol infection of the animals is a pneumonia, the degree of the affection of the lung tissue determining the severity and outcome of the infection.

6. Comparing the results of experimental aerosol infection of monkeys with the ornithosis virus with the course of the natural infection in man, one may note similarities in the clinical picture and the character of the lung affection.

7. A study of the pathogenesis and the dynamics of the process resulting from aerosol infection with the ornithosis virus may be useful for the formulation of rational schemes for the prophylaxis and treatment of this infection with antibiotics.

565. Boldyrev, S. T., On the detection of complement fixing antibodies against the ornithosis virus in the blood of the cormorant (Phalacrocorax carbo sinensis). Voprosy virusologii 6 (1961) 4: 494.

Quoting the book Ornitozy: Epidemiologiya i profilaktika (Ornithoses: Epidemiology and Prophylaxis) by I. S. Bezdeznnykh (Moscow, 1959), the author stated that previously natural ornithosis infection had been recorded in fulmars, stormy petrels, herons and various species of seagulls. He now reported that examining the sera of 12 cormorants and 3 pelicans, he found complement-fixing antibodies against ornithosis in the serum of one of the cormorants.

566. Il'enko, V. I., Methodology of the performance of the hemagglutination inhibition reaction with the virus of tick-encephalitis. Voprosy virusologii 6 (1961) 4:495-499. (From the Virus Department of the Institute of Experimental Medicine, AMS, USSR, Leningrad.)

The detailed directives given by the author for the performance of the reaction specified in the title of his article must be studied in the original or in a full translation. As the author concluded, points deserving special attention were that

1. A pH of 9.0 was essential for the preservation of the hemagglutinin of the tick-encephalitis virus;
2. A pH of 6.6-6.8 was optimal for showing the phenomenon of hemagglutination..

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As stated in the text of the article, antibodies inhibiting the hemagglutination reaction appeared in tick-encephalitis patients early in the second week of illness and remained demonstrable in the serum of convalescents for more than one year.

567. Rybkina, N. N., Cultivation of rickettsiae in trypsinized cells of the guinea-pig kidney epithelium. Preliminary communication. Voprosy virusologii 6 (1961) 4: 479-482. (From the Department of Typhus and Other Rickettsioses, AMS, USSR, Moscow.)

As summarized by the author, it was established through preliminary investigations that trypsinized cells of the guinea-pig kidney epithelium are highly sensitive to infection with R. prowazeki, R. mooseri, R. burneti and D. conori. Presumably this method of cultivation will prove of value for solving theoretical and practical problems of rickettsiology.

568. Smirnov, O. V. et al., New data on trials of some flea-repellents. Meditssinskaia parazitologiya, etc. 39 (1961) 5:613-614.

As the authors concluded from laboratory experiments conducted with the aid of white mice and from observations on human volunteers, partly made under field conditions, dimethylphthalate conferred no reliable protection against attacks of X. cheopis. Satisfactory results were obtained under analogous conditions with the following compounds: dimethyl ether of tetrahydrophthalic acid; dimethyl ether of methyltetrahydrophthalic acid; and acetyltetrahydrochinoline. To prolong the action of the first mentioned compound it is well to use it in the form of a 10% solution in dimethylphthalate.

As stated in a footnote, the three effective repellents had been synthesized in the chemical department of the Moscow University.

569. Tilichenko, M. N. et al., New insecticides active against fleas. Meditssinskaia parazitologiya, etc. 39 (1961) 5:614-616. (From the Laboratory of Organic Chemistry of the Saratov M. G. Chernyshevskii State University, the Biochemical Department of the Saratov Medical Institute and the Scientific Research Institute "Mikrob.")

As the authors of this short article summarized,

"New synthetic compounds-9-methyl-perhydroacriding and simm-9-methyl-octahydroacriding proved, when tested against the flea Nosopsyllus fasciatus, stable insecticides with contact action."

The first mentioned of these compound had been synthesized and patented in the U. S., the second apparently by the authors.

570. IAKobson, N. Z., On work with the motor-driven duster Serna-3. Meditssinskaia parazitologiya, etc. 39 (1961) 5: 614-616.

Using a simplified technique, the author obtained good results in campaigns against Dermacentor ticks, when distributing 10% DDT dust with the apparatus Serna-3, devised by Sergiev and Nabokov.

571. Leshchenko, P. D. et al., Results and tasks of the fight against infectious diseases in the Ukraine. Vrachebnoe delo (1961) 11: 3-7.

In this article, the senior author of which is the Deputy Health Minister of the Ukrainian SSR, attention is drawn to the progress made in that republic in the fight against infectious diseases, but reference is made also to still unfulfilled plans.

Dealing with the prophylactic work, the authors give the following vaccination figures: poliomyelitis-20 million; smallpox - 10 million; diphtheria - 5.2 million; tuberculosis - 3.6 million; tularemia - 2.8 million; gastro-intestinal infections - 3.9 million and tatanus - 3.1 million.

It is claimed that as a result of the anti-epidemic work as well as of general progress in 1960 fifteen out of 22 infectious diseases showed a decreased incidence. Tularemia remained altogether absent. However, some of the infectious diseases, including rabies and tatanus, remained not less frequent then in the Soviet Union as a whole.

In regard to brucellosis and anthrax the authors state somewhat enigmatically that

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"Full sanitation of the farms on which sheep and goats are brucellosis-affected, implementation of measures to prevent alimentary brucellosis infections in man, further vaccination of all workers in brucellosis-affected farms and creation of the indispensable sanitary conditions for these workers (special garments, washing of hands, soap, etc.) ensure also the liquidation of brucellosis manifestations in man. Systematic campaigns including the compulsory slaughter of the (infected) cattle, increased sanitary supervision of places where raw hides and furs are handled and specific vaccinations are very effective measures in the campaigns against human anthrax."

As the authors add, it was indispensable to improve the prophylactic work against malaria and tularemia.

572. Slonov, M. N., To the study of the tick *Ixodes pomeranzevi* G. Serd. 1941 in the southern Primor'e. Meditsinskaia parazitologiya, etc. 30 (1961) 5:622-623.  
(From the Entomological Department of the E. I. Martinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR.)

As the author noted, this rare tick, found by him on small field rodents, might be a potential vector of tick-borne encephalitis.

573. List of important articles quoted by title in Meditsinskaia parazitologiya, etc. 30 (1961) 5:627-634.

### Ticks

Davydova, V. E., Some results of a five years' study of tick-encephalitis in the Latvian SSR. Tezisy dokladov nauchnoi sessii Rizhskogo meditsinskogo instituta posv. 10-let. instituta (Papers Presented at the X-th Anniversary Conference of the Riga Medical Institute), Riga, 1961, pp. 39-40.

Lysunkina, V. A., Results of the examination of some Uzbekistan tick species for Q-fever. Trudy Tashkentskogo nauchno-issled. instituta vaktsin i syvorotok (Transactions of the Tashkent Scientific-Research Institute of Vaccine and Sera), 6 (1961) :186-189.

- Meierova, R. A., "New data on the epidemiology and clinique of tick-encephalitis in Irkutsk and the Irkutsk Oblast." In: Infektsionnye i toksicheskie zabolevaniia nervnoi systemi (Infectious and Toxic Diseases of the Nervous System). Irkutsk, 1961, pp. 36-46.
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- Mikulin, M. A. and IU. Lian-chzhu., Additional materials on the flea fauna of China. Ibid., pp. 247-250.

Mikulín, M. A. et al., New findings of aphaniptera in the Kazakhstan and Central Asia. Ibid., pp. 251-256.

Morozova, I. V. and Sviridov, G. G., To the methodology of the preparation of fleas for bacteriological examination. Ibid., pp.317-318.

Reshetnikova, P. I., On the flea fauna of the Kazakhstan Oblast. Ibid., pp. 261-265.

Serzhanov, O. S. and Kuz'min, A. I., Some problems of accounting for the frequency of fleas in the colonies of the large gerbils and methods of digging out the colonies to get the nests. Ibid., pp. 267-274.

Shvarts, E. A. et al., On the finding of new aphaniptera in Kirghizia. Ibid., pp. 257-260.

Shvarts, E. A. et al., On the flea fauna of the eastern Tian'-Shan. Izvestiia Akademii nauk Kirgizskoi SSR. Seria biol. nauk 2 (1960) 7:101-117.

574. Spitsyna, L. N., Study of the immunological activity of the killed tissue vaccine against tick-encephalitis. Report I. Immunological shifts in vaccinated persons after the first and the second vaccination. Voprosy virusologii 6 (1961) 5:552-556. (From the D. I. Ivanovskii Institute of Virusology, AMS, USSR, Moscow.)

The killed tissue vaccine against tick-borne encephalitis, with which the author worked, was prepared in the Institute of Poliomyelitis and Virus Encephalitis, AMS, USSR by Levkovich and his associates (see Vestnik AMN SSSR, 1960, No. 1, p. 53 and Vop. virusol., Vol. 5, 1960, No. 2 p. 233). The group tested consisted of 15-18 years old pupils of an artisan school, situated in a raion of the Kalininskii Oblast within a natural tick-encephalitis focus. According to the age of the pupils, the vaccine was given subcutaneously in a dose of one ml to 51 and in an amount of 0.5ml to 23. Even after the first vaccination reactions were practically absent and the same was the case in the 54 persons who were revaccinated 17 days after the first inoculation. Blood was taken for virus-neutralization tests in white mice and for complement fixation tests before the first vaccination, immediately before the second vaccination and, for a third time, 26 days after the latter.

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As shown by the author in a table, out of 42 persons in whom virus-neutralization tests had given a negative result before vaccination, 10 (23.8%) reacted positively when the tests were repeated 17 days after the initial inoculation and in 6 out of 49 persons (12.2%) complement fixation tests became positive following this inoculation. Out of 48 persons tested 26 days after the second vaccination, 19 (39.6%) reacted positively in virus-neutralization tests and 14 (29.2%) showed positive complement fixation reactions.

Commenting upon these findings, the author stated that

"the above quoted results demonstrate that the vaccination is immunologically active and evidently apt to cause a major immunological shift after revaccination. This also is shown by the results of examination of, it is true, only of a few persons, the blood of whom contained virus-neutralizing antibodies before vaccination, the titer of the latter markedly increasing already after the first vaccination.

If the results of revaccination confirm the postulation of an increased immunological activity, undoubtedly the next step, of decisive importance for the fate of the new vaccine, will be to confirm its epidemiological efficacy through mass inoculation. If account is taken of the high percentage of naturally immunized persons in the population of the natural tick-encephalitis foci, the use of the vaccine on this basis is bound to have a great effect and to ensure protection against the disease. It has to be noted, that the intensity of the immunity due to natural immunization and its protective action have not yet been studied, and that the recent increase of (encephalitis) attacks among the local population in a number of settlements shows the indispensability of vaccination not only of persons recently arrived in the natural foci but, to some degree, also that of the aborigines."

A comparison of her results with those of Vereta (see Sbornik nauchnykh trudov i avtoreferatov za 1951-1955 Khabarovskogo instituta epidemiologii i mikrobiologii [Collected Transactions and Papers of the Khabarovsk Institute of Epidemiology and Microbiology for 1951-1955], Vol. 3, 1957, p. 7) who worked with killed brain anti-encephalitis vaccine, led the author to the conclusion that, to judge from the preliminary findings, the potency of the new vaccine was not much lower than that of the

brain vaccine. In favor of the new vaccine spoke its harmlessness and the absence of post-vaccinal reactions. On the other hand, the absence of an immunity in a large group of the vaccinated even after two inoculations showed the need of further studies of the efficacy of revaccination.

575. Gaidamovich, S. IA. and Obukhova, V. R., Cultivation of the virus of Japanese encephalitis in tissue cultures of the kidney epithelium of sheep embryos. Voprosy virusologii 6 (1961) 5:557-562. (From the Laboratory for the Diagnosis and Indication of Viruses of the D. I. Ivanovskii Institute of Virusology, AMS, USSR, and the Department of Virusology of the Central Institute for the Advanced Training of Physicians, Moscow.) Quoted by title only.
576. Mastiukova, IU. N. et al., Study of the results of smallpox vaccination. Report II. Voprosy virusologii 6 (1961) 5:573-576. (From the Institute of Epidemiology, Microbiology and Hygiene and the Sanitary-Epidemiological Station of the Sverdlovsk Raion of Moscow.)

In their first report, which has been dealt with in these reviews (see p. 210) the authors had recorded a dependence of the inoculability of the smallpox vaccine upon the degree of its virulence, the time which had elapsed since the last previous vaccination and the level of specific antibodies in the persons undergoing vaccination. In their present paper the authors recorded the results of a determination of the anti-hemagglutinin level found in 1101 persons who had been revaccinated 22-26 days previously. In 983 of these persons it was possible to examiner paired sera, obtained respectively before and after the inoculation.

Summarizing the results of these tests, the authors stated that

1. Through hemagglutination inhibition tests made with paired sera of 983 persons revaccinated against smallpox it was established that the amount of humoral antibodies forming as a result of the vaccination depends upon the virulence of the vaccine, the intensity of the skin reaction and the antibody level present in the blood before the inoculation.

2. A positive skin reaction does not invariably lead to the appearance of antibodies in the blood, since in 99 of the 983 persons under test the skin reaction was not associated with

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an accumulation of the antibodies. Among these 99 persons were 10 giving negative serological tests both before and after revaccination. On the other hand, an increase of the antibody level in 108 persons with a negative skin reaction was noted. In 52 persons belonging to this group the serological tests made before the inoculation had given a negative result.

3. A negative skin reaction does not invariably indicate the presence of an intense immunity against smallpox: out of 326 vaccinated persons, who did not react to inoculation, in 98 antibodies were absent from the blood before the inoculation. In 46 of these persons serological tests also gave a negative result after the inoculation. When 23 of the 46 negative reactors were again vaccinated after two months, 15 showed takes associated with the appearance of humoral antibodies.

577. Akatova, E. M., To the problem of the stability of the smallpox virus. Voprosy virusology 6 (1961) 5:576-579.  
(From the I. I. Mechnikov Vaccine and Serum Institute, Moscow.)

Summarizing the results of her observations the author stated that

1. If kept in suspension at  $-12^{\circ}\text{C}$ , the smallpox virus remained infectious for chick embryos for more than 28 months, at  $5^{\circ}\text{C}$  for more than 8 months.

If kept in dry form at room temperature under the influence of daylight and the air, the virus retained its infectivity for more than 2 months.

2. The smallpox virus withstood heating in the water-bath at  $50^{\circ}\text{C}$  for 2 hours. At a temperature of  $60^{\circ}$ , the virus became inactivated in 15 minutes, at  $70^{\circ}$  in 5 minutes, at  $100^{\circ}$  in 1-2 minutes.

3. Irradiation with ultraviolet light for 2 hours impaired the infectivity of the virus to a slight degree.

As the author added in the text of her article she had been able to confirm that the virus remained viable for more than 2 years in the crusts obtained from smallpox patients and kept in the refrigerator.

578. Gol'din, R. B. and Amosenkova, N. I., Study of experimentally produced rickettsioses with the aid of the fluorescent antibody

technique. Report II. Use of fluorescent immune gamma globulin for the early and rapid diagnosis of Q-fever. Voprosy virusologii 6 (1961) 5:591-598.

(From the S. M. Kirov Order of Lenin Military-Medical Academy and the Leningrad L. Pasteur Institute of Epidemiology, Microbiology and Hygiene.)

In an earlier article, which has been reviewed in these pages (see p. 193) Gol'din dealt with the technique of preparing fluorescent gamma-globulins for the demonstration of Rickettsia burneti. The object of the present work was to explore with the aid of experiments in guinea-pigs and white mice the possibility of using the fluorescent antibody technique for the diagnosis of Q-fever. The conclusions reached through these investigations, the details of which must be studied in the original or a full translation were as follows:

1. The possibility has been shown of using the fluorescent antibodies for the early and rapid diagnosis of Q-rickettsiosis through immediate demonstration of the causative organisms in blood smears as well as in the organs of laboratory animals infected with infective blood....

2. Through in vitro observations it has been shown, that with the aid of the fluorescent antibodies one can observe R. burneti in blood smears only if the concentration of these organisms in the blood is not less than  $2 \times 10^6$  per ml.

3. With the aid of this method a study has been made of the intensity and dynamics of the rickettsemia. As found, one can observe the rickettsiae in the blood most regularly during the first days of fever, though in a number of instances the organisms have been demonstrated also at the end of the incubation period. It has been noted also that in the blood smears the rickettsiae are mainly situated on the surface of the erythrocytes.

4. It has been shown that 3-5 days after the intraperitoneal administration of infected blood or other rickettsia-containing materials one can observe R. burneti with the aid of fluorescent antibodies in the spleen and other internal organs.

5. These experimental findings permit to recommend the proposed method of early Q-fever diagnosis for practical use in clinical and anti-epidemic work."

As the authors added in the text, they also had the opportunity of examining blood smears obtained from 2 Q-fever

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patients on the 4th, 6th and 12th days of illness. With the aid of the fluorescent antibody technique one could see in each field of vision 2-5 rickettsiae, characteristically situated on the surface of erythrocytes. In both instances the diagnosis of Q-fever was confirmed through animal experiments with the patients' blood.

579. Golincovich, E. M. and Genig, V. A., Combined vaccination of guinea-pigs against typhus, Q-fever and North-Asiatic tick-rickettsiosis. Voprosy virusologii 6 (1961) 5:598-602. (From the Rickettsiosis Department, AMS, USSR, Moscow.)

For their studies the authors used

1. Anti-typhus vaccine consisting of a purified suspension of R. prowazeki, grown in the yolk sac of chick embryos, with a titer of 1 billion organisms per ml and preserved with 0.25% phenol; and

2. Dry Dermacentroxenus sibiricus vaccine, consisting of an ether-purified and phenolized suspension of the organisms derived from cultures in the yolk sacs of chick embryos and showing a titer of 1:8 in complement fixation tests with specific serum.

Two combinations of these vaccines were used, one of which contained per ml 500 million R. prowazeki, 125 million R. burneti and 1 million D. sibiricus, while the other contained instead of 125 million only 62 million of R. burneti.

The combined vaccines were used thrice for the subcutaneous inoculation of guinea-pigs in doses amounting respectively to 0.5, and 1 ml. Blood for complement fixation tests with the three antigens was taken 15 days after the last vaccination. 2 1/2 months after this inoculation the animals were challenged with standard doses of the viruses under test.

Through parallel guinea-pig experiments with the combined vaccines and the corresponding monovaccines the authors established

a) That subcutaneous administration of the typhus and D. sibiricus vaccine caused neither a general nor a local reaction, but that administration of the Q-fever vaccine led to a local reaction which could be somewhat mitigated by a reduction of the dosage.

b) That the combined vaccines produced in the test animals a more intense immunity to challenge with R. prowazeki and D. Sibiricus than that engendered by the corresponding monovaccines, whereas in the case of Q-fever the monovaccine proved somewhat more potent than the combined vaccines.

580. Evdoshenko, V. G. and Proreshnaia, T. L., Natural Q-fever infection of wild animals in Northern Kirghizia. Voprosy virusologii 6 (1961) 5:602-605.

As stated by the authors in the opening paragraph of their article, Q-fever is widely spread in the Kirghiz Republic, where 12-62% of the human population and 18-40% of the domestic animals were found to react to Q-fever antigen.

For a further study of the incidence of the infection, the authors made complement fixation tests with the sera of 233 wild animals belonging to 9 species and also used the organs of 205 such animals for pooling tests followed by guinea-pig passages, so as to obtain also bacteriological evidence of the presence of Q-fever. It was possible to establish in this manner the presence of R. burneti in 5 wild animal species, namely domestic mice, sisels (Citellus relictus), grey hamsters, spring-hares (Alactaga saliens) and large-eared hedgehogs (Erinaceus auritus).

The isolated strains proved to be pathogenic for guinea-pigs, wild mice and chick embryos.

As the authors concluded, the evidence obtained by them lent strength to the belief that natural Q-fever foci existed in Northern Kirghizia.

581. Krivenkov, G. N., Influence of X-rays on the immunogenesis in guinea-pigs inoculated with live brucellosis vaccine. Voenno-meditsinski zhurnal (1961) 4: 52-54.

In order to study the influence of X-ray irradiation on animals vaccinated subcutaneously with 0.5 ml amounts of live vaccine made from the brucella strain 19, the author experimented with 60 guinea-pigs divided into the following groups: (See table on page 310)

10 only irradiated and 20 only vaccinated guinea-pigs served as controls. The state of immunity of the vaccinated animals was assessed by successively made agglutination tests with their sera.

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<u>Group</u>	<u>No. of Animals</u>	<u>Irradiation</u>
1	20	Irradiated 4 hrs. after vaccination
2	26	"- 4 hrs. before vaccination
3	14	"- 7 days before vaccination.

To judge from the results of these tests, irradiation 4 hours after the vaccination exerted no influence on the development of an immune state, the agglutination titers in the sera of the animals of the first group corresponding to those in the non-irradiated controls. However, irradiation before the vaccination led to a considerable inhibition of the production of agglutinins, particularly in the animals of the third group, irradiated 7 days before vaccination.

In contrast to the vaccinated control group, there appeared in the irradiated immunized guinea-pigs a secondary rise of the agglutinin titers, which was specially marked in the second and third groups. The author ascribed this phenomenon to the long preservation of the live vaccine in the immunized animals, which could thus lead to an immunological response after the guinea-pigs exposed to X-rays had recovered from their radiation sickness.

Revaccination of the irradiated animals 3 1/2 months after the initial inoculation produced beneficial results identical with those in the non-irradiated controls.

582. Shapoval, A. N., Early clinical manifestations of tick-borne encephalitis. Voenno-meditsinskii zhurnal (1961) 5: 42-45.

Introducing his subject, the author maintained that

"as previously, clinical observations are the only means of recognizing the presence of tick-encephalitis. The available methods of laboratory diagnosis at best can only confirm the diagnosis. Consequently a sufficiently good knowledge of the clinical manifestations of the disease, particularly in the early stage, is first of all of practical importance as an early diagnosis of the disease permits the use of the most effective methods of treatment (serotherapy) and the implementation of the measures indispensable to prevent epidemic situations."

Summarizing the results of observations on the early manifestations of the disease made by him and many other workers (briefly quoted without full references), the author stated that, through showing much variance,

"still in the majority of observations the initial symptoms of the disease consist of feverish, general cerebral and often slight meningeal manifestations, differently marked disturbances of the sensorium and initial changes on the part of the nervous system."

In order to arrive at a diagnosis, it was indispensable to pay attention to the aggregate of all available information on the condition the patients, including such of an epidemiological nature. Continued observation of the patients was of decisive importance.

As discussed in the text of the article, the incubation period of tick-borne encephalitis has been stated to vary from one day (or even less) to 2-3 months.

583. Sipeiko, I. G., On the use of quinacrine and anti-encephalitis serum in tick-borne encephalitis. Voenno-meditsinskii zhurnal (1961) 5: 45-46.

The conclusion reached by the author of this short note was that

"in all forms of tick-encephalitis the outcome was favorable, if during the incubation period the patients took quinacrine and were treated subsequently with quinacrine and anti-encephalitis serum in combination with dehydrating and symptomatic treatment and administration of antibiotics."

584. Aleksandrov, N. I., Gefen, N. B. et al., Working out of a method of aerosol immunization against typhoid and dysentery. Voenno-meditsinskii zhurnal (1961) 5: 54-59.

Quoted by title only.

585. Somin, V. I., A simple method of measuring the particles of aerosol fluids. Voenno-meditsinskii zhurnal (1961) 5: 69-71.

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As the author postulated, the particle size of aerosols depended in the first line upon the properties of the spraying apparatus used and not upon the nature of the dispersed fluids. He recommended, therefore, the determination of the particle size of the aerosols produced by a given apparatus by using it for the production of aerosols from a sodium chloride solution and to measure the size of the salt crystals which upon standing settled down from such aerosols. The author maintained in this connection, that "from each aerosol particle there forms upon evaporation as a rule only one NaCl crystal, the dimensions and weight of which are proportional to the dimensions of the original droplet."

Details of the use of this method and its comparative value must be sought in the original or in a full translation of the article.

586. Osipian, V. T. and Kazhdan, V. B., Use of DDT aerosols for the fight against rat-fleas in houses. Voennon-meditsinski zhurnal (1961) 8: 52-55.

To study the subject indicated in the title of this paper the authors resorted to preliminary laboratory tests and to practical work in houses.

For the laboratory tests DDT aerosols were produced with the aid of VMOLA smokepots, which contained a sublimatory mixture of the following composition: DDT 60%; potassium chlorate 22.5%; thiourea 7.5% and ammonium chloride 10%. In order to obtain these concentrations of the actively effective substances the sublimatory mixture was burned in a gas chamber with a capacity of 0.25 m<sup>3</sup>, in which lots of 50-100 fleas were exposed to the action of the DDT aerosol in glass jars. When the fleas became paralyzed, they were removed and put into clean jars containing wet sawdust for further observation.

Further, in order to study the efficacy of the impregnation of the surface of various substances with DDT, concrete and wooden plates as well as Petri dishes containing sand were exposed to the action of the aerosol particles had completely settled down on these test objects. To expose lots of 10-20 fleas on the treated surfaces, the authors used 7 cm high open glass cylinders with a diameter of 5 cm. When the exposure of the fleas had been completed, they were put into sawdust-containing glass jars and kept under observation at a temperature of 17-18°C for a day.

In order to study the immediate action of DDT aerosols on fleas of the species Nosopsyllus fasciatus and Xenopsylla cheopis, the authors dispersed the aerosols in proportions of 0.125-2g of the actually active substances ("ADV") per 1 cm<sup>2</sup> of the chamber surface. It was found that each of the doses used sufficed to paralyze the fleas within 8-10 minutes and to kill them within 2-3 hours.

The results of exposure of N. fasciatus fleas on the above mentioned DDT-impregnated test objects were tabulated by the authors as follows:

Rapidity of Paralyzing Action in Minutes,  
Effected with the DDT Doses Enumerated  
Below (in grams per m<sup>2</sup>)

<u>Surface Used</u>	<u>0.125g</u>	<u>0.25g</u>	<u>0.5g</u>	<u>1.0g</u>	<u>2.0g</u>
Concrete	63	36	31	23	24
Wood	38	32	30	27	26
Sand	22	22	22	24	23

NB. All exposed fleas died within 24 hours.

Commenting on these data the authors stated that the optimal doses were for concrete and wood surfaces 1 gram per square meter, for sand 0.125g per m<sup>2</sup>.

Data regarding the residual action of DDT dispersed on the surfaces under test in doses of 1 gram ADV per 1 m<sup>2</sup> were shown by the authors in the following table (tests with N. fasciatus):

Percentages of Death of the Fleas After  
Contact for 15 Minutes with Test Objects  
Kept After Treatment for the Times Specified Below

<u>Surface Used</u>	<u>One day</u>	<u>10 days</u>	<u>20 days</u>	<u>30 days</u>
Concrete	100	52	37	10
Wood	100	100	100	99
Sand	100	100	100	100

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As will be noted, in contrast to the other test objects the residual action of concrete surfaces treated with DDT aerosols became markedly and progressively lowered 10 days after application of the insecticide.

For their field tests, made in the summers of 1957 and 1958, the authors used aerosol smokepots or freon aerosol balloons.

The smokepots were used in 8 premises, two of which had wooden floors, four concrete floors and two earthen floors. 30 minutes after 200 rat-fleas (species?) had been set free per square meter, two of the premises were exposed to the action of the DDT aerosols at the rate of 0.5g ADV per square meter, five at the rate of 1 gram per  $m^2$  and one at the rate of 2 g per  $m^2$ . One hour later groups of 3 white mice were used per square meter to collect the fleas. As the flea counts showed,

"the aerosols...in doses of 1-2g ADV per  $m^2$  effected within an hour a complete disinsectization of the premises: in none of the tests with the above mentioned DDT doses was it possible to observe any fleas, whereas in control tests 52-93% of the (liberated) fleas could be collected. The efficacy of 0.5g doses of ADV per  $m^2$  was somewhat lower, about 1% of the fleas being collected from the mice."

In a second series of tests 100-200 rat-fleas were let loose on white mice and the latter were then exposed in the DDT-treated premises for 2 hours. As the subsequent flea-counts showed, 1 gram ADV doses of the aerosols per square meter sufficed under these circumstances irreversibly to paralyze all the fleas.

As shown by further tests, one hour exposures of fleas on surfaces treated 10, 20 or 30 days previously with ADV doses of 1 gram per  $m^2$  sufficed to kill all or the overwhelming majority of the fleas.

In the case of the freon aerosol balloons liberation of 1 gram ADV doses per  $m^2$  exerted a full insecticidal effect. The residual action of the aerosols produced in this manner was not completely satisfactory.

For actual work the authors recommended application of the DDT aerosols in ADV doses of 1 gram per square meter, adding that the residual action of the freon aerosols was somewhat below that of the aerosols generated from smokepots.

587. Smirnov, O. V. and Bocharov, A. P., Combined method of protecting man against blood-sucking insects. Voenno-meditsinskii zhurnal (1961) 7: 48-49.

In a previous publication (see Voenno-meditsinskii zhurnal, 1959, No. 8) the authors recorded the results of laboratory tests showing that it is possible to protect man against the attacks of Xenopsylla cheopis with the aid of a combined method consisting of the impregnation of the clothes and underwear with DDT and the simultaneous application of a repellent on the uncovered parts of the body. The authors now reported on the use of this combined method under conditions which closely resembled those actually obtaining. They used for these tests garments and underwear which had been treated the day before with an emulsion of DDT in mineral oil containing 2% of the actually working substance (ADV) and used as a repellent a mixture of dimethylphthalate with 10% acetyltetrahydrochinoline, which was applied to the skin of the face, the hands and the neck immediately before the tests at the rate of 2-2.5 ml per person. In order to obtain comparative results various methods of protection against fleas were tried, comprising (a) the use of DDT-impregnated wearing apparel without application of the repellent; (b) impregnation of the clothes, but not of the linen, combined with the use of the repellent; (c) use of the repellent alone.

The participants in the tests stayed for 2 hours on a spot measuring 4 x 5 meters, where not less than 4 hours before commencement of the observations starving fleas had been liberated in apparently large numbers.

Commenting on the results of the tests, which they recorded in tabular form, the authors stated that

"complete protection against fleas was observed only in those cases where a man, dressed in a DDT-impregnated costume, smeared his neck, face and hands with the repellent. In this it was found that it is indispensable to impregnate only the clothes but not the underwear. In our previous investigations we have shown that DDT impregnation of only the latter without treatment of the clothes does not protect man against the access and bites of the fleas."

As the authors added, the DDT-treated garments are apt to retain their protective properties for a long time, while the application of the repellent is easy. However, people staying in a focus of infection must apply the latter every four hours.

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588. Riabov, N. I. and Sakovich, O. S., Repellent and acaricidal action of "kiuzols" on taiga ticks and mosquitoes. Voenno-meditsinskii zhurnal (1961) 7: 50-53.

As can be gathered from a remark in the above quoted article by Smirnov and Bocharov, the term "kiuzol" (for which no definition could be found in the available technical dictionaries or reference works) is used to designate the group of compounds to which acetyl-tetra hydrochinoline (RP 99 or kiuzol A) belongs.

The authors of the presently reviewed article found that on account of their repellent action the kiuzol compounds could be recommended for the protection of man against ticks (Ixodes persulcatus and Hemaphysalis sp.) and mosquitoes. They pointed out, however, that

"the toxic action of the kiuzols on the ticks is weak and exerts little influence on their vital activity. After a 10-minute contact with fabrics impregnated with kiuzols the ticks remain partly active and capable of affixing themselves to the skin of warm-blooded animals, of feeding normally and even of depositing eggs."

Since the repellent action of the kiuzol-impregnated fabrics was found to become three times lower 40 days after their treatment, it was necessary to repeat the impregnation of the protective garments or other costumes worn for work at suitable intervals throughout the season of tick activity.

589. Zhogolev, D. T., A lighted trap for insects. Voenno-meditsinskii zhurnal (1961) 7: 88.

This short illustrated note must be consulted in the original.

590. Fediaev, B. P., Organization of the fight against insects harmful to man in the U. S. armed forces. Voenno-meditsinskii zhurnal (1961) 7: 89-92.

Quoted by title only.

591. Korovin, F. T. et al., Disinfection of habitations by the method of chemical sublimation of formol and chlorine. Voenno-meditsinskii zhurnal (1961) 6: 49-51.

For their experimental work the authors used a mixture of formol and the 2, 3 basic salt of hypochlorite, contaminating the test objects either with Staph. aureus or with anthrax bacilli (vaccinal strain STI). Referring to the tests with the latter strain they stated that

"the initial concentration of live spores per 1 square centimeter of the surface of the premises varied from 700,000-4,000,000 microbial cells. The amount of the disinfectants was increased: used were 2.4 liters of formol and 2 kg of the hypochlorite salt (DTS-GK) per square meters of the premises."

As a result of 7 tests it was established, that a lowering of the initial rate of contamination to single bacteria took place already after an exposure for 15 minutes, and after an exposure for 30 minutes apparently all the organisms had been killed.

Applying this method of disinfection, it was found necessary to use gas masks and protective garments. The treated premises had to be thoroughly ventilated and ammonia had to be used to neutralize the residual formol.

591. Ioffe, I. S. and Osipian, V. T., The new disinfectant beta-propiolakton. Voенno-meditsinskii zhurnal (1961) 6: 52-53.

On account of the findings of previous workers and of experiences of their own the authors recommended beta-propiolakton as an effective disinfectant which could be used in the form of watery solutions or of aerosols. As mentioned inter alia, the compound was found to be active against anthrax spores (strain STI) as well as against the vegetative forms of bacteria. A 1% watery solution of the new disinfectant killed the spores within an hour, a 2% solution within 30 minutes.

592. Labesov, G. I. and Gromozdov, G. G., Problems of anti-bacterial protection. A review of the book Voprosy protivo-bakteriologicheskoi zashchity, edited by P. F. Zdrodovskii, Medgiz, 1960. Voенno-meditsinskii zhurnal (1961) 6: 86-88.

Quoted by title only.

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593. Lebedeva, A. P. and Tolstoshei, O. N., Soil contamination with hexachlorane as a result of its use in agriculture. Gigiena i sanitariia 26 (1961) 11: 14-18.  
(From the Ukrainian Scientific Research Institute of Communal Hygiene.)

Experimental observations led the authors to the following conclusions:

1. It was established that the use of hexachlorane (benzene hexachloride) for agricultural purposes lead to a contamination of the soil with this compound and the possibility of its prolonged presence in the soil and its penetration in deeper soil strata has been demonstrated.

2. In potatoes and in sugar-beets grown in hexachlorane-contaminated soils residual amounts of the insecticide could be demonstrated, which in the case of the potatoes were in excess of the concentrations permitted for agricultural products.

3. The results of these observations indicate the necessity of a strict sanitary supervision of the use of hexachlorane for the treatment of the soil for agricultural purposes.

594. Lipkin, M. E. et al., Experiences on the practical use of luminescent sera. Zh. mikrobiologii, etc. 32 (1961) 11: 26-29.

As stated in the introduction to this article, the aim of the authors was to determine the specificity and sensitivity of dry diagnostic luminescent sera. For their studies they used anti-coli, anti-anthrax, anti-tularemia, anti-rikkettsial (R. prowazeki) and anti-rabbit sera prepared in the Gamaleia Institute as well as anti-typhoid, anti-paratyphoid and anti-dysentery sera produced in the Kirov Academy of Military Medicine.

The general conclusion reached by the authors was that, except in the case of the two E. coli strains tested (0.26 and 0.55), the method of luminescent microscopy did not give results qualifying it as a reliable means for a speedy bacteriological laboratory diagnosis. They noted in this connection that in such tests unadsorbed anti-anthrax sera gave not only markedly positive results with the homogenous strains but also ++ or +++ results with anthracoids or pseudoanthrax bacilli. Even absorption of the anti-anthrax serum with anthracoids or with a mixture of anthracoids and pseudoanthrax bacilli did altogether abolish weakly positive reactions with these non-homogenous strains.

Because a virulent tularemia strain was unavailable, the authors worked only with live tularemia vaccine and were not able to produce a distinct luminescence with the aid of either the direct or the indirect method.

595. Kharina, N. P., A modification of the opsono-phagocytic reaction in brucellosis. Zh. mikrobiologii, etc. 32 (1961) 11: 30-32. (From the Cheliabinsk Medical Institute.)

In order to take advantage of the opsono-phagocytic reaction for the diagnosis of brucellosis, the author resorted to a modification of the method, using, in place of killed brucellae according to the procedure of Shtriter (Sovetskii vrachebnyi zhurnal, 1940, No. 11: 781), as antigen the live attenuated strain utilized for subcutaneous anti-brucellosis vaccination. For this purpose 5 doses of the vaccine, each containing 200-300 million of the organisms, were dissolved in 1 ml of normal saline and 0.5 ml amount of this antigen were added to the citrated blood specimens of the patients.

To stain the preparations made on slides, the author used in place of the Romanowski-Giemsa stain a 1% solution of methylenblue.

Comparing the results of the tests with his modification with those he obtained with the aid of Shtriter's method, the author concluded that the former gave distinctly or markedly positive reactions in 52.2% as against 29.5% analogous results in the case of Shtriter's method. He admitted, however, to have obtained 24% weakly positive results in patients suffering from other infectious diseases.

596. Klassovskii, L. N. and Anisimov, P. I., On the influence of prolonged fractional X-ray irradiation on the morphological peculiarities of Pasteurella pestis. Zh. mikrobiologii, etc. 32 (1961) 11: 45-51. (From the Central-Asiatic Scientific Research Anti-Plague Institute.)

The conclusion reached by the authors of this excellently illustrated article were that

1. Under the influence of prolonged fractional (interrupted) X-ray irradiation growing plague bacilli regularly undergo characteristic morphological transformations.

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2. As the result of a suppression of the cell division without impairment of the capacity to grow there appear elongated worm-like forms of the organisms (stage of growth).

3. At later irradiation dates and 12-18 hours after interruption of the irradiation destructive processes preponderated in the bacterial populations. A considerable part of the giant heteromorphous cells became disintegrated through gradual lysis or as a result of a rupture of the cells membrane and voiding of the cell contents (phase of destruction).

4. The reappearance of the usual vegetative forms in the irradiated bacterial populations was effected through a subsequent division of the giant worm-like cells (phase of regeneration).

5. The appearance of the latter type of cells may be considered due to a mechanism of adaptation, aiming at a preservation of the bacterial populations under untoward conditions.

597. Aleksandrov, N. I., Gefen, N. E. and numerous co-workers. Search for effective chemical vaccines against some zoonoses. Report II. Development of a chemical vaccine against brucellosis and study of its efficacy for experimental animals. Zh. mikrobiologii, etc. 32 (1961) 11: 66-72\*.

The conclusions reached by the authors of this amply documented study were that

1. A comparatively simple and inexpensive method was worked out to isolate the antigenic substances of brucellae with the aid of organic solvents, particularly chloroform.

2. According to the findings made in experimental animals the antigen obtained in the above mentioned was harmless, areactogenic and highly immunogenic.

3. A further thorough study of the chemical antigenic substances isolated from brucella cultures with the aid of chloroform is indicated.

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\* The first article of this series, describing the preparation of an alum-precipitated anthrax vaccine, has been dealt with in these reviews (see manuscript page no. 225).

4. There is reason to claim that a perfection of the method of producing the brucella antigen and also of the forms and methods of its use for immunization will permit to obtain a highly efficacious chemical brucellosis vaccine.

598. Kurdina, D. S., A study of the vaccinal strain Brucella melitensis Rev. 1. Zh. mikrobiologii, etc. 32 (1961) 11: 99-104. (From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

As stated in the introduction to this article, in the Soviet Union a live vaccine prepared from the Brucella abortus strain 19-BA is used for the protection of man against brucellosis infection of the sheep-goat type. However, the possibility of using in place of this other brucella strains for immunization has been studied by several Soviet workers.

In the USA Herzberg and Elberg (see J. Bacteriology 66 [1953] 5:585, 600 and 69 [1955] 4:432), studying a streptomycin-dependent mutant of a Br. melitensis strain, were able to obtain from this through subcultivation on streptomycin-free media isolated colonies which proved sensitive to this antibiotic. Cultures of the latter type of organisms, called by the two authors Br. melitensis Rev. (reversion) 1 were found to be endowed with antigenic and immunogenic properties and consequently the possibility of using this mutant strain for the immunization of sheep and goats was studied. Under these circumstances Kurdina wished to establish whether this strain was endowed with properties rendering it preferable to the strain Br. abortus 19-BA. The conclusions she reached were that

1. The strain Br. melitensis Rev. 1 proved to be culturally and biochemically typical. It subsisted well in guinea-pigs, remaining mainly restricted to the lymph nodes, if used in doses of 1,000 organisms, but invariably producing a well marked generalized process if administered in dose of 100,000 organisms.

2. The residual virulence of the strain was found to be higher than that of the vaccinal strain Br. abortus 19-BA.

3. If injected subcutaneously into guinea-pigs in a dose of 1 milliard organisms, the culture Br. melitensis Rev. 1 produced a generalized process commencing within an hour and lasting up to 30 days; then the brucellae began to disappear, becoming absent after 8 months.

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The immunologic reactions (agglutination and opsono-phagocytic tests) were most intensive during the period of from 10 days to 3 months after infection, the allergic skin test (Burnet's reaction) during a corresponding period from 15 days to 8 months.

The mutant under test had a lower residual virulence than virulent Br. melitensis strains and its properties stood near to those of the Br. abortus type.

599. Leibenson A. S. and Lucheva, Z. F., A nutrient medium with the Soviet-produced hydrolysate of aminopeptide-2 as base for the cultivation of tularemia bacilli. Report II. Zh. mikrobiologii, etc. 32 (1961) 11:120-126.  
(From the Sanitary-Epidemiological Station of the East-Kazakhstan Oblast.)

As the authors briefly stated, they recorded in their first communication\* cultivation of a vaccinal tularemia strain on a medium containing as base aminopeptide-2, a compound produced for therapeutic purposes (parenteral feeding) by the Leningrad S. M. Kirov Meat-Processing Plant (miasokombinat). While tularemia bacilli could be successfully subcultivated on this medium, it was not suitable for growing the organisms directly from the organs of white mice succumbed to tularemia. To overcome this drawback, the authors devised a modified medium, the manufacture of which they described as follows:

"25g of washed and finely shredded Arkhangelsk agar were put into a Bunsen flask and 270ml of a phosphate buffer solution with a pH of 7.38 were added. After sterilization in the autoclave at 1.5 atmospheres for 30 minutes we added 700ml of aminopeptide-2 previously heated to 50° (C), brought the mixture to a pH of 7.2-7.3 and added 0.5% of a pharmaceutical solution of adenosintriphosphoric acid (1% solution in ampules). The contents of the flask were mixed by shaking and then poured into Petri dishes of tubes. After sterility had been confirmed through incubation at 37° for 1-2 days, the medium was ready for use."

As exhaustively described by the authors, the new medium proved suitable not only for cultivating the dry live tularemia

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\* This preliminary report, which appeared in 1960, has been dealt with earlier in these reviews (see manuscript page no. 155).

vaccine of the Gamaleia Institute but also a virulent strain isolated in East Kazakhstan in 1959 and for obtaining growth directly from the organs of tularemia-infected white mice. Addition of 1%, 5% or 10% of defibrinated rabbit blood considerably promoted the growth on the medium.

As the authors emphasized in their conclusions, the medium proposed by them could be prepared even under field conditions since the aminopeptide-2 was available in a sterile condition in ampules.

600. Marder, B. B., Influence of X-ray irradiation on the formation of antibodies in tularemia-infected guinea-pigs. Author's review. Zh. mikrobiologii, etc. 32 (1961) 11:141-142.

As the author of this short note summarized, X-ray irradiation of guinea-pigs at various times before or after vaccination with live tularemia vaccine (strain Gaiskii No. 15, restored) suppressed the formation of antibodies to some extent.

601. Kanaev, I. A., Cutaneous allergic skin tests with brucellin in brucellosis patients. Zh. mikrobiologii, etc. 32 (1961) 11:143-144.  
(From the Medical Section of the Mamedkala Station, Dagestan ASSR.)

In order to simplify the technique of the allergic test, the author applied the brucellin, as used for Burnet's intradermal test, in the manner adopted for smallpox inoculation. Results were read after 6, 12, 18, 24, 48, and 72 hours. In the case of a positive reaction one could note already after 6 hours at the test site an elevated circular or oval slightly edematous area of redness with a diameter of 1-1.5cm and sharply defined borders. This papule was slightly indurated, not painful to touch and well discernible regardless whether or not the skin was pigmented. The signs of this reaction usually disappeared on the 2nd day, but sometimes persisted until the third day after performance of the test.

Using this method for testing 102 persons who had brucellosis or had suffered from it in the past, the author obtained 80.4% positive results as against 70.5% with Burnet's test. Moreover, the cutaneous test yielded reactions already after 6-12 hours, whereas in the case of Burnet's test the maximum of positive reactions became manifest after 24 hours. The author recommended, therefore, his skin test which, because simple of execution, was suitable for mass examinations.

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602. List of important articles on brucellosis, quoted by title in Zh.mikrobiologii, etc. 32 (1961) 11:155-157.

Abdulina, N. M., Changes of the toxicity of the urine in brucellosis patients. Sbornik turdov Azerbaidzhanskogo nauchno-issled. instituta kurortologii, etc. (Collected Transactions of the Azerbaidzhan Scientific Research Institute on Health Resort Science, etc.), Baku (1959) 4: 190-191.

Abdulina, N. M., Some data on the investigation of the anti-toxic function of the liver in brucellosis patients. Ibidem, 83-85.

Amanzhula, R. S., Organization of the vaccination against tularemia and brucellosis in a rural area of the East-Kazakhstan Oblast. Zdravookhranenie Kazakhstana (1959) 9: 16-17.

Ambartsumov, S. M. et al., A case of candidomycosis in brucellosis patients treated with antibiotics. Meditsinskii zhurnal Uzbekistana (1959) 8: 80-81.

Ambartsumov, S. M., "Level of the acid-base potential of the blood in patients suffering from the secondarily chronic form of brucellosis." In Voprosy infektsionnoi patologii Uzbekistana, (Problems of Infections Pathology of Uzbekistan), Tashkent, 1959, pp. 112-128.

Babaev, D. G., "To the clinique and morbid anatomy of the affection of the lymph nodes in brucellosis." In Problemy kraevoi patologii (Problems of Local Pathology), Baku, 1959, pp. 249-251.

Balandin, G. A. and Drozhevkina, M. S., "Brucellosis." In Laboratornia diagnostika osobo opasnykh maloizvestnykh bakterialnykh bakterialnykh infektsii (Laboratory Diagnostic of Especially Dangerous and Little Known Bacterial Infections), Rostov/Don, 1959, pp. 135-181.

Balandin, G. A. et al., Comparative immunological efficacy of the cutaneous and subcutaneous experimental anti-brucellosis vaccination. Report I. (Peculiarities of the development of the vaccinal brucellosis infection in guinea-pigs in relation to the method of their inoculation with Br. abortus 19-BA). Trudy Rostovskogo-na-Donu nauchno-issledovatel'skogo protivochummogo instituta Shakhty (Transactions of the Rostov-on-Don Anti-Plague Institute) 15 (1959) 2:133-143.

- Balandin, G. A. et al., Comparative immunological efficacy of the cutaneous and subcutaneous experimental vaccination against brucellosis. Report II. (Immunological efficacy of subcutaneous and cutaneous vaccination of guinea-pigs with the vaccinal strain Br. abortus 19-BA). Ibidem, pp. 145-155.
- Balandin, G. A. and Reznikova, O. IU., Brucellosis epidemic caused by transition of melitensis type brucellae into a cow. Ibidem, pp. 193-195.
- Vasil'eva, N. I., On hypoplastic and aplastic reactions of the bone-marrow in brucellosis. Trudy Orenburgskogo oblastnogo otdeleniia vserossiiskogo nauchnogo obshchestva terapevtov (Transactions of the Orenburg Oblast Division of the All-Russian Scientific Society of Therapists), Orenburg (1959) 1: 97-102.
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- Gvozdikova, E. M., "Clinical and pathormological changes of the female genital sphere in brucellosis." In Prolemy kraevoi patologii, Baku, 1959, pp. 243-247.
- Golder, B. P., Functional state of the cardiovascular system in brucellosis. Trudy Orenburgskogo...obshchestva terapevtov (1959) 1: 77-87.
- GoLota, IA. A., "Experiences of a study on the role of the conditioned reflexes in the formation of antibodies in brucellosis." in Zoonoznye infektsii (Zoonosis Infections), Kiev, 1959, pp. 81-84.
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- Dzhafarov, A. D., "State of some functions of the kidneys in brucellosis." In Voprosy infektsionnoi patologii Uzbekistana. Tashkent, 1959, pp. 129-134.

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- Dzhafarov, A. D., "Functional state of the liver in brucellosis." Ibidem, pp. 135-146.
- Doroshenko, K. G., Affections of the myocardium in chronic brucellosis. (Clinical and electro-cardiographic investigations). Sbornik trudov Odesskogo meditsinskogo instituta (Collected Transactions of the Odessa Medical Institute) (1959) 12:200-203.
- Drankin, D. I., Epidemiology and prophylaxis of human brucellosis in the Orenburg Oblast. Author's review of a thesis. Orenburg, 1958.
- Drozhevkina, M. S. et al., Brucellosis agglutinating serum. Trudy Rostovskogo-na-Donu...protivochumnogo instituta, Shakhty 15 (1959) 2:105-114.
- Drozhevkina, M. S. et al., Prospects for the improvement of the therapeutic brucellosis vaccine. Report I. Ibidem 15 (1959) 2:115-132.
- Zhivaeva, I. F., Kidney alterations in brucellosis according to the clinical material. Trudy Orenburskogo... obshchestva terapevtov (1959) 1: 89-95.
- Zaitseva, V. I., To the problem of atypical forms of chronic brucellosis. Zdravookhranenie Tadzhikistana (1959) 4: 10-14.
- Kanchukh, A. A., Ammoniac content of the blood of experimentally brucellosis-infected guinea-pigs. Trudy Rostovskogo-na-Donu...protivochumnogo instituta 15 (1959) 2: 157-163.
- Kiritseva, A. D., To the problem of the method of freeing sheep from brucellosis. Ibidem 15 (1959) 2:197-203.
- Kiseleva, V. M. et al., On the cultivation of brucellae from the tissues and fluids of the eye of intra-ocularly infected guinea-pigs. Oftalmologicheskii zhurnal (1959) 5:316-320.
- Konnova, A. M., Isolation and purification of the Vi-antigen of brucellae. Preliminary communication. Trudy Rostovskogo-na-Donu...protivochumnogo instituta 15 (1959) 2: 57-60.
- Korotich, A. S., "On the types of brucellosis, their migration and transformation." In Zoonoznye infektsii, Kiev, 1959, pp. 54-59.

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- Koshukov, S. D., Materials to the study of the morphological alterations in some organs of sheep, infected after vaccination with a virulent brucella culture. Trudy Omskogo meditsinskogo instituta 25 (1959) :117-121.
- Kucherov, N. T., "To the problem of the infectibility of wild rats with brucellosis in the foci of brucellosis in agricultural animals." In Zoonoznye infektsii, Kiev, 1959, pp. 85-88.
- Lysenko, V. F., On the state of acid-base processes in brucellosis. Glutathion content of the blood. Azerbaidzhanskii meditsinskii zhurnal (1959) 10: 17-20.
- Mailian, A. L., Clinical and epidemiological data on brucellosis in children in the Armenian SSR. Tezisy nauchnikh dokladov vyezdnoi sessii Akademii meditsinskikh nauk SSSR v g. Erevane (Abstracts of Scientific Papers of the Guest Session of AMS, USSR in Erevan). Moscow, 1959, pp. 23-24.

603. Eidel'shtein, S. I., Experimental study of the aerosols of oxytetracycline. Antibiotiki 6 (1961) 11:971-974.  
(From the Pharmacological Laboratory of the All-Union Scientific Research Institute of Antibiotics.)

As stated in the introductory paragraphs of this article, studies on 350 patients suffering from catarrhal or purulent affections of the upper part of the respiratory tract had shown that in 58% the organisms causing these affections were sensitive to antibiotics of the tetracycline series. On the other hand, if administered per os or intramuscularly for the treatment of the above mentioned affections, these antibiotics proved insufficiently effective. It seemed to be indicated, therefore, to ascertain the efficacy of their administration in the form of aerosols. Experimental studies undertaken in this direction led the author to the following conclusions:

- a) In contrast to chlortetracycline, oxytetracycline exerts a feeble irritating action on the mucosa of the respiratory passages and the lungs and does not exert a perceptible influence on the respiration and the arterial blood pressure.

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- b) Inhalation of oxytetracycline aerosols leads to a high concentration of the antibiotic in the respiratory passages and to some absorption of it by the mucosa.
- c) On account of the results obtained, oxytetracycline aerosols can be recommended for therapeutic use.

604. Khundanov, L. E. et al., Combined treatment of experimental plague with antibiotics and gamma-globulin. Antibiotiki 6 (1961) 11:1039-1042. (From the Irkutsk Scientific Anti-Plague Institute for Siberia and the Far East.)

Introducing their subject, the authors stated that

"The results of experimental investigations during the last years have convincingly confirmed the value of the method of treating experimental plague with antibiotics in combination with gamma-globulin.

The pre-eminence of this therapeutic method depends first of all on the synergismus of the preparates, the lowering of the toxicity and the prevention of the appearance of antibiotic-fast forms of the microorganisms. The combination of antibiotics with gamma-globulin increases the function of the protective mechanisms of the body and brings about a more prolonged retention of the antibiotics in the blood of the animals.

Gamma-globulin preparations not only ensure a rapidly appearing prophylactic effect but are the only effective means capable of neutralizing the toxic products of the plague bacillus."

For further studies in this field the authors experimented on white mice with the following antibiotics: mycerin, monomycin, polymyxin, tetracycline and oxytetracycline. Gamma-globulin was obtained from anti-plague serum produced through immunization of a horse with killed virulent plague bacilli; gamma-globulin derived from normal horse-serum was used for control purposes.

Intramuscular treatment with the antibiotics was started on the day after infection of the test mice with 100 DCL (certainly lethal doses) of a virulent plague strain and was continued twice daily for 7 days. Gamma-globulin was given subcutaneously twice only, one day and one week after infection, each time in a dose of 0.25ml.

Results of a preliminary series of tests, in which the infected mice were treated with one of the above enumerated antibiotics or with gamma-globulin only were set forth by the authors in the form of the following table:

<u>Therapeutic Substance</u>	<u>Single Dose (mg or ml)</u>	<u>Number of Mice</u>	<u>Survived</u>	<u>Mean Length of Survival of the Succumbed Mice (days)</u>
Mycerin	1.0	20	20	-
Monomycin	1.5	20	18	17
Polymyxin	0.5	20	15	8.2
Tetracycline	1.0	20	19	14
Oxytetracycline	1.0	20	18	13
Specific gamma-globulin	0.25	20	17	13.3
Normal gamma-globulin	0.25	10	-	4.2
Controls	-	20	-	4.7

Commenting upon these results, the authors stressed in particular the good results obtained with specific gamma-globulin and the failure of treatment with normal gamma-globulin.

As set forth in a second table, combinations of any of the antibiotics under test with specific gamma-globulin prevented the death of all mice tested.

605. Sarap, A. A., Public health in Soviet Easthonia. Sovetskoe zdravookhranenie 20 (1961) 12: 46-51.

Dealing with infectious diseases, the author, who is a member of the collegium of the Esthonian Health Ministry, stated that

"As a result of an adequate organization of the sanitary-antiepidemic measures the incidence of infectious

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diseases fell considerably in 1960. A number of these diseases (hydrophobia, brucellosis, anthrax, malaria, etc.) are no more recorded for some years. In 1960 almost 70% of the population of the republic were vaccinated against poliomyelitis and as a result only 3 cases of this disease have been observed up to the present. All conditions have been to liquidate diphtheria in 1962."

606. Sakvarelidze, L. A., Increase of the organizational work on the reduction and liquidation of the infectious diseases. Zh. mikrobiologii, etc. 32 (1961) 12: 3-8.

In this article, which criticizes the extent and quality of the measures taken in the Soviet Union for fighting the infectious diseases, the author stated inter alia that

"It is indispensable to conduct the fight against infections like brucellosis, rabies and anthrax together with the agricultural organizations, because the fight with the sources of these infections represents the real method of 'liquidating' them in man. That has been proved by many examples. Thus as a result of well conducted measures of veterinary quarantine aiming at the sanitation and abolition of brucellosis foci, the incidence of this disease in man became considerably lowered in the Ukrainian SSR and in the Orenburg and Crimean oblasts. Still, much could be still achieved if also the work for the prevention of these infections by the staff and resources of the health organizations would be adequately organized. It suffices to say that in the Kirgiz Republic, where prophylactic anti-brucellosis vaccination is used on a large scale, for the first months of 1961 only 21 instances of recent brucellosis infection have been recorded."

607. Godovannyi, B. A. and Frolov, V. I., The epidemic situation in the Congo Republic (according to the materials of the team of the Soviet Red Cross physicians in the Congo). Zh. mikrobiologii, etc. 32 (1961) 12: 15-19.

Quoted by title only.

608. Plankina, Z. A. et al., Fight against cholera in Afghanistan. Zh. mikrobiologii, etc. 32 (1961) 12: 20-24.  
(From the Anti-Plague Institute, MH, USSR.)

The authors of this article claimed that they had obtained good results when using the Soviet strain of cholera bacteriophage for the prevention and treatment of cholera. They stated in the former connection that:

"single administrations of the phage in the cholera-affected kishlaks (i.e. villages) with simultaneous single administrations of cholera vaccine were sufficient to end the cholera attacks and fully to liquidate the foci."

Regarding the therapeutic efficacy of their phage the authors recorded that:

"out of the phage-treated patients 151 were under observation of our group; 32 patients were treated by local doctors in the Kabul hospitals where, as stated before, symptomatic treatment (evidently including saline infusions) and the use of antibiotics resulted in a mortality of 50%; after additional use of the bacteriophage as a rule all patients recovered."

As the authors added, even phage administration alone gave good results in severely cholera-affected villages, where saline infusions were impossible, only 4 out of 119 patients treated with phage alone succumbing to (mostly not bacteriologically confirmed) cholera attacks.

609. Vashkov, V. I., Some data on the work of the sanitary-epidemiological service in the Chinese People's Republic. Zh. mikrobiologii, etc. 32 (1961) 12: 24-29.

Giving a general description of the progress of sanitary and antiepidemic work in the Chinese Republic the author stated inter alia that:

"in connection with the adoption of obligatory free smallpox vaccination, this disease has been fully eradicated ('liquidated'), only isolated attacks being recorded in districts bordering on India and other Asian countries. For the fight against plague institutes and anti-plague stations have been created.

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In order to prevent plague attacks in the epizootic areas, enormous work is being done in providing vaccinations and mass eradication of rodents and fleas. As a result not a single plague attack has been recorded during recent years."

610. Usov, IA. A. et al., To the problem of the sanitary protection of the borders within the territory of the Uzbek SSR. Zh. mikrobiologii, etc. 32 (1961) 12: 30-33.  
(From the Anti-Plague Station of the Uzbek Republic in Tashkent, the Sanitary-Quarantine Station of the Tashkent Airport and the Sanitary-Epidemiological Station of the Surgan-Dar'in Oblast in Termez.)

To prevent the importation of quarantinable diseases into the Soviet Union, in 1959 three quarantine stations were established in the Uzbek Republic, two in the border station of Termez to supervise the traffic by river (Amu-Dar'ia) and by air, and one at the Tashkent airport. Discussing the work of these establishments, the authors deal in particular with the measures taken to prevent an importation of cholera from Afghanistan in 1960. It is interesting that, though all passengers arriving from there had to be vaccinated against cholera they were also given cholera-phage. This was also administered to the staff members of the quarantine stations who had occasion to come in contact with the arriving passengers.

611. Beklemishev, V. N., Epidemiological analysis as basis for the prophylaxis of tick-borne encephalitis. Zh. mikrobiologii, etc. 32 (1961) 12: 33-38.  
(From the Mertsinovskii Institute of Medical Parasitology and Tropical Medicine.)

The thesis of the author of this article is that for an adequate conduct of prophylactic measures against tick-borne encephalitis it is indispensable to investigate thoroughly and classify not only the natural foci of the disease but also its pseudofoci, i.e. those which like human settlements depend upon a continuous importation of the infection for continued existence.

To illustrate the importance of such investigations of the pseudofoci, the author points out that a sporadic incidence of tick-borne encephalitis in villages may be due to vastly different causes. In some of these pseudofoci chances for infection by ticks are so great that the whole adult population is rendered immune, only children, newcomers and occasional persons who had

lost their immunity falling victims to the disease. In other rural pseudofoci the sporadicity of tick-borne encephalitis may be due to small chances for infection, the people having little contact with the natural foci of the disease.

A regular and apparently high frequency of tick-borne encephalitis in large towns may be result of visits a small percentage of the people pays to the natural foci of the infection. In villages, on the other hand, a high frequency of the disease may be due to ample chances for infection.

It is clear, that the prophylactic measures to be taken will have to be adapted to these different situations. Thus, as the author concludes,

"In the fight against tick-encephalitis, as in that against other diseases occurring in natural foci and formerly in anti-malaria campaigns, one must avoid a uniform pattern and in each case devise a system of prophylactic measures on the basis of a careful epidemiological analysis of the situation."

612. Kovaleva, R. V., To the study of the virulence and other properties of the plague strains isolated in a natural focus of the disease. Zh. mikrobiologii, etc. 32 (1961) 12: 38-43. (From the Central Anti-Plague Observation Station, MH, USSR.)

The conclusions reached by the author of this article, which must be studied by those interested in the bacteriology of plague in the original or a full translation, were as follows:

"1. Studying a natural plague focus in the Pre-Caspian part of the Ural-Embin interfluvial area we followed up an epizootic in various rodent species and also isolated plague cultures from fleas collected from the rodents and got from the burrows of the latter. One culture was obtained from the gamasid tick Laelaps algericus.

2. The isolated and studied 122 plague strains were typical morphologically, tinctorially, culturally and pathogenetically.

3. In the case of 20 freshly isolated strains the virulence was studied in detail on white mice, guinea-pigs and white rats. It was not possible to demonstrate differences in the

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virulence of strains isolated during different periods of the epizootic from rodents with an acute or a localized form of the infection or from fleas."

613. Volkova, L. A. and Iushkin, G. B., Tularemia in the Orenburg Oblast. Preliminary communication. Zh. mikrobiologii, etc. 32 (1961) 12: 56-60.  
(From the Sanitary-Epidemiological Station of the Orenburg Oblast.)

As can be gathered from a publication by Golov and his associates (Vestnik mikrobiologii, etc., Saratov 7 [1928] 3: 31), quoted by the present authors, tularemia was first observed in the Orenburg Oblast on the right shore of the Ural and also in the Uralsk Oblast on the left shore of that river in 1928, the total number of persons affected in 14 villages amounting to 105. For the first time in the Soviet Union, the causative organisms were isolated from 3 water rats and also twice from white mice infected with the blood of patients.

Tularemia was again recorded in the Orenburg Oblast in 1948 when, owing to the import of musk-rats for breeding purposes, 6 attacks of the disease evolved in the Adamovskii Raion. While no further incidence of the disease was observed there since 1949, manifestations of tularemia have been periodically recorded in three other localities of the Oblast, namely the Krasnokholskii Raion, the Ileksii Raion and the Mustaevskii Raion, where the infection seems to have been present since 1928. Water rats, from which positive cultures were again obtained by the authors, appear to be the reservoir of the infection, the ticks Dermacentor marginatus or Rhipicephalus rossicus evidently functioning as vectors.

To fight the disease in these raions, elaborate measures have been adopted, including the anti-tularemic vaccination of all inhabitants over 7 years of age, which has been practiced for the last three years.

614. Mironov, N. P., To the problem of the evolution and natural focal occurrence ("natural focality") of brucellosis. Zh. mikrobiologii, etc. 32 (1961) 12: 60-65.  
(From the Scientific Research Anti-Plague Institute in Rostov/Don.)

The conclusions reached in this article, the original or a full translation of which must be consulted by those specially interested in brucellosis, were:

"1. Since the evolution of the brucellae took place in the direction of their adaptation to a parasitic existence in (hoofed) animals living in herds, a search for permanent natural foci of brucellosis in other groups of animals, particularly among the rodents, could not be crowned by success.

2. The fundamental routes of brucellosis infection of the animals are those per os and by contact; a regular vector-borne transmission of the infection is absent.

3. Brucellosis is apparently a very ancient disease--evidently it evolved long before the domestication of wild animals by man and existed in the populations of these animals as a zoonosis characterized by an occurrence in natural foci; hand in hand with the eradication of the wild ungulata by man and the numerical increase of domestic hoofed animals brucellosis became gradually entrenched among the latter and disappeared from the former.

4. The main efforts in the fight against brucellosis must be directed to an implementation of adequate measures among the agricultural animals."

615. Taran, I. F., The importance of the wild animal fauna in solving the problem of the liquidation of brucellosis in the Soviet Union. Zh. mikrobiologii, etc. 32 (1961) 12: 65-71. (From the Scientific Research Anti-Plague Institute of the Caucasus and Transcaucasus, Stavropol'Krai.)

Like the preceding, the article by Taran requires a detailed study in the original or a translation of the text. The conclusions reached by this author were that

"1. The high susceptibility of some species of wild animals to brucellosis furnishes no reason to include them among the potential additional reservoirs of the causative organisms of this infection in nature, since of paramount importance in the epizootic process are the infectious sensitivity of the animals to brucella infection and the conditions of contact of the diseased with healthy animals.

2. The detection of single wild animals naturally infected with brucellosis must be evaluated as a sign of the presence of acute brucellosis epizootics among the agricultural animals in the given localities.

3. Wild animals are of no practical importance in the epizootology and epidemiology of brucellosis in the central and southern parts of our country. The role played by the reindeers in the spread of brucellosis in the north is still insufficiently studied.

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4. In solving the problem of the liquidation of human brucellosis in the Soviet Union the attention of the scientists and the practical workers must be concentrated on all means of raising the level of the general and sanitary culture in the animal-breeding establishments and the eradication of brucellosis among the agricultural animals."

In agreement with the author of the preceding article Taran considered a role of the ticks in the spread of brucellosis as "very doubtful."

616. Zamotin, B. A., To the problem of the natural focal occurrence ("natural focality") of brucellosis. Zh. mikrobiologii, etc. 32 (1961) 12: 71-74. (From the Sanitary-Epidemiological Station of the Kemerovsk Oblast.)

Exhaustive observations made in the course of anti-brucellosis campaigns as well as examinations of numerous rodents and ticks did not furnish evidence for the existence of a natural brucellosis focus in the Kemerovsk Oblast.

On account of these negative findings the author postulated that it is possible to fight brucellosis without resorting to the laborious process of rodent eradication on the pastures.

617. Redechkina, Z. P., Some materials to the clinical characterization of Q-fever. Zh. mikrobiologii, etc. 32 (1961) 12: 75-77. (From the Clinic of Epidemic Infectious Diseases of the Saratov Medical Institute.)

Basing on experiences gathered during a 1960 outbreak in Saratov, the author stated that

1. Q-fever is characterized by a marked polymorphism of the clinical course; a typhoid-like course was prevalent.

2. Characteristic for the symptomatology of Q-fever were a sudden onset, considerable headache, pains in the muscles and joints, repeated rigors, abundant perspiration.

3. Blood examinations showed at the beginning of the disease most often a moderate leukopenia with a shift of the leucocytary formula to stab-nuclear leukocytes. From the end of the second week one could observe a leucocytosis and lymphocytosis. At the same time one could also note an acceleration of the erythrocyte sedimentation rate.

4. Complement-fixing antibodies (1:10-1:20) could be demonstrated in the second week of illness and reached a maximal titer in the third week.

618. Ul'ianova, N. I., To the problem of the occurrence of pseudotuberculosis in natural foci. Zh. mikrobiologii, etc. 32 (1961) 12: 87-91. (From the Leningrad Sanitary-Epidemiological Station.)

As described in this article, in the course of an examination of 20,000 rodents and other animals in the Leningrad Oblast during the period 1955-59 37 pseudotuberculosis strains were isolated from R. norvegicus, house-and field-mice, and, for the first time, also from water rats (Arvicola terrestris) and ticks (Ixodes ricinus).

In the opinion of the author, these findings support the idea of an existence of natural pseudotuberculosis foci; she also points to the necessity of a further study on the potential role of ticks in the conveyance of this infection.

619. Dzhavadov, R. B., To the problem of the length of the post-vaccinal immunity against smallpox Zh. mikrobiologii, etc. 32 (1961) 12: 91-95. (From the Azerbaïdzhan Institute of Epidemiology, Microbiology and Hygiene.)

Summarizing his well documented findings, the author stated that

1. Out of 232 children up to 3 years old, who were re-vaccinated against smallpox, 73.5% reacted positively 1-2 years after their successful initial vaccination.
2. The length of the postvaccinal immunity did not depend upon the age (2-4 or 7-12 months) at which the initial was made.
3. The number of vaccination scars did not show a relation to the stability and length of the postvaccinal immunity.
4. Diseases contracted during the period between the initial vaccination and the revaccination were not the only causes influencing the stability and duration of the postvaccinal immunity.
5. These findings indicate the necessity of a reconsideration of the time set for the first revaccination against smallpox.

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620. Shtelman, A. I., To the problem of the use of cortisone for the detection of latent plague infections. Report II. Diagnosis of latent plague infection in midday gerbils (Meriones meridianus Pall.) with the aid of its provocation through cortisone.\* Zh. mikrobiologii, etc. 32 (1961) 12:113-114. (From the Astrankhan Anti-Plague Station.)

The object of the present study was to ascertain whether it was possible to detect a latent plague infection, produced through the experimental administration of sublethal doses of P. pestis to midday gerbils, by treating the animals with cortisone.\*\*

In the first test series 31 gerbils were infected subcutaneously with 100 million doses of the vaccinal plague strain No. 17. Ten of the animals received 4 hours before the infection intramuscularly 25mg cortisone each, eleven 15mg doses of the preparation before the infection, while 10 served as controls. From all animals blood for cultivation was taken from the tail vein 24 and 48 hours after infection and all were sacrificed 72 hours after infection.

In the subsequent tests cortisone doses varying from 6-25 mg were taken and administered 3 hours before or simultaneously with the infection, or after this at intervals ranging from 7-25 or more days.

Out of a total of 108 cortisone-treated gerbils in 18, dissected 12-92 days after infection, plague bacilli were found at the site of the infection or in the regional lymph nodes, but it had never come to a generalization of the process.

Thus, the author of this short note concluded, immediate administration of cortisone to animals suspected of latent plague is not advisable and it is necessary to resort to tests in white mice treated with cortisone, as was described in the 1960 publication.

621. Tarasova, A. G., Q-fever in the Kalinin Oblast. Zh. mikrobiologii, etc. 32 (1961) 12: 115. (From the Department of Especially dangerous Infections of the Sanitary-Epidemiological Station of the Kalinin Oblast.)

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\* The first communication, appearing in 1960, has been dealt with in these reviews (see page no. 77).

\*\* It is remarkable that on this as well as on previous occasions the Soviet workers resorted to the use of imported cortisone.

In order to elucidate the source of infection in the 5 patients with clinically manifest and serologically confirmed Q-fever observed in Kalinin in 1958 and 1959, complement fixation tests were made with the sera of 3,859 persons living in Kalinin and the various raions of the Kalinin Oblast. Positive results were obtained in 119 persons, comparatively most often among workers of textile factories. It thus appeared that raw materials like cotton, wool and skins were the main sources of Q-fever infection. Since, however, not all persons with positive complement fixation tests were infected in this manner, the author postulated the existence of still unknown factors playing a role in the etiology of Q-fever.

622. Gorchakova, I. P., Experimental study of the simultaneous vaccination of rabbits against leptospirosis and tularemia and brucellosis. A note. Zh. mikrobiologii, etc. 32 (1961) 12: 121. (From the Voronezh Medical Institute.)

The combined use of a penicillin-treated vaccine prepared from the L. grippotyphosa strain with either live dry tularemia vaccine or live brucellosis vaccine gave satisfactory results.

623. Golubev, T. I., The prepartate amino-peptide-2 and its use in virology and microbiology. A note. Zh. mikrobiologii, etc. 32 (1961) 12: 122. (From the Medical Preparations Plant of the Leningrad S. M. Kirov Meat-Processing Plant.)

The fermented hydrolysate of solid cattle blood amino-peptide-2 is widely used in medical practice as an effective means of parenteral feeding. Recently increasing use is made of virological work as a basic material for the tissue cultures used for the production of poliomyelitis vaccine as well as for the preparation of bacteriological culture media. Aminopeptide-2 is not only cheaper than peptone but has the advantage of accelerating the growth of bacteria and yeasts.

624. Important references on brucellosis quoted by title in the Zh. mikrobiologii, etc. 32 (1961) 12:131-132.

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