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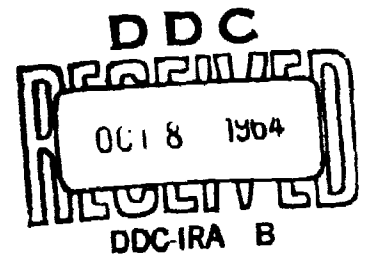
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ABBREVIATIONS USED IN "SELECTED ABSTRACTS" - Series II, No. 5

Biul. eksp. biol.	Biulleten' eksperimental'noi biologii i meditsiny
Gig. i san.	Gigiena i sanitariia
Kazan. med. zh.	Kazanskii meditsinskii zhurnal
Klin. med.	Klinicheskaia meditsina
Med. parazit.	Meditsinskaia parazitologiia i parizarnye bolezni
Med. zh. Uzbek.	Meditsinskii zhurnal Uzbekhistana
Mikrobiol. zh.	Mikrobiologicheskii zhurnal
Vest. AMN	Vestnik Akademii meditsinskikh nauk SSSR
Vop. med. khim.	Voprosy meditsinskoi khimii
Zdrav. Kaz.	Zdravookhranenie Kazakhstana
Zh. mikrobiol.	Zhurnal mikrobiologii, epidemiologii i immunobiologii
Zool. zh.	Zoologicheskii zhurnal

Institutions

AMS	Academy of Medical Sciences
AS	Academy of Sciences
ATP	Advanced Training of Physicians
ASSR	Autonomous Soviet Socialist Republic
IEM	Institute of Epidemiology and Microbiology
MH	Ministry of (Public) Health
MI	Medical Institute
RSFSR	Russian Soviet Federated Socialist Republic
SSR	Soviet Socialist Republic
SR	Scientific Research
SRI	Scientific Research Institute
USSR	Union of Soviet Socialist Republics

800. Kul'berg, A. IA. et al., Immunological properties of papain-fermented anti-bacterial and anti-rickettsial rabbit sera. Biul. eksp. biol. 52 (1961) 12: 66-68. (From the Gamaleia IEM, AMS, USSR.)

The contents of this article do not lend themselves to the purpose of a brief review.

801. Shteinberg, S. IA. (Kharkov), Observations on the water-salt metabolism. A survey of the literature. Vrachebnoe delo (1963) 11: 3-8.

This survey of the literature, in which many observers are mentioned, but only a few Soviet authors are quoted in the reference list, must be studied in the original or in a translation by those interested in the subject.

Inter alia Shteinberg pointed out that great care must be exerted when potassium is administered by the intravenous route: not more than 4 ml should be given per minute in a concentration not exceeding 0.5%. If the electrocardiogram indicates signs of intoxication, a 5% glucose solution ought to be injected intravenously. It is advantageous to combine subcutaneous insulin administration with this remedial medication.

802. Barchuk, V. F., Poliomyelitis in vaccinated individuals. Vrachebnoe delo (1963) 11: 93-96. (From the Infectious Diseases Institute of the Ukrainian MH.)

As shown in a graph illustrating the incidence of poliomyelitis in Kiev from 1958-1961, the administration of Salk vaccine, commenced in 1958, led to a decrease of the poliomyelitis incidence but a much more marked drop was observed during the second half of 1960 after mass immunization with Sabin's vaccine.

The author reports observations on 101 patients falling ill after they had been immunized with Sabin's vaccine and also refers to 238 patients with poliomyelitis hospitalized from 1958-1959, 95 of whom had received Salk vaccine. The overwhelming majority of the patients who had been immunized with the Sabin vaccine had abortive or slight attacks of the disease. Among the patients who had been immunized with Salk vaccine, 26.7% suffered from moderately severe or severe forms of the disease and the same was the case in 46.7% of the non-vaccinated patients.

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803. Burkatskaia, E. N. and Voitenko, G. A., Observations on the maximum permissible concentration of DDT in the air of working premises. Gig. i san. 28 (1963) 11: 36-39. (From the Kiev Institute of Labor Hygiene and Occupational Diseases.)

The conclusions of the authors were that

- (1) DDT, if penetrating by the respiratory route, exerts a toxic action in warm-blooded animals.
- (2) The health of persons working in DDT-producing plants becomes impaired if the mean DDT content in the air of the premises equals 0.003 mg/l. The impairment of the health of the workers increases pari passu with the length of their employment.
- (3) The permissible DDT concentration in the working premises is 0.0001 mg/liter (0.1 mg per cubic meter).

804. Shteinberg, G. B. et al., Results of sanitary-hygienic and microbiological observations of antibiotic-producing establishments. Antibiotiki 9 (1964) 1: 34-38. (From the Departments of Industrial Hygiene and of Microbiology of the Central Institute for ATP, Moscow.)

The authors of this article drew particular attention to the observation that the staphylococcus strains isolated from the eyes, nose and mouth of the workers in antibiotic-producing plants were resistant to the antibiotics concerned. The strains isolated from the intestine of the workers showed no such resistance.

805. Aver'ianova, L. L. and Fidel'man, E. S., Influence of single penicillin injections on the lysozyme content in the blood of rabbits. Antibiotiki 9 (1963) 1: 38-41. (From the Laboratory of Immunopathology of the Circulatory System of the Institute of Normal and Pathological Physiology, AMS, USSR, Moscow.)

This well documented article can be quoted by title only.

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806. Mikhailov, I. F. and Pers, I. F., Isolation of antibodies from the antigen-antibody complex with the aid of ultrasonic waves. Zh. mikrobiol. (1964) 1:112-119. (From the Moscow Mechnikov Vaccine and Serum Institute.)

The details of the method described by the authors for obtaining antibodies free from unspecific proteins with the aid of ultrasonic waves must be studied in the original of this article or in a translation of the text.

807. Aleksandrov, N. I. et al., Search for effective chemical vaccines against some zoonoses. Report VI. Experiences on the mass production of a chemical anti-anthrax vaccine. Zh. mikrobiol. (1964) 1:119-125.

The conclusions reached by the authors of this well documented study were as follows:

- "1. The possibility has been established of obtaining a protective anthrax antigen under conditions approaching those of mass production in 100-liter containers, in which the biosynthesis of the antigen as well as the other metabolic processes of the organisms took place in the same manner as in 5-liter flasks.
2. The immunological efficacy of the preparations obtained either in the cultivating containers or in the flasks were identical.
3. Out of different substances tried for the sterilization of the vaccine (beta-propiolactone, merthiolate, formol), formol proved best. Because of these experiences a method has been proposed for the sterilization of large volumes of the protective anthrax antigen through treatment with formol in a concentration of 0.4% at room temperature.
4. These investigations have demonstrated the possibility of the mass production of a chemical anti-anthrax vaccine."

808. Somov, G. P. and Soldatov, G. M., The role of birds in the circulation of the causative organisms of tick-borne

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spotted typhus under natural conditions.
Zh. mikrobiol. (1964) 1:126-129. (From the
Vladivostok Institute of Epidemiology, Micro-
biology and Hygiene and from the Anti-Plague
Station of the Primorsk Krai.)

As described in this well documented article,
the authors

- (a) examining 366 birds belonging to 35 species, found larvae and nymphs of ixodes ticks on birds belonging to 14 species;
- (b) isolated a strain of rickettsiae (Dermacentroxenus sibiricus) from an organ pool of birds belonging to the genus Laniidae;
- (c) obtained 3-5% positive results when making complement fixation tests with the sera of 161 birds belonging to various species;
- (d) isolated a second rickettsia strain from a pool of 36 larvae and nymphs belonging to the species Hyalomma concinna, collected from birds of the genus Emberiza. The authors concluded from the last mentioned observation that birds might be capable of creating foci of tick-borne typhus in hitherto unaffected localities.

809. Silich, V. A., Experience of growing the causative organism of North-Asiatic tick-borne rickettsiosis in tissue cultures. Zh. mikrobiol. (1964) 1: 141-142. (From the Gamaleia IEM, AMS, USSR.)

As described in this note, the author succeeded in cultivating D. sibiricus in tissue cultures prepared from SOC cells or chick embryo fibroblasts.

810. IAnkovskii, A. K. et al., Some information on natural foci of hemorrhagic fever with a renal syndrome in the Moscow Oblast. Zh. mikrobiol. (1963) 12: 46-51. (From the Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.)

The conclusions of the authors of this well documented article were that

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- (1) The presence of hemorrhagic fever with a renal syndrome was first noted in the Moscow Oblast during 1954. Further sporadic attacks were observed in 1958. From 1959 onwards a number of foci were detected where up to 1961 the disease was manifest every year.
- (2) The foci of the disease detected in the south of the Moscow Oblast can be classified as belonging to the forest type.
- (3) The disease shows a seasonal predilection for autumn and winter, but attacks may take place throughout the year in accordance with the frequency of the rodents and the degree of contact the people have with objects contaminated by the excreta of these animals.
- (4) Evidently the red European vole Clethrionomys glareolus is the fundamental reservoir of the infection in the hemorrhagic fever foci of the Moscow Oblast.
- (5) The clinical signs of the disease observed there are identical with those met with the Far East.
- (6) The principal measures for a fight against the disease are sanitation of the settlements and rodent destruction in the houses and the fields frequented by the people as well as an observation of the rules of general and personal hygiene.
- (7) It is also essential to acquaint the medical workers with the diagnosis, clinical features, epidemiology and prophylaxis of the disease.

811. Ostrovskaia, Sh. M. and Tursunov, A. Kh., Influence of irradiation on the antibody level and the length of persistence of Rickettsia prowazeki in the animal body. Author's Abstract. Zh. mikrobiol. (1963) 12. 121. (From the Dushanbinsk Institute of Epidemiology and Hygiene.)

The only noteworthy observation made by the authors was that one out of 6 guinea-pigs infected with typhus at the time of the development of radiation sickness (i.e. 3 days after radiation) showed twenty-four days later (end of the observation period) evidence of the presence of the causative organisms in the brain and spleen.

812. Somov, G. P. and Shestakov, V. I., Observations on the spontaneous infection of the tick Hemaphysalis japonica

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douglasi Nutt. et Warb. with the rickettsia D. sibiricus in the Primorsk Krai. Zh. mikrobiol. (1963) 12: 51-56. (From the Vladivostok Institute of Epidemiology, Microbiology and Hygiene.)

Reporting two instances of spontaneous infection of H. japonica douglasi with Dermacentroxenus sibiricus, the authors pointed out that the heavy tick infestation of the deer artificially bred in the locality concerned might lead to an entrenchment of tick rickettsiosis. Treatment of the deer herds with acaricides was therefore essential.

813. List of articles published in: Kleshchevoi entsefalit i virusnye gemorragicheskie likhoradki. Materialy konferentsii 10-13 dekabria 1963 goda. Omsk (1963). (Tick-borne Encephalitis and Virus-caused Hemorrhagic Fevers. Abstracts of the 10-13 December 1963 Conference Reports.)
- 1) Vizen, E. M., Consideration of some actual problems of the study of tick-borne encephalitis. (Perm Medical Institute.) Pp. 5-7.
 - 2) Ignatiev, E. I., Remarks on some directions of the further study of naturally focal diseases, particularly tick-borne encephalitis, in connection with their liquidation as nosological forms within the USSR. (Institute of the Geography of Siberia and the Far East, AS, USSR.) Pp. 9-13.
 - 3) Netskii, G. I., Some aspects of the problem of virus encephalitides and hemorrhagic fevers in Siberia and the Far East. (Omsk SRI of Naturally Focal Infections.) Pp. 15-19.
 - 4) Bazhedomova, M. A. and Zakirova, S. F., The hemagglutinins of the viruses of the tick-borne encephalitis group in tissue cultures. (Sverdlov Institute of Virus Infections.) Pp. 23-26.
 - 5) Bannova, G. G. and Levkovich, E. N., Some peculiarities of the formation of the complement-fixing antigens of the tick-borne encephalitis virus in chick-embryo tissue cultures. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 27-28.
 - 6) Barkova, E. A., Observations on the influence of the specific gamma globulin on the dynamics of the humoral

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- immunity in patients with tick-borne encephalitis. (From the Omsk SRI of Naturally Focal Infections.) Pp. 29-31.
- 7) Bragina, T. M. et al.. Some properties of the ribonucleic acid isolated from the viruses of the tick-borne encephalitis group. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 33-34.
 - 8) Burenkova, L. A. and Vidilina, R. A.. Study of the antigenic structure of the strains of the tick-borne encephalitis virus with the aid of the agar precipitation method. (Tomsk MI and Tomsk SR Vaccine and Serum Institute.) Pp. 35-36.
 - 9) Bychkova, M. V. et al., Contribution to the problem of viraemia and immunity in the tick encephalitis patients in the Kemerovo Oblast. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 37-38.
 - 10) Vaserin, Il. I., Some peculiarities of the diffuse precipitation reaction with the virus of tick-borne encephalitis. (Omsk SRI of Naturally Focal Infections and Omsk MI.) Pp. 39-40.
 - 11) Vidilina, R. A., Comparative characterization of the vaccine-producing strains of the strains of the spring-summer tick-borne encephalitis. (Tomsk SR Vaccine and Serum Institute.) Pp. 41-42.
 - 12) Vil'ner, L. M. et al., Photo-inactivation of the tick-borne encephalitis virus. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 43-44.
 - 13) Gil'manova, G. Kh., Observations on the antigenic variants of the tick-borne encephalitis virus strains circulating in the natural foci of the Tatar SSR. (Kazan' IEM and Hygiene.) Pp. 45-49.
 - 14) Gil'manova, G. Kh. and Livanova, I. A., Increase of the diagnostic value of the complement fixation reaction in relation to the use of different strains of the tick-borne encephalitis virus. (Kazan' IEM and Hygiene.) Pp. 51-52.
 - 15) Dubov, A. V. et al., Isolation of the tick-borne encephalitis virus with the aid of the interference method from tissue cultures of human embryo fibroblasts. (Branch of the Omsk SRI of Naturally Focal Infections in Tiumen.) Pp. 53-56.
 - 16) Dubov, A. V. et al., Change of the interfering activity of the ribonucleic acid of the tick-borne encephalitis virus under

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- the influence of extracts of animal tissues. (Branch of the Omsk SRI of Naturally Focal Infections in Tiumen.) Pp. 57-59.
- 17) Idem: Action of the extracts of animal tissues on the tick-borne encephalitis virus. (Branch of the Omsk SRI of Naturally Focal Infections in Tiumen.) Pp. 61-64.
- 18) Izotov, V. K. et al., Influence of the growth hormone on the reproduction of viruses in tissue cultures. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 65-66.
- 19) Izotov, V. K. and Lazarev, A. F., Observations on the influence of the growth hormone on the effect of immunization with the tick-borne encephalitis virus. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR and the All-Soviet Institute of Experimental Endocrinology.) Pp. 67-68.
- 20) Kvetkov, V. P., Some results of the technical application of the electrophoresis of proteins on filter paper. (Omsk MI and Omsk SRI of Naturally Focal Infections.) Pp. 69-72.
- 21) Idem: Remarks on the nomenclature of the biochemical sublimate-fixing reactions for the determination of the lability of the proteins of the serum and liquor. (Omsk MI and Omsk SRI of Naturally Focal Infections.) Pp. 73-75.
- 22) Kokorev, V. S. et al., Contribution to the problem of the study of the conditions leading to the accumulation of the hemagglutinins of the viruses of the tick-borne encephalitis group in tissue cultures. (Sverdlov Institute of Virus Infections.) Pp. 77-79.
- 23) Krasovskii, F. V. and TSirkin, IU. M., Isolation from ixodes ticks in the Krasnoiarsk Krai of a cytopathogenic virus differing from the causative organism of tick-borne encephalitis. (Sanitary-Epidemiological Station of the Krasnoiarsk Krai, Institute of Medical Parasitology and Tropical Medicine.) Pp. 81-82.
- 24) Kychanova, O. A. et al., Study of a peculiar virus isolated from a patient suffering from a tick-borne encephalitis attack with a progressive course ending in death. (Perm SR Vaccine and Serum Institute and Perm MI.) Pp. 83-85.

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- 25) Levkovich, E. N. et al., Use of tissue cultures for the study and laboratory diagnosis of tick-borne encephalitis. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 87-90.
- 26) Levkovich, E. N. and Rzhakhova, O. E., Determination of the serological types of the viruses circulating in the natural foci of tick-borne encephalitis. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 91-92.
- 27) L'vov, D. K. et al., Study of the influence of the humoral immunity level on the development of a viremia in tick-borne encephalitis. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) P. 93.
- 28) Melent'eva, L. A. et al., Comparative study of the tick-borne encephalitis strains isolated in the Toguchin Raion of the Novosibirsk Oblast. (Omsk SRI of Naturally Focal Infections.) Pp. 95-97.
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- 36) Stetkevich, A. A., The allergic diagnosis of tick-borne encephalitis. (Tomsk SR Vaccine and Serum Institute.) Pp. 119-120.
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- 78) IAgodinskii, V. N. and Aleksandrov, IU. V., Observations on the development of the ixodes ticks in the northern part of the Primor'e. Pp. 245-246.
- 79) IAgodinskii, V. N. et al., Contribution to the problem of the oscillations of the incidence of tick-borne encephalitis in different years. Pp. 247-248.
- 80) Vasil'eva, O. A., Influence of antibiotics on the vaccinal immunity against tick-borne encephalitis. Experimental observations. (From the Tomsk SR Vaccine and Serum Institute.) Pp. 251-252.
- 81) Vasil'eva, O. A. et al., Immunological characterization of different vaccines against tick-borne encephalitis. Experimental observations. (Tomsk SR Vaccine and Serum Institute.) Pp. 253-255.
- 82) Gol'dfarb, L. G. et al., Selection of the groups for vaccination in relation to a study of the risk of infection with tick-borne encephalitis. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR and Kemerovo Sanitary-Epidemiological Station.) Pp. 257-258.
- 83) Karaseva, P. S. and Semenov, B. F., Study of the properties of the dry tissue vaccine for the prophylaxis of tick-borne encephalitis. (Moscow Institute of Virus Preparations.) Pp. 259-260.
- 84) L'vov, D. K. et al., Formation of anti-hemagglutinins against the tick-borne encephalitis virus in man after inoculation with the inactivated cultural vaccine. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR.) Pp. 261-262.
- 85) Murina, L. M., Immunobiological transmutation of the body after vaccination against tick-borne encephalitis according to different schemes. (Tomsk SR Vaccine and Serum Institute.) Pp. 263-266.

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- 86) Semenov, B. F. et al., Some practical and theoretical problems connected with the large-scale use of the tissue vaccine for the prophylaxis of tick-borne encephalitis. (Moscow Institute of Virus Preparations.) Pp. 267-269.
- 87) Unanov, S. S., Immunological efficacy of the inactivated tissue vaccine against tick-borne encephalitis. (Moscow Institute of Virus Preparations.) Pp. 271-272.
- 88) Unanov, S. S. et al., Some results of the use of the tissue vaccine against tick-borne encephalitis in the Sverdlovsk Oblast. (Moscow Institute of Virus Preparations and Sanitary-Epidemiological Station of the Sverdlovsk Oblast.) Pp. 273-274.
- 89) Chumakov, M. P. et al., Data on the efficacy of the specific prophylaxis of tick-borne encephalitis. (Institute of Poliomyelitis and Virus Encephalitides, AMS, USSR and Sanitary-Epidemiological Station of the Kemerovo Oblast.) Pp. 275-276.
- 90) Azarian, M. B. et al., Experience of the fight against forest rodents in tick-borne encephalitis foci with the aid of Vertolet MI-1. (Central SR Disinfection Institute and Institute of the Civilian Air Fleet.) Pp. 279-280.
- 91) Kameneva, A. L. et al., Liberation of the territory of the construction of the Kachkanarsk Mine-Improving Syndicate (Novo-Tura) and of the village Bisert' (Novo-Serginsk Raion) of the Sverdlovsk Oblast from foci of tick-borne encephalitis through direct destruction of the tick-vectors of the infection. (Sanitary-Epidemiological Station of the Sverdlovsk Oblast.) Pp. 281-284.
- 92) Karmanova, T. P. and Gukovskaia, V. M., Experience of the sanitation of the Tomsk encephalitis focus through eradication of the free-living ticks. (Sanitary-Epidemiological Station of the Tomsk Oblast.) Pp. 285-286.
- 93) Mukhina, V. N. and Eberling, K. N., Liberation of a territory from foci of tick-borne encephalitis through direct destruction of the tick-vectors. (Sanitary-Epidemiological Station of the Tatar Republic.) Pp. 287-299.
- 94) Pogorelenko, L. I. and Smirnov, A. V., Experience of the implementation of anti-tick measures in the Udmurtsk ASSR. (Republic Sanitary-Epidemiological Station of the Udmurt ASSR.) Pp. 291-292.

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- 95) Chudinov, P. I. and Prigorodov, V. I., Study of the efficacy of anti-tick treatment of disconnected forest masses in a rural raion. (Omsk SRI of Naturally Focal Infections.) Pp. 293-296.
 - 96) Shchadilov, IU. M. and Grozdeva, I. V., Investigation of the new preparate Trichlormetafos-3 in the fight against ticks. (Central SR Disinfection Institute.) Pp. 297-298.
 - 97) Shchadilov, IU. M. and Zhernikhin, V., Observations on the influence of tick destruction from airplanes with DDT dust on the insects of the grass beds. (Central SR Disinfection Institute.) Pp. 299-300.
 - 98) Veselov, IU. V., Clinical characterization of tick-borne encephalitis in the various raions of Western Siberia. (Altai MI.) Pp. 303-304.
 - 99) Kanter, V. M., Tick-borne encephalitis in the Khabarovsk Krai. Pp. 305-308.
 - 100) Magazanik, S. S. and Kameneva, A. L., Clinical characterization of tick-borne encephalitis in the Sverdlovsk Oblast from 1960 to 1962. (Sverdlov Institute of Balneology and Physiotherapy and Sanitary-Epidemiological Station of the Sverdlovsk Oblast.) Pp. 309-311.
 - 101) Renne, T. F., Clinical variants of the hyperkinetic forms of tick-borne encephalitis in the Western Ural. (Perm MI.) Pp. 313-316.
 - 102) Idem: Observation on some hyperkinetic forms of tick-borne encephalitis with a primarily chronic and progressive course. (Perm MI.) Pp. 317-320.
 - 103) Serebrennikova, G. P., Observations on the variability of the clinical picture of tick-borne encephalitis caused by alimentary infection. (Perm MI.) Pp. 321-322.
 - 104) Tikhomirova, V. V., Observations on some forms of spring-summer tick-borne encephalitis with a chronic-progressive course. (Perm MI.) Pp. 323-325.
 - 105) Kharitonova, E. P. and Vizen, E. M., Tick-borne encephalitis in children. (Perm MI.) Pp. 327-328.
 - 106) Shasaitov, Sh. Sh. and Fedorova, T. N., Materials to the clinique of tick-borne encephalitis in the Omsk Oblast. (Omsk MI.) Pp. 329-331.
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- 107) Aleksandrov, IU. V. et al., Contribution to the problem of epidemiology of the so-called Primorsk scarlatina-like fever. Pp. 335-336.
- 108) Andronnikov, V. A., Observations on attacks of hemorrhagic fever with a renal syndrome in the Chuvash ASSR. (Sanitary-Epidemiological Station of the Chuvash Republic.) Pp. 337-341.
- 109) Beliaev, V. G. et al., Hemorrhagic nephroso-nephritis in the Ussuri Raion of the Primorsk Krai. (Anti-Plague Station of the Primorsk Krai and Ussuri Municipal Infectious Diseases Hospital.) Pp. 343-347.
- 110) Birulia, N. B., Characterization of the Lower-Volga focus of the hemorrhagic fever. (Rostov Institute of Medical Parasitology, MH, RSFSR.) Pp. 349-352.
- 111) Bondarev, V. IA., Hemorrhagic nephroso-nephritis in the Adygei Autonomous Oblast. (Sanitary-Epidemiological of the Adygei Oblast.) P. 353.
- 112) Vasiuta, IU. S., Survey of the incidence of hemorrhagic fever in the RSFSR. (Main Sanitary-Epidemiological Department, MH, RSFSR.) Pp. 355-358.

The author drew attention to the following manifestations of the disease:

- a) Omsk hemorrhagic fever. From 1960-1962 a mass lethality among the musk-rats, due partly to Omsk hemorrhagic fever and partly to tularemia was observed in some forest-steppe raions of the Novosibirsk Oblast. Attacks of the former disease in man, due partly to contact with the carcasses and pelts of the musk-rats and partly to the consumption of contaminated water, numbered about 50 in 1961 and about 30 in 1962.
- b) Hemorrhagic fever of the Crimean type. In the Astrakhan Oblast 9 attacks of the disease were recorded in 1955, 24 attacks with 5 death in 1962 and 32 attacks with 4 deaths in 1963. The tick Hyalomma plumbeum appeared to be the vector of the infection.

In the Rostov Oblast 9 attacks with 2 deaths were recorded in May-June 1963, almost all in persons attacked by ticks while engaged in the milking of cows.

In both oblasts some hospital infections took place.

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- c) Hemorrhagic fever with a renal syndrome. 270 cases of this disease were recorded in the RSFSR in 1961 (24% in the Far East), 700 in 1962 (60% in the Far East). In 1962-63 new foci of the infection were detected in many oblasts. The appearance of the outbreaks were causally related to the presence of the infection among the mice and allied rodent species.
- 113) Zalutskaja, L. I., Results of zoological and parasitological observations in a focus of hemorrhagic fever. (From the Rostov Institute of Medical Parasitology, MH, RSFSR.) Pp. 359-360.
- 114) Korsh, P. V. and Kadenatsii, A. N., Infectious and parasitary affections of the musk-rat in the Omsk Oblast. (From the Omsk SRI of Naturally Focal Infections and the Omsk Veterinary Institute.) Pp. 361-363.
- 115) Martskinkevich, Ch. I., Landscape-ecological characterization and typification of the foci of hemorrhagic fever with a renal syndrome in Bashkiria. (Ufa SR Vaccine and Serum Institute.) Pp. 365-367.
- 116) Strigin, V. A. and Martsinkevich, Ch. I., Hemorrhagic fever with a renal syndrome in Bashkiria. (Ufa SR Vaccine and Serum Institute.) Pp. 369-371.
- 117) Tupikova, N. V. and Razumova, O. V., The small mammals of the joint focus of tularemia and hemorrhagic fever in the Eastern-European forests of the southern taigas. (N. F. Gamaleia IEM, AMS, USSR.) Pp. 373-375.
- 118) Fedorova, T. N., Results of virus studies in the focus of hemorrhagic fever of the Novosibirsk Oblast. (Omsk SRI of Naturally Focal Diseases.) Pp. 377-378.
- 119) Bysygin, F. F., Contribution to the problem of the differentiation of the natural foci of tick-borne encephalitis and Omsk hemorrhagic fever with the aid of serological methods. (Omsk SRI of Naturally Focal Diseases.) Pp. 381-383.
- 120) Gorchakovskaia, N. N. et al., Anti-tick treatment of the foci as a method for the prophylaxis of tick-borne encephalitis. Results of the work of a team in the epidemic season of 1963. Pp. 385-389.

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- 121) Ivanova, L. M. et al., Data on the spread of tick-borne encephalitis in the territory of the RSFSR according to the registration of the incidence of the disease during the decade 1952-1961. (RSFSR Ministry of Health, N. F. Gamaleia IEM, AMS, USSR and Faculty of Geography of the Moscow State University.) Pp. 391-393.
- 122) Kvetkov, V. P. et al., Remarks on the methodology of the serological examination of small animals. On the possibility of obtaining substrates from the parenchymatous organs for immunological examination. (Omsk SRI of Naturally Focal Diseases.) Pp. 395-398.
- 123) Kondrashova, Z. N., Observations on the use of liver and spleen extracts and of "infusions" of the heart and blood serum, dried on paper disks, for serological reactions in tick-borne encephalitis. (Sverdlov SRI of Virus Infections.) Pp. 399-401.
- 124) Levacheva, Z. A. et al., The natural focus of hemorrhagic fever with a renal syndrome on the territory of the town of Tula and the peculiarities of its manifestation. (Department of Specially Dangerous Infections of the Sanitary-Epidemiological Station of the Tula Oblast.) Pp. 403-404.
- 125) Miasnikov, I. A. et al., Results of a search for new natural foci of tick-borne encephalitis in the Tula Oblast. (Sanitary-Epidemiological Stations of the Tula Oblast and of the Suvorov Raion.) Pp. 405-406.
- 126) Panina, T. V., Contribution to the problem of the multiplication of the red voles in the natural foci of Tula hemorrhagic fever with a renal syndrome. Materials from 1951 to 1962. (Department of Specially Dangerous Infections of the Sanitary-Epidemiological Station of the Tula Oblast.) Pp. 407-408.
- 127) Trukhmanov, B. G. et al., Characterization of the specific action and of the unspecific reactogenicity of some anti-encephalitis serum preparations. (Tomsk SR Vaccine and Serum Institute and Tomsk MI.) Pp. 409-410.
- 128) Shapoval, A. N. and Sapel'nikova, L. I., Some problems of the clinique of tick-borne encephalitis. (Kemerovo MI.) Pp. 411-412.
- 129) Shapoval, A. N. et al., Contribution to the problem of the nosological independence of the so-called two-wave virus meningo-encephalitis. (Kemerovo MI.) Pp. 413-414.

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- 130) Shilova, S. A. et al., Observations on the epidemiology and epizootology of tick-borne encephalitis in the Perm Oblast.
(Central SR Disinfection Institute.) Pp. 415-419.
814. Lobanov, V. N., Metodicheskoe rukovodstvo po bor'be s chumoi i verbludov (Methodological Manual for the Fight Against Plague in Camels).
"Mikrob" Institute, Saratov, 1963.

This 76-page pamphlet, which deals comprehensively with the problem of plague in camels, is available in the National Library of Medicine. The problems of the examination of plague-suspect or plague-affected camels, of the measures to be taken against plague in camels and of anti-plague vaccination of these animals are dealt with in appendices. An adequate reference list is added.

815. Proreshnaia, T. L. and Rapoport, L. P., Materials to the study of the foci of tick-borne rickettsiosis in the south-west of Kirghizia.
Zh. mikrobiol. (1963) 12: 56-60.
(From the Kirghiz MI and the Kirghiz Anti-Plague Station.)

The conclusions reached by the authors of this ecological study were that

- (1) The most frequent species of wild mammals in the foci of Q-fever and tick-borne typhus in South-Western Kirghizia was the red-tailed gerbil Meriones erythrorus.
- (2) A Q-fever epizootic among these rodents was found to be present in the environs of the village Kan, the farm Pakhaly and the town Khaidakan. Typhus-infected ticks were found on the grounds near the Pakhaly farm.
- (3) The infection of the red-tailed gerbils with the causative organisms of Q-fever and tick-borne typhus proves the presence of permanent natural foci of these infections in the Oshsk Oblast. These foci are definitely dangerous for the human population.
- (4) The findings made suggest that the red-tailed gerbils play in general an important epizootological role in South-Western Kirghizia.

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816. Amfiteatrov, F. Z. et al., Use of the dry virus vaccine GNKI foot-and-mouth disease. Veterinariia 40 (1963) 8: 15-16. (From the Kazan Veterinary Institute and the Veterinary Department of the Ministry of Production and Preparation of Agricultural Products of the Tatar ASSR.)

According to the authors in 1962 the GNKI vaccine, manufactured in the State Institute for the Investigation and Control of Veterinary Preparations was used for the immunization of 162,522 heads of cattle and of 175,900 sheep, which 12 days-3 months previously had been immunized with the rabbit-adapted (lapinized) aluminium hydroxide vaccine against foot-and-mouth disease.

The incidence of this infection in 45 herds of cattle was found to be 9.5% before vaccination and 16% during the first days following it; then the herds remained free from the disease. In 8 flocks of sheep 7.5% were affected by the disease before the vaccination and 2% during the first days after it. Thus 84% of the cattle and 98% of the sheep were protected against foot-and-mouth disease through the administration of the GNKI vaccine. Its further use hand in hand with the implementation of quarantine and veterinary-sanitary methods was advocated by the authors in order to prevent the spread of foot-and-mouth disease in the Tatar ASSR.

817. Sergeev, V. A. and Fedorova, T. L., Comparative evaluation of the methods of titration of the foot-and-mouth disease virus. Veterinariia 39 (1962) 8: 67-69. (From the All-Soviet Institute of Veterinary Virology and Microbiology, Ministry of Agriculture, USSR.)

As the authors of this note, the technical details of which must be studied in the original or in a translation summarized, a comparative study of the different methods of titrating the A and O types of the foot-and-mouth disease virus was made with the aid of the method of plaques, an evaluation of the cytopathogenic effect, the color test and on white mice. The two first mentioned methods proved most sensitive.

818. Nogina, V. T., Production of type-specific foot-and-mouth disease sera from adult rabbits. Veterinariia 39 (1962) 8: 69-72. (From the Novosibirsk SR Veterinary Station.)

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As can be gathered from this article, the technical details of which do not lend themselves to the purposes of a brief review, the author used strains of the foot-and-mouth disease virus which had been passaged 12 times by the subcutaneous route through young rabbits for the immunization of adult animals of the same species. For this purpose the animals received at intervals of 8 days' six administrations of 2 ml doses of virus suspensions simultaneously by the intravenous and intramuscular routes.

As shown in tables, results of this method were satisfactory.

819. Dzhupina, S. I. and Sviridov, A. A., Observations on the role of animals which had had foot-and-mouth disease in the spread of this infection.
Veterinariia 39 (1962) 10: 26-29.

(From the Directorate for the Production and Preparation of Agricultural Products of the Novosibirsk Oblast and the Novosibirsk SR Veterinary Station.)

As the authors summarized,

- (1) Epizootological observations showed that cattle which had suffered from foot-and-mouth disease could form the source of infection if coming in contact with healthy animals 6 or even 12 months after recovery.
- (2) It is necessary to establish quarantine measures in the case of cattle recovered from foot-and-mouth disease for a period of not less than 6-8 months, during which the animals must be kept separate from healthy cattle.
- (3) It is best to send the cattle after their recovery in special droves directly to the meat-packing plants after the skins and hooves of the animals have been thoroughly treated with disinfecting fluids.

820. Aleksandrov, N. A., Observations on some peculiarities of foot-and-mouth disease in pigs.
Veterinariia 38 (1961) 7: 42-44.

In order to prevent the spread of foot-and-mouth disease in groups of pigs kept for fattening a watch must be maintained for incipient epizootics and, if such become manifest, vaccination campaigns must be promptly instituted.

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As far as possible the establishments for fattening pigs ought to be placed in isolated locations. The food-remnants used for the nourishment of the animals ought to be subjected to thorough preliminary cooking, preferably at the place of their collection. The vehicles and containers used for the transport of the food ought to be periodically disinfected.

821. Kapitanaki, M. V. and Fedorchenko, E. A., Contributions to the problem of the resistance of microbes to antibiotics. Veterinariia (1963) 12: 49-52.
(From the Krasnoiarsk Vaccine and Serum Institute and the Krasnoiarsk Veterinary Laboratory.)

Tests made in 1961-1962 with various bacteria and different antibiotics led the authors to the conclusion that these therapeutic agents exert a fairly constant action only in the case of some animal diseases (swine erysipelas, streptococcal infections and anthrax), whereas in the case of many other infections this action

"is so variable and inconstant that the case of individual outbreaks on farms it is difficult to decide initially which antibiotic ought to be used in order to obtain optimal results."

The authors therefore advocate routinely to use disks impregnated with the various antibiotics to determine the susceptibility or fastness of the strains isolated for diagnostic purposes to the antibiotics in question. This procedure has been adopted already in some laboratories of the Krasnoiarsk Krai.

822. Anpilov, N. I., Treatment of pasteurellosis-affected calves with antibiotics. Veterinariia (1963) 12: 54-55.
(From the Sovkhoz "Vitiazevo," Krasnoiarsk Krai.)

The author found mycerin, given intramuscularly in doses of 5-20 units per kilogram body weight on four subsequent days most effective for the treatment of pasteurellosis-affected calves.

823. Ziuban, V. I., Tetracycline for the treatment of avian pasteurellosis. Veterinariia (1963) 12: 55-57.
(From the Stavropol SR Veterinary Station.)

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Results obtained by the author in 4 groups of 10 chicken each treated with tetracycline before or after infection with a virulent pasteurellosis strain may be set forth as follows:

<u>Group</u>	<u>Mode of Treatment</u>	<u>Results</u>	
		<u>Died</u>	<u>Survived</u>
I	25mg/kg intramuscularly 24 hours before infection	3	7
II	Same dose intramuscularly simultaneously with the infection, followed by oral treatment during the next 3 days	-	10
III	Same dose intramuscularly 3 hours after infection, followed by oral treatment as above	1	9
IV	Same dose intramuscularly 22 hours after infection, followed by oral treatment as above	4	6

(All 5 controls succumbed.)

824. Timchenko, A. D. and Kharchenko, I. F., Chemotherapy of pasteurellosis in cattle. Veterinariia 41 (1964) 1: 34-35. (From the Kharkov Zooveterinary Institute and the Inter-Raion Veterinary Laboratory in Feodosia.)

Treating 56 naturally pasteurellosis-infected head of cattle the author obtained best results when combining the administration of specific serum with that of terramycin and furazolidon (given per os).

825. List of important articles quoted in a reference list inserted in Zh. mikrobiol. (1963) 12:131-137.

- 1) Kudriavtsev, S. I., Ultraviolet irradiation of the air of hostels as a method for the prevention of air-borne droplet infections. In: Ul'trafioletovoe izluchenie (Ultraviolet Irradiation) Moscow (1960) 3:207-212.

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- 2) **Lenskaia, G. N. et al., Bacteriological diagnosis of mixed infections (Plague, anthrax, tularemia and brucellosis).**
Trudy "Mikrob," Saratov (1960) 4:339-345.
- 3) **Pastuknov, B. N., Report on the trip of Soviet doctors to Pakistan to fight cholera and smallpox.**
Trudy Armianskoi protivochumnoi stantsii, Erevan (1960) 1: 411-417.
- 4) **Shiriaev, D. T. and Tinker, I. S., Seasonal sensitivity of domestic white mice to plague and tetanus toxin.**
Trudy Rostov... (1960) 17:120-122.
- 5) **Ananian, E. L. and Davtian, G. G., Contribution to the problem of the epidemiology and epizootology of brucellosis in the Kafan Raion of the Armenian SSR.**
Trudy Armianskoi protivochumnoi stantsii, Erevan (1960) 1: 221-233.
- 6) **Drozhevkina, M. S., New methods for the bacteriological diagnosis of brucellosis.** Ibidem, 259-268.
- 7) **Zakarian, A. V., Brucellosis in the Armenian SSR.** Ibidem, 198-205.
- 8) **Makarov, N. I. and Ziuzin, A. S., Some practical problems of the epidemiology of brucellosis in the Georgian and Azerbaidzhan SSR.** Ibidem, 247-257.
- 9) **Noramirian, A. V., Observations on the epizootological and epidemiological status of brucellosis in some raions of the Armenian SSR.** Ibidem, 207-219.
- 10) **Ter-Vartanov, V. N. et al., Spread of brucellosis in the zone of the Caucasus and Transcaucasus and methods of its fight.**
Ibidem, 183-197.
- 11) **TSaturian, F. A., Observations on the specific prophylaxis of brucellosis in man in some raions of the Armenian SSR.**
Ibidem, 235-245.
- 12) **Antonian, K. A. et al., Observations on the therapeutic importance of the agglutinins and antibiotics in the new dry immune preparation (dry immune plasma) of the Armenian Blood Transfusion Institute and its use for the treatment of brucellosis.** Tezisy dokl. 14-i nauchnoi sessii n.-i. inst. gematologii i perelivaniia krovi, posviashchennoi 5-i godovshchine smerti prof. R. O. Eoliana, Erevan-Goris (1960): 54-56.

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- 13) Gvozdkova, E. M., Pathomorphological changes of the placenta in chronic brucellosis. Trudy Astrakhan MI 15 (1960): 235-238.
- 14) Glikshtein, M. D., Observations on some peculiarities of the post-vaccinal process in brucellosis. Kazan. med. zh. (1960) 4: 60-61.
- 15) Dzhaliilov, K. D., Determination of the sensitivity of the brucellae to antibiotics with the aid of paper disks. Med. zh. Uzbek. (1960) 6: 50-52.
- 16) Sataev, M. M., Vaccine and antibiotic treatment of experimental brucellosis in rabbits. Ibidem 7: 36-37.
- 17) Drozhevkina, M. S. et al., Properties of the cultures and bacteriophages isolated during brucellosis infection and their relation to the severity of the disease. Trudy Rostov... 17 (1960): 184-189.
- 18) Poliakov, I. I., Influence of a preparation of the corticosteroid group upon the interaction of the brucellae and antibiotics. Ibidem, 199-206.
- 19) Sagatovskaia, L. A. and Uraleva, V. S., Observations on the urease activity of the brucellae. Ibidem, 173-183.
- 20) Uraleva, V. S., Combined treatment of brucellosis with antibiotics and vitamins. Ibidem, 190-198.
- 21) Ivanovskii, I. G., Treatment of brucellosis patient under control of the dynamics of the proteins in the blood serum. Zdrav. Kaz. (1960) 8: 30-32.
- 22) Igonina, N. B., Treatment of experimental brucellosis with chemotherapeutic preparations and antibiotics. Report I. Trudy "Mikrob," Saratov (1960) 4:332-338.
- 23) Musiiko, V. A., Influence of formol treatment on the allergic properties of the protein of the brucellae. Mikrobiol. zh. (Ukrainian) 22 (1960) 4: 41-43.
- 24) Poberezhkin, M. N., Problems of the epidemiology and vac-cino-prophylaxis of brucellosis in the Kuibyshev Oblast. Trudy Kuibysk. MI (1960) 11:264-272.
- 25) D'iachenko, V. N., Incidence of hemorrhagic nephroso-nephritis in the Central Povolzh'e. Klin. med. 38 (1960) 10: 132-135.

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- 26) Kestner, A. G., Observations on the reno-urinary syndrome in the so-called hemorrhagic nephroso-nephritis. Arkhiy patologii 22 (1960) 9: 12-20.
- 27) Konstantinov, A. A., Some biochemical changes of the blood and urine in Far-Eastern hemorrhagic fever. Vop. med. khim. 6 (1960) 5:484-489.
- 28) Ratner, Sh. I., Hemorrhagic nephroso-nephritis (according to the materials of the Therapeutic Clinic of the Khabarovsk MI). Trudy nauchnoi konf. AMN SSSR s uchastiem nauchnykh rabotnikov i vrachei Vostochnoi Sibiri i Dal'nego Vostoka (Transaction of the AMS, USSR Conference with the Participation of Scientific Workers and Physician of Eastern Siberia and the Far East), Irkutsk (1960): 144-148.
- 29) ISyganov, G. M., The renal syndrome in hemorrhagic fever. Tezisy dokladov i fiksirovannye preniia 12-i Vsesoiuznoi konf. terapevtov (Papers and Discussions of the 12th All-Union Conference of Theraputists), Erevan (1960): 33-35.
826. Rostigaev, B. A. and Alaniia, I. I., A new species of flea from Adzharia. Med. parazit. 32 (1963) 6: 722.
(From the Department of Parasitology of the SR Anti-Plague Institute of the Caucasus and Transcaucasus, Stavropol, and the Batum Branch of the Georgian Anti-Plague Station.)

This brief note describes and illustrates a new flea, Ctenophthalmus (Euctenophthalmus) euxinicus sp. nov. found on Apodemus mustacinus in an area on the Black Sea in Transcaucasia.

827. Gusev, V. M. et al., Importance of birds in the spread of fleas (Suctoria) and ticks (Ixodoidea) in Dagestan. Author's Report. Med. parazit. 32 (1963) 6:738-739.

In the opinion of the authors birds did not play an important role in the long-distance transport of fleas and ticks. Still, Gusev and his associates maintained that

"considering the character of the connection of ticks and fleas with the birds, the time of their observation on the latter, we believe that the birds are of great importance in the feeding and spread of some species of ectoparasites met with in Dagestan."

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828. Shtel'man, A. I., Experimental study of the mechanism of plague infection among the midday and tamarisk gerbils (Meridiones meridianus Pall. and M. tamariscinus [Pall.]) from the Volga-Ural interfluvial region. Author's Report. Med. parazit. 32 (1963) 6:739-740.
(From the Astrakhan Anti-Plague Station, MI, USSR.)

Under experimental conditions a part of the midday gerbils responds, like the tamarisk gerbils, to plague infection with a marked generalized process in the agonal period. Such animals are capable of infecting fleas. However, a part of the midday gerbils, though showing a marked bacteremia, succumbs later after the infection with local signs of the disease but without an agonal bacteremia, while a part of the animals survives. The object of the authors was to explore whether the last mentioned groups of animals represent a "blind alley" of the infection or are capable of infecting fleas.

From 1956-1958 ten series of observations in point were made in the Astrakhan Anti-Plague Laboratory, in the course of which 98 plague-infected midday gerbils and 1,019 fleas were examined.

The abdomen and tail of the animals were shaved and then groups of 8-10 animals in each series were infected with sublethal doses of plague strains producing a mortality of 50%. Observations on the presence of a bacteremia were started after 24 hours by cutting off the end of the tail and making a smear from the cut surface. If in the stained preparations obtained in this manner typical plague bacilli were seen, the animals in question were used for feeding on them starving fleas for periods of 30-40 minutes, this operation being repeated on the following days. The fleas which had fed were kept for 2-3 days so as to ensure a multiplication of the imbibed plague bacilli and they and their feces were then individually used for cultivations on agar plates. The results obtained are shown in the following table:

(Table on the next page)

Commenting upon these findings the authors stated

"that gerbils with local signs of infection and also those which recovered from plague can be the source of the infection of fleas, though of course to a lesser degree than the animals with a generalized infection.

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<u>State of Plague in the Gerbils Used for Feed- ing the Fleas</u>	<u>No. of Tests</u>	<u>Xen. conformis</u>		<u>C. laeviceps</u>		<u>C. lamellifer</u>	
		<u>No. of Fleas</u>	<u>P. pestis Isolated</u>	<u>No. of Fleas</u>	<u>P. pestis Isolated</u>	<u>No. of Fleas</u>	<u>P. pestis Isolated</u>
Recovered or with local signs	36	241	2 x	115	1 x	4	0 x
Recovered or not infected (with negative bacterio- logical findings)	20	161	0 x	34	0 x	7	0 x

There is no doubt that the ability of the midday gerbils to harbor plague infection for a long time, to infect fleas in the course of their illness and after long periods show an exacerbation of the chronic process as well as other ecological and physiological peculiarities form the factors which perpetuate a prolonged plague enzootic in the Volga-Ural focus."

829. Beliaeva, N. S., Zoological and parasitological characterization of the natural tularemia focus in the Khabarovsk Krai. Author's Report. Med. parazit. 32 (1963) 6: 740-741.

The conclusion of the author was that the tularemia reservoir in the Khabarovsk Krai is formed by the red and greyish-red voles (Clethrionomys rutilus and Cl. rufocanus), the Asiatic forest mouse Apodemus speciosus and hares, while ixodes ticks function both as vectors and reservoirs of the infection.

830. Noteworthy articles quoted in a reference list published in No. 6, 1963 of the journal Meditsinskaja parazitologija, etc., pp. 743-750.

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- 2) Karakashly, Z. K. et al., Materials to the investigation of the Khilok Raion of the Chita Oblast for the presence of naturally focal diseases. Ibidem, 87-92.

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- 3) Zakharov, V. I., Naturally focal diseases of man in the Moldavian SSR and peculiarities of the regional epidemiology. Dokl. 21-i ocheredn. n. sessii Kishinevsk. med. inst. po itogam. n. i. raboty za 1962 god. (Transaction of the 21st Session of the Kishinev MI on the Work of 1962) (1963): 203-205.
- 4) Meshchenko, V. M. et al., Means and prospects of the liquidation of naturally focal diseases according to the materials of carpathia. Tez. dokl. VII' s'ezda o-va mikrobiol., epidemiol. i infektsionistov Ukrain. SSR (VIIth Congress of the Society of Microbiologists, Epidemiologists and Infectionists of the Ukr. SSR), Kiev (1963): 99-100).
- 5) Pavlovskii, E. N., What is the foundation of the existence of a natural focus of a disease in a given territory? Zool. zh. 42 (1963) 3:321-325.
- 6) Temirbekov, Zh. T. et al., Serological, virusological and zoologo-parasitological study of wild birds and domestic animals in the south-eastern zone of Zaisan Lake. Tez. dokl. 5-i itog. n.-prakt. konf. Kazakhsk. inst. epidem., mikrobiol. i gigieny (Fifth Conference of the Kazan IEM and Hygiene), Alma-Ata (1963) 1: 32-33.
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- 8) Vereta, L. A., Problems of epidemiological forecasts of tick-borne encephalitis. Ibidem, 3-5.
- 9) Vereta, L. A. and IUr'eva, T. P., Comparative study of some epidemiological factors concerning tick-borne encephalitis and hemorrhagic fever with a renal syndrome. Ibidem, 20-22.
- 10) Makarevich, N. I. et al., Observations concerning the biochemical and immunological characterization of tick-borne encephalitis. Ibidem, 26-27.
- 11) Maslov, A. V., Contribution to the problem of the northern border of the distribution of Ixodes persulcatus in the Far East. Ibidem, 15.
- 12) Moiseenko, N. M., Observations on the geographical distribution of the tick Ixodes persulcatus. Ibidem, 13-14.

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- 13) Petrova, A. S. et al., Materials to the study of the natural foci of tick-borne encephalitis in the Petrov-Zavod and Krasnochikop Raions of the Chita Oblast. Ibidem, 18-19.
- 14) Somov, G. P., Etiology and epidemiology of tick-borne typhus in the Primorsk Krai. Ibidem, 38-39.
- 15) Subbotina, L. S., Antibodies to the virus of tick-borne encephalitis in the blood sera of cows from the foci of this infection. Ibidem, 23-25.
- 16) Tatarinova, L. G., Experimental foundations of the role of the ticks H. japonica douglasi and H. neumoni as vectors of tick-borne encephalitis. Ibidem, 28-29.
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- 19) Tsel'nikov, P. S., Serological examinations of man and animals in natural foci of rickettsiosis. Ibidem, 40.
- 20) Iur'va, T. P., Comparative serological study of hemorrhagic fever with a renal syndrome and some vector-borne infections in connection with Casal's classification. Report II. Ibidem, 30-31.
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- 22) Kulakova, Z. G., Infection of mature ticks of the species Ixodes persulcatus with the virus of tick-borne encephalitis in the Lysovensk Raion of the Perm Oblast. Ibidem, Vypusk 15 (1962): 272-276.
- 23) Shilova, S. A., Results of the work of the anti-epidemic team of the RSFSR Ministry of Health on tick-borne encephalitis in the Perm Oblast. Ibidem, 255-261.
- 24) Shilova, S. A. et al., Remarks on the indispensability of the implementation of prophylactic measures in the potential foci of tick-borne encephalitis. Ibidem, 262-271.

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- 25) Gorchakovskaia, N. N., Liquidation of the foci of tick-borne encephalitis with the aid of acaricides. Vest. AMN (1963) 6: 21-32.
- 26) Gusev, V. F. and Motrich, T. A., Eradication of Ixodes ricinus on open pastures with a watery emulsion of dithiophos. Trudy Vsesoiuzn. inst. eksperim. veterinarii 28 (1963): 257-262.
- 27) Petunin, F. A., Epizootological importance of Rhipicephalus bursa can. of Fanz and means of its destruction in the Krasnoiarsk Krai. Ibidem, 249-252.
- 28) Poliakov, D. K., Experience of the fight against the tick Ixodes persulcatus P. Sch. for the prophylaxis of tick-borne encephalitis in man and the protozoal diseases of animals. Ibidem, 296-298.
- 29) Gusev, V. M. et al., Wild birds - vectors of ectoparasites in the Transcaucasus. Trudy Azerbaidzh. protivochumm. stantsii 3 (1962): 177-184.
- 30) Petrosian, Z. A. et al., Frequency of rodents and their ectoparasites in the inhabited localities of the Apsheron Peninsula in 1955-1959. Ibidem, 132-140.
- 31) Derevianchenko, K. I. et al., Observations on the contact of rodents and other wild animals through blood-sucking arthropoda in Mangyshlak. Zool. zh. 42 (1963) 6:903-913.
- 32) Petrov, V. G., Observations on the role of the tick Hirstionyssus musculi in the transmission and preservation of tularemia infection. Ibidem, 7:1031-1040.
- 33) Kereev, N. I., Observations on the typification of the foci of North-Asiatic tick-borne rickettsiosis in the Kazakhstan. Tez. dokl. 5-i itog. n.-prakt. konf. Kazakhsk. inst. epidemiol., mikrobiol. i gigieny, Alma-Ata (1963): 95-96.
- 34) Kesarev, I. P., Observations on the leading role of ixodes ticks in the transmission of Q-rickettsiosis in some endemic foci. Tez. dokl. VII s'ezda o-va mikrobiol., epidemiol. i infeksionistov Ukrain. SSR, Kiev (1963): 290-291.
- 35) Nefedov, V. N. and Burkovskii, V. E., Contributions to the zoological and parasitological characterization of the

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tick-borne encephalitis foci in the forest-steppe zone of the Altai Krai. Uch. zap. Kabardino-Balkar. universiteta, [Year omitted] Vypusk 16:105-111.

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- 37) Sotnikova, A. N., Experimental study of the susceptibility of the pink lentil to experimental infection with the virus of tick-borne encephalitis. Dokl. Irkutsk. protivochumn. inst. (1962) Vypusk 4:100-101.
- 38) Feoktistov, A. Z., Isolation of the virus of tick-borne encephalitis from warm-blooded animals in winter. Ibidem, 97-100.
- 39) IAgodinskii, V. N., Contributions to the problem of the epidemiology of tick-borne encephalitis attacks with an unknown mode of infection. Ibidem, 92-93.
- 40) IAgodinskii, V. N. and Aleksandrov, IU. V., Seasonal inequalities of the infectibility of Ixodes persulcatus with the tick-borne encephalitis virus. Ibidem, 94-97.
- 41) Tagil'tsev, A. A. et al., Observations on the zoological and parasitological situation in the foci of arbor-virus infections in the north-eastern part of the Bukhtarminsk water-reservoir. Tez. dokl. 5-i itog. n.-prakt. konf. Kazakhsk. inst. epidemiol., mikrobiol. i gigieny, Alma-Ata (1963): 34-36.
- 42) Alekseev, A. N., Remarks on the methods of the study of the sensitivity of fleas to insecticides. Trudy tsentraln. dezinfl. inst. 15 (1962): 235-244.
- 43) Bakeev, N. N. et al., The burrows of the red-tailed gerbil of the Azerbaidzhan SSR and the location of fleas in them. Trudy Azerbaidzh. protivochumn. stantsii 3 (1962): 205-227.
- 44) Kunitskii, V. N. and Kunitskaia, N. T., Fleas of the southwest of Azerbaidzhan. Ibidem, 156-169.
- 45) Bibikova, V. A. et al., Observations on the biology of the fleas of the genus Xenopsylla in the Sary-Ishikotrau desert. Zool. zh. 42 (1963) 7:1045-1051.
- 46) Isaeva, E. V., Rat-fleas of the town of Baku. Ibidem, 150-155.

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- 47) Kir'iakova, A. N., An instance of the devouring of adult fleas by their larvae. Ibidem, 950.
- 48) Petrova, A. D. et al., Efficacy of DDT in the fight against ticks and fleas in artificial birds nests. N. dokl. vysshei shkoly biol. nauki (1963) 3: 23-27.
- 49) Rasskazova, A. K. and Prokop'ev, V. N., Study of the possibility of the preservation and transmission of listeriosis by fleas. Dokl. Irkutsk. protivochumn. inst. (1962) Vypusk 4:212-217.
- 50) Sviridov, G. G., Use of radio-active isotopes for the study of some problems of the ecology of fleas. Report II. Contact of the animals and intensity of the exchange of ectoparasites in the populations of the big gerbil. Zool. zh. 42 (1963) 6:947-949.
831. Khatenever, M. L., Simultaneous vaccination against tuberculosis and tularemia in experiments. Zh. mikrobiol. (1964) 2: 29-34.
(From the Gamaleia IEM, AMS, USSR.)

Experiments on guinea-pigs led the author to the conclusion that it was compatible to combine cutaneous vaccination with the BCG strain with that against tularemia. It was therefore desirable to make tentative use of such combined immunizations in the population of tularemia-affected areas.

832. Togunova, A. I. and Chiriginskii, A. E., Morphology of the vaccinal process following combined cutaneous vaccination against tuberculosis and tularemia in experiments. Zh. mikrobiol. (1964) 2: 35-38.
(From the Gamaleia IEM, AMS, USSR.)

Guinea-pig experiments with the BCG strain and a vaccine prepared from the tularemia strain No. 15 led the authors to the following conclusions:

"1. After the combined vaccination of guinea-pigs with the live BCG and tularemia vaccines one could note a regular development of the morphological vaccinal process in the skin and lymph nodes in the form of the epitheloid cell granulomas typical for BCG inoculation which became resorbed after 5-5.5 months.

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2. The specific alterations appearing on the skin and in the lymph nodes at the site of the tularemia vaccination were typical and short-lasting, disappearing after 4-5 weeks with the formation of a slight scar.

3. In contrast to the control animals one could note in the combinedly vaccinated animals after varying intervals the formation of a large amount of plasma cells, particularly in the lymph nodes and the spleen.

4. This increased plasmocytary reaction may be ascribed to some extent to an intensified immunological response of the animals inoculated with the two vaccines."

833. Aleksandrov, N. I. et al., Experience of massive aerosol immunization with powdered tularemia vaccine in man. Zh. mikrobiol. (1964) 2: 38-43.

Aerosol immunizations against tularemia of a small group of people (156 persons) in 1958-1959 were followed in 1961-1962 by the use of this method on a larger scale in groups of people varying, according to the size of the ordinary rooms utilized for this purpose, from 17 to 297 persons. The length of their exposure to the aerosols was invariably 15 minutes.

The total number of persons immunized in this manner against tularemia from 1957 to 1962 amounted to 3,385. Of these 993 had reacted negatively in preliminary tests with tularemia antigens, 42 had shown positive reactions while 2,410 had not been subjected to the preliminary tests.

Commenting upon the observations made in these groups, which are set forth in a table, the authors stated that the post-vaccinal reactions in the group of negative reactors were slighter than in those who had reacted positively in the preliminary tests. Reactions in the previously untested group were "comparatively not marked."

The degree of the post-vaccinal reactions was related to the doses used for inhalation. Thus,

"when immunizing a group giving negative results in the preliminary tests with the optimal doses of 5.5-28 million organisms, general reactions were noted in 1.19%, whereas the administration

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of 130-320 million organisms led to an increase of the frequency of the reactions to 24.2%. Vaccination of persons giving positive results in the preliminary tests with doses of 1-28 million organisms resulted in positive general reactions in 28.5%. In the sub-group vaccinated with doses of 1-4.6 million organisms general reaction appeared in 23.2%, in those vaccinated with 5.5-28 million doses in 41.5."

Considering the results obtained when subjecting a part of the immunized groups to agglutination and intracutaneous tularin tests made at various times within a period from 15 to 360 days, the authors stated

"that aerosol immunization with powdered tularin vaccine led to a marked immunological transformation of the body of the vaccinated. The indices of the agglutination reactions was definitely related to the size of the vaccine doses used for inhalation. Small doses (1-4.6 millions) caused the least marked immunological shifts, median doses (5.5-28 million) produced a distinct immunological effect and large doses caused the most intensive changes."

Serological tests were also made in a control group of 260 persons 30-180 days after they had been cutaneously vaccinated against tularin. It was found that the agglutination titers present 30 days after immunization in 94% of these persons, averaging 1:170, were 1.4 times lower than those in the aerosol-immunized group. Two months after cutaneous vaccination agglutination tests were positive in 94% with an average titer of 1:197, 6 months after inoculation in 80% with a titer of 1:70. The corresponding percentages in the groups subjected to aerosol immunization were 98% and 98.2% and their agglutination titers were likewise higher.

In regard to the outcome of the tularin tests the authors stated that

"in persons immunized with 1-4.6 million doses 15-20 days after the vaccination a positive skin-allergic reaction was observed in 57.8%, after 30-40 days in 86.4%, the reaction remaining positive in a high level (75.2%) up to half a year and at a level of 64% even one year from the day of immunization. In those

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immunized with 5.5-28 million doses and with 130-320 million doses a positive skin-allergic reaction was observed 15-20 days and 30-41 days after the immunization in 82-100% of the vaccinated and after 90-110 days in 87%. A positive skin-allergic reaction was observed in 71% of the immunized 360 days after the aerosol administration."

(Comparative figures for the cutaneously vaccinated group are not quoted except that all 30 persons tested 30-41 days after the inoculation reacted positively to tularin.)

834. Motornaia, V. P., Efficacy of different methods of vaccination against tularemia. Zh. mikrobiol. (1964) 2: 43-48.

For a comparative evaluation of the cutaneous, intracutaneous and subcutaneous methods of anti-tularemia immunization the author worked with vaccines prepared from Gaiskii's strain 15, Faibich and Tamarina's strain 10, Faibich and Saltykov's strain 33 and Saltykov's strain 53 or with mixtures of all or some of these strains. Guinea-pigs were immunized once by one of the above mentioned routes, white mice either cutaneously or subcutaneously. For subcutaneous or intracutaneous injections vaccine doses ranging from 10,000 to 10 million organisms were used; cutaneous inoculations were made with vaccines containing 2 billion organisms per ml.

The test animals were usually challenged 30 days after immunization by the subcutaneous route or by inhalation or by the conjunctival route. However, groups of guinea-pigs immunized subcutaneously or cutaneously with mixtures of the four vaccinal strains were subcutaneously infected with the challenge strain 4 or 6 months after the immunization.

The conclusions reached by the author of this well documented article were that

- (1) A comparative study of the efficacy of the subcutaneous, cutaneous and intracutaneous methods of administration of live tularemia vaccine to white mice and guinea-pigs showed that independently of the mode of vaccination 30 days after the immunization the animals were resistant to challenge by the subcutaneous and conjunctival routes as well as by inhalation.
- (2) Regardless of the method of vaccination there developed in guinea-pigs immunized with a mixture of the vaccinal

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strains an immunity rendering after 4 months all animals resistant to a challenge with 1,000 DLM. Six months after the immunization only 75% of the animals resisted challenge with such or higher lethal doses.

- (3) The intensity of the immunity in the vaccinated guinea-pigs depends in the main not upon the mode of vaccination but upon the quality and also the dose of the vaccine used.
- (4) The cutaneous method of vaccination proved under all conditions of challenge not less effective than the other methods of immunization and was more expedient than subcutaneous vaccination.
835. Smaga, M. F., Observations on the results of re-vaccination against smallpox in adults in 1957, 1960 and 1962. Zh. mikrobiol. (1964) 2: 48-52.
(From the Hospital for Mental Diseases of the L'vov Oblast.)

The author reported on the results of smallpox re-vaccinations administered to the medical workers of the L'vov Hospital for Mental Diseases in 1957, 1960 and 1962. In 1957, when 1,090 persons previously immunized against smallpox were re-vaccinated with a vaccine in the Odessa IEM, takes were noted in 851 (78%). Results of the re-vaccination campaigns in 1960 and 1962, when vaccines manufactured in the Kiev IEM were used, are set forth in the following table:

<u>Type of Local Response</u>	<u>Frequency of the Various Reactions</u>			
	<u>1960</u>		<u>1962</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Negative	668	54	216	16
Papule	334	27	388	29
Vesicle	158	12	363	28
Pustule	82	7	336	27
<u>Totals</u>	1,242	100	1,303	100

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Considering these figures and also the results of more detailed analyses, for which the original or a translation must be consulted, the author came to the following conclusions:

- (1) Positive results of smallpox re-vaccinations in adults in 1957, 1960 and 1962 were obtained respectively in 78, 46 and 84 percent.
- (2) The grippe (influenza) epidemic occurring early in 1962 was evidently not responsible for the higher percentage of takes observed in that year, since under identical conditions in 1960 the frequency of positive results of the re-vaccination was two times lower.
- (3) The higher inoculability in 1962 seems to be due to the use of a more virulent vaccine.
- (4) The inoculability of the vaccine seemed to depend also upon the result of the preceding re-vaccinations: the lowest incidence of takes after repeated re-vaccinations was observed in persons who had responded to the previous re-vaccination with a markedly positive reaction.
- (5) The marked variations in the response to re-vaccinations repeated at intervals of 2-3 years, indicating in part a lowering or loss of the post-vaccinal immunity, testify to the necessity of repeating smallpox vaccination every two years.

(An adequate reference list enhances the value of this article.)

836. Taran, I. F. et al., Comparative study of the vaccinal process and of the intensity of the immunity in guinea-pigs immunized with the strains Br. abortus 19 and 104-M. Zh. mikrobiol. (1964) 2: 53-60.
(From the Anti-Plague Institute of the Caucasus and Transcaucasus, Stavropol.)

The conclusions reached by the authors of this article were that

- (1) The inoculability of the vaccinal strain Br. abortus 104-M in doses ranging from 100 to 1 billion organisms was better than that of the strains Br. abortus 19 and the animals vaccinated with the former strain showed more marked immunological reactions.
- (2) In the group of guinea-pigs immunized with small doses of the Br. abortus 104-M vaccine (up to 1 million organisms) one

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could note one month after the vaccination a hyperplasia of the reticular cells in the lymph nodes and the spleen. After the administration of higher doses (10 million organisms or more) it came in the lymph nodes and the spleen to the formation of granulomata consisting of epitheloid cells and in the liver to a marked hyperplasia of the Kupffer cells and an accumulation of lymphoid cells and histiocytes round the sinuses and in the parenchyma. In the animals immunized with the strain Br. abortus 19 all these manifestations were less marked; epitheloid cell granulomata appeared only after the administration of 100 million or 1 billion doses.

- (3) The degree of immunity engendered by the vaccine prepared from the strain No. 19 was lower than that produced by the 104-M vaccine. In the case of both vaccines no protection was afforded against large doses (up to 1 million organisms) of a virulent Br. melitensis strain.

837. Kozlov, M. P., Observations on the evaluation of the epidemiological efficacy of anti-brucellosis vaccination. Zh. mikrobiol. (1964) 2: 60-64.
(From the SR Anti-Plague Institute of the Caucasus and Transcaucasus.)

In order to arrive at an adequate evaluation of the efficacy of anti-brucellosis vaccination, the author recommended to determine not only the incidence of the disease among the immunized and the not immunized parts of the population in general but also to obtain corresponding data separately for the mainly concerned professional groups. He maintained that

"A comparison of these data in the individual foci and raions enables the practical workers to evaluate the quality of the vaccine administration and to remove shortcomings in good time. If in any raion the percentage of attacks of the disease proves to be high in comparison with other raions, attention of the epidemiologists ought to be focussed upon an evaluation of the times of vaccination, the method of storing the vaccine, the quality of vaccine administration and an assessment of the epizootological situation. Whenever in spite of the large-scale and adequate implementation

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of vaccination the morbidity among the unvaccinated remains high in a given raion, main attention ought to be paid upon the adequacy of the system used for the selection of the groups to be immunized. A good index for the efficacy of vaccination and the other prophylactic methods is furnished by a general lowering of the brucellosis incidence in the population and by a minimal morbidity among the vaccinated."

838. Podkopaev, V. M., Fluorescent globulin fractions of precipitating anti-anthrax sera and their specific activity. Zh. mikrobiol. (1964) 2: 80-84.
(From the State Scientific and Control Institute of Veterinary Preparations of the USSR Ministry of Agriculture.)

The conclusions reached in this article, the technical details of which must be studied in the original or in a translation were that

- (1) It is possible to purify the precipitating anti-anthrax serum with chloroform without lowering its specific activity.
 - (2) The unspecific group precipitins may be removed from the labelled precipitating anti-anthrax serum and its gamma-globulin fraction with the aid of absorption with anthracoids, using 15-30 million of these organisms per ml for 10-15 minutes at room temperature.
 - (3) The specific antibodies are present in the labelled beta and alpha globulin fractions which therefore can be used for a differentiation of the anthrax bacilli from soil saprophytes.
839. Savel'eva, R. A., Observations on the possibility of simultaneous vaccination against tularemia and smallpox. Experimental observations. Zh. mikrobiol. (1964) 2: 85-88.
(From the Gamaleia IEM, AMS, USSR.)

Confirming previous observations, the author found that it was possible to immunize rabbits simultaneously against smallpox and tularemia. However, in order to obtain invariably satisfactory results it was necessary to inoculate the two vaccines in separate places instead of using a mixture of them. The use of the former method for immunization of the human population is suggested.

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840. IUSHchenko, G. V., Pseudotuberculosis in man. A survey. Zh. mikrobiol. (1964) 2: 88-92.

This survey in which numerous publications by western workers are quoted, can be mentioned by title only.

The following articles by Soviet authors are enumerated:

- 1) Bulanova, G. B.; Trudy Rostovsk.-na-Donu n.-i. protivochumn. inst. 11 (1956): 49.
 - 2) Deviatova, A. P.; Izvest. Irkutsk. n.-i. protivochumn. inst. 20 (1959): 303.
 - 3) Klimova, T. K., Characterization of the pseudotuberculosis bacillus and the pseudotuberculosis bacteriophage isolated from Rattus norvegicus Berkenhout and Mus musculus L. Thesis (Leningrad, 1946).
 - 4) Tokarevic, K. N. et al.; Vestnik mikrobiol. 19 (1940) 2:226.
 - 5) Tumanskii, V. M.; Psevdotuberkulez. Moscow (1958).
 - 6) IUSHchenko, G. B.; Antibiotiki. (1956) 5: 46.
 - 7) Idem: Zh. mikrobiol. (1957) 1: 114.
 - 8) IURkevich, D. A., Contribution to the problem of the pathology and bacteriology of B. pseudotuberculosis rodentium. Thesis (St. Petersburg, 1911).
841. Kirilenko, O. A., Observations on the combined action of the toxins of the tetanus bacillus and of Proteus vulgaris. Zh. mikrobiol. (1964) 2:128-132. (From the Odessa Pirogov MI.)

The author found that the use of mixtures of the toxins of the tetanus bacillus and of Proteus vulgaris led to a stimulation of the hemolytic power and of the lethal action of these toxins.

842. Beklemishev, N. D. et al., State of health of persons inoculated with live anti-brucellosis vaccines. Author's Report. Zh. mikrobiol. (1964) 2:139-140. (From the Kazakh Institute of Regional Pathology, AMS, USSR, Alma-Ata.)

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The authors found that immunization against brucellosis with live vaccines did not cause "profound and frequent shifts in the health of the vaccinated."

843. Mergol'd, D. P., Brucellosis lesions in the spine and the sacroiliac joints of rabbits subjected to repeated re-infection. Author's Report. Zh. mikrobiol. (1964) 2: 143. (From the Kuibyshev MI.)

Quoted by title.

844. Braude, N. I. and Chernokhvostova, E. V., Observations on the mechanism of the action of cortisone on the resistance of animals to infections. Author's Report. Zh. mikrobiol. (1964) 2:143-144.

The results of the observations made by the authors on white mice, part of which had been vaccinated with the strain Br. abortus 104-M must be studied in the original or in a translation of the text of the note.

845. Spitsa, A. I., Outbreaks of mixed infections caused by Echo and Adenoviruses. Author's Report.
: Zh. mikrobiol. (1964) 2:147-148.
(From the Dnepropetrovsk IEM and Hygiene.)

For the results of the observations on mixed virus infections made by the author in the spring and summer of 1960 in the Dnepropetrovsk Oblast, the original or a translation of the text must be consulted.

846. Mnatsakanian, A. G., Spread of brucellosis in the Armenian SSR and methods of the fight against it. Author's Report. Zh. mikrobiol. (1964) 2: 149.
(From the Republic Sanitary-Epidemiological Station of the Armenian SSR.)

As stated in this note, the details of which must be studied in the original or in a translation, the presence of brucellosis in the Armenian SSR was first established about 40 years ago and it was gradually established that the disease was widely spread in the herds of the cattle, sheep and goats. During the period from 1952 to 1957 6% of the sheep and 5.5% of the cattle were found affected. Anti-brucellosis vaccination of the cattle was started in 1954, that of sheep and goats in 1956 and gave satisfactory results.

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Though in 1957 a considerable part of the human population (70,000 persons) were vaccinated against brucellosis, at first no marked drop in the hitherto frequent incidence of the disease was noted. In 1958 the cutaneous method of inoculation was adopted and 354,000 persons were vaccinated. As a result the incidence of the disease markedly decreased during the following years. At present human brucellosis attacks have largely become sporadic, appearing in the groups of people who take care of the livestock.

847. Vasil'ev, V. N. et al., Some problems of the humoral immunity against smallpox. Zh. mikrobiol (1964) 2: 5-10.

The conclusions reached in this article were that

- "1. Neutralizing antibodies were observed in 99.1%, anti-hemagglutinins in 86.7% and complement-fixing antibodies in 50% of the examined sera. A direct relationship exists between the levels of the anti-hemagglutinins and the neutralizing antibodies.
2. After re-vaccination one could observe a gradual decrease of the anti-hemagglutinin levels and after 1.5-2.5 years these were present in 60.25% of the immunized persons at a low titer (1:10) or were altogether absent. The neutralizing antibodies disappeared considerably more slowly and at the above mentioned times were present in 80% of the immunized at titers not below 1:5.
3. The level of the neutralizing antibodies depended upon the total number of inoculations and upon the intervals between them. A high level of these antibodies (averaging 1:25--more than 1:125) was observed in the case of re-vaccinations made after 6-12 months. The level of the neutralizing antibodies was considerably lower (mean 1:5) in the case of re-vaccinations made after 2 years. It was not possible to detect a clear interdependence between the anti-hemagglutinin levels and the number of inoculations or the intervals between these.

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4. In persons negatively reacting to the inoculation, the mean antibody level before re-vaccination was higher than in the persons reacting positively. However, one could note considerable individual variations of the character of the skin reactions not corresponding to the antibody level.

5. An evaluation of the collective immunity according to the results of the reactions to the inoculation did not indicate the true state of the herd immunity. It is therefore advisable to evaluate the immunity following smallpox vaccination according to the results of selective antibody determinations. A re-vaccination of the population becomes necessary when 25% or more of the sera tested fail to contain anti-hemagglutinins at a titer of 1:10."

848. Frolcva, M. A. and Sokolova, E. I., Study of the cells reactivity in antitoxic immunity with the method of tissue cultures. Zh. mikrobiol. (1964) 2: 10-15. (from the Moscow Mechnikov Vaccine and Serum Institute.)

This article, in which the results of studies made with the diphtheria toxin are recorded, can be quoted by title only.

849. Korobkova, E. I. et al., On the stabilization of the immunogenic properties of Girard and Robic's EV strain. Report III. Influence of animal passage and of single colony selection on the immunogenicity of the EV strain. Zh. mikrobiol. (1964) 2: 16-21. (From the All-Soviet SR Anti-Plague Institute "Mikrob.")

The conclusions reached in this article, which must be studied in detail by those interested in the problems of plague immunology, were that

"1. Numerous guinea-pig passages of decreasing doses of the EV strain by the conjunctival, subcutaneous or intraperitoneal routes led to an increase and stabilization of its immunogenicity. The methods of passage did not

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cause an increase of the virulence and the reactogenicity of the strain--animal experiments as well as histological examinations confirmed its initial innocuousness.

2. For the passage one ought to use a culture from a guinea-pig sacrificed not later than 5-6 days after inoculation.

3. A prolonged survival of the vaccinal strain in the animal body leads to a considerable decrease of its immunogenicity.

4. Cultures obtained from single colonies of one and the same strain, while showing no morphological differences, differed in their immunogenicity. The method of studying single colonies can be used for the determination of the immunogenicity of subcultures of the EV strain."

850. Vorob'ev, A. A. and Lukin, E. P., Soluble antigens of viruses and rickettsiae and prospects of their use for vaccine prophylaxis. A Survey.
Zh. mikrobiol. (1964) 2: 21-24.

Concluding this well documented survey, the author stated

"that, as shown by the evidence adduced, the presence of soluble antigens is a well established fact and that the soluble antigens of the rickettsiae and viruses resemble each other in respect to the serological reactions in vitro. At the same time the rickettsial antigens behave like true antigens, producing an immunological transformation in the body of the vaccinated animals with the appearance of protective antibodies in the blood, whereas the full value of the soluble virus antigens has not been fully demonstrated thus far.

The statements available in the literature lead to the postulate that the soluble rickettsial antigens can be utilized for the purposes of a specific serological diagnosis as well as for composition of prophylactic preparations of

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the type of 'chemical vaccines,' particularly such against epidemic spotted typhus.... The possibility of the production of chemical vaccines with the aid of the soluble antigens of viruses requires further investigation."

851. Zemskov, V. M., Morphological indices of immunity. A Survey. Zh. mikrobiol. (1964) 2: 25-28.

This survey, to which a long reference list quoting mainly western authors is appended, can be quoted by title only.

852. Bugrova, V. I., Biological characterization and phage infestation of pathogenic staphylococci isolated from the air. Gig. i san. 29 (1964) 1: 94-95.
(From the Moscow F. F. Erisman SR Institute of Hygiene.)

As stated in this note, in the course of bacteriological examinations of the air of the Moscow Metropolitan Area besides strains of Streptococcus salivarius also 41 strains of staphylococci were isolated which according to their properties had to be considered as pathogenic species.

While generally sensitive to antibiotics, 14 of the strains proved to be resistant to penicillin, 6 to levomycetin, 2 to streptomycin and one to biomyacin.

853. Tyshko, A. G., Study of the protein fractions of sera obtained after simultaneous administrations of parotitis and variola vaccines. Vrachebnoe delo (1964) 1:100-102.
(From the Microbiological Department of the Kiev MI.)

The investigations of the author indicated that the simultaneous administration of anti-parotitis and variola vaccines did not inhibit the formation of antibodies against both infections.

854. Shcherbak, IU. N., Epidemiological peculiarities of brucellosis in the Ukrainian SSR in the case of human infections contracted from cattle. Vrachebnoe delo (1964) 1: 109-112. (From the Kiev SR IEM.)

This epidemiological study of 382 human brucellosis attacks contracted in various oblasts of the Ukraine from cattle during the period from 1953 to 1961 does not lend itself to the purposes of a brief review.

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855. List of noteworthy articles in the report on Voprosy biologii i kraevoi meditsiny (Problems of Biology and Regional Medicine), Vypusk 4 (1963).
(From the AS, Uzbek SSR, Department of Biological Sciences, Tashkent.)

- 1) Safiiazov, Zh., Influence of X-ray irradiation on the morphology of spore-bearing bacteria.
Pp. 118-122.

This article, dealing with studies on B. megatherium, Bac. longissimus, Bac. cereus and Bac. subtilis, is mentioned by title only.

- 2) Krasil'chikov, D. G., Contribution to the problem of the toxicity of technical-grade khlorofos for warm-blooded animals. Pp. 422-427.

According to the findings recorded in this article, khlorofos (0,0-dimethyl-2,2,2 - trichlor-1-oxyethyl-phosphanate) was slightly toxic for warm-blooded animals. The LD₅₀ for rats was 667 mg/kg. High prevailing temperatures appeared to increase the toxicity of this insecticide for the rats.

- 3) Mukhametov, S. M., Peculiarities of the brucella cultures isolated from cattle in the Tashkent Oblast.
Pp. 460-463.

The observations of the author confirmed that, as established by earlier workers, the cattle in Central Asia was infected not only by Bruc. abortus but also by Bruc. melitensis. Since this transition of the latter organism from the sheep to the cattle was most dangerous for man, the author insisted upon the necessity of an energetic fight against brucellosis in the cattle herds.

856. Ziuban, V. I., Efficacy of tetracycline in avian pasteurellosis. Antibiotiki 9 (1964) 2:161-164.
(From the SR Veterinary Station of the Stavropol Krai.)

The author found Past. aviseptica sensitive in vitro to penicillin, chlortetracycline, tetracycline, oxytetracycline, erythromycin, monomycin, mycerine, polymixin M, streptomycin, levomycetin and colimycin - most sensitive to penicillin, chlortetracycline, tetracycline, oxytetracycline, monomycin and erythromycin. Oxytetracycline, if

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if administered once to hens in a dose of 15-20 mg/kg, was found to remain in the blood at an optimal level for 24 hours or longer and proved to be of outstanding value for the treatment of experimentally produced avian pasteurellosis.

857. Reviews of noteworthy articles in the 25th volume (1963) of the Bulletin of the Irkutsk Anti-Plague Institute (Izvestiia Irkutsk. gos. n.-i. protivochumnogo instituta Sibiri i Dal'nego Vostoka):

- 1) Kraminskii, V. A., Discovery of the natural focality of plague by D. K. Zabolotnyi. Pp. 5-10.
- 2) Fedorov, V. N., The teachings of D. K. Zabolotnyi on plague and the present state of knowledge on the natural focality of this disease. Pp. 11-16.

These two articles, which are mainly of historical interest are quoted only by title.

- 3) Shchekunova, Z. I. et al., Plague epizootics among rat-hares (Ochotona) in Western Mongolia. Pp. 17-24.

According to the authors the presence of plague in Western Mongolia near the Soviet frontier was first detected in 1953 when Nekipelov isolated a culture of P. pestis from a dead marmot. Epizootics among voles (Microtus gregalis) were observed in the same region in 1958, followed in 1959 by a major epizootic involving mainly Ochotona mongolica studied by the present authors. Out of the 26 cultures then isolated by them from rodents 22 were obtained from this species, 3 from Ochotona daurica and one from an Altai marmot. The presence of the infection was also confirmed in 25 fleas collected respectively from Ochotona mongolica (14), O. daurica (6), long-tailed susliks (3) and M. gregalis (2) as follows:

<u>Species</u>	<u>Number Infected</u>	<u>Species</u>	<u>Number Infected</u>
<u>Amphalius runatus</u>	4	<u>Amphipsylla primaris</u>	3
<u>Frontopsylla hetera</u>	3	<u>Rhadinopsylla daurica</u>	2
<u>Ctenopsyllus hirticrus</u>	1	<u>Rhadinopsylla li li</u>	2
<u>Paradoxopsyllus scorodumovi</u>	10	<hr/>	<hr/>
		Total	25

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In the spring of 1960 some cultures were isolated only from fleas collected from O. mongolica and Dzhungarian hamsters. The number of the former rodents (O. mongolica) had by then become greatly reduced.

Describing laboratory studies they had made with material from an infected O. mongolica, the authors stated that

"A guinea-pig, infected subcutaneously with a suspension from the internal organs of the carcass of the rat-hare, remained alive and was killed with chloroform 10 days after infection. At autopsy were found a regional bubo in the stage of suppuration, hyperemia of the subcutaneous tissues; the liver had a dark-cherry color, all lobes of the lungs were evenly congested, the spleen showed necrotic nodules. Smears from the bubo and the internal organs failed to show the presence of microbes but an abundant growth of colonies typical in aspect for P. pestis was obtained on agar from the spleen, bubo and blood. The isolated strain fermented within one day glucose, maltose, rhamnose, galactose, mannite, xylose, dulcitol, arabinose, raffinose, sorbitol, fermented within 4 days glycerol and urea, ...produced no indole but hydrogen sulfide, reduced methylene blue within 1 hour. The nitrification and denitrification reactions were negative. The culture was lysed by plague and pseudotuberculosis phages."

Animal experiments made with this strain gave the following results:

<u>Infecting Dose</u> <u>(Organisms)</u>	<u>O. mongolica</u>	<u>Guinea</u> <u>Pigs</u>	<u>White</u> <u>Mice</u>
50	4/4	0/3	2/3
500	4/4	0/3	3/3
5,000	4/4	0/3	3/3
50,000	4/4	0/3	2/3
500,000	3/4	0/3	1/3
5 million	4/4	0/3	0/3
50 million	4/4	1/3	3/3
500 million	4/4	0/3	3/3
<u>Totals</u>	Infected: 32	24	24
	Succumbed: 31	1	17

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The spontaneously succumbing rat-hares were all found to suffer from acute plague (death within 2-4 days). The surviving animal, when sacrificed, showed a bubo from which P. pestis could be isolated.

The single spontaneously succumbing guinea-pig also showed signs of an acute infection. The other animals of this species were seriously ill for about a week, but then improved. When sacrificed, 20 out of the 23 animals showed suppurating buboes, from which alone P. pestis could be isolated.

The white mice succumbing to the infection died within 3-8 days, showing the signs of a generalized infection. When sacrificed, 5 of the 7 survivors had buboes which alone yielded growth of the causative organisms.

The authors were of the opinion that the epizootic among the rat-hares had been the result of an infection contracted from the plague-affected marmot.

- 4) Shamova, A. M., Characterization of the plague cultures isolated from the Gorno-Altai Autonomous Oblast in 1961. Pp. 25-33.

The author was able to demonstrate for the first time in 1961 the presence of plague in the Kosh-Agach Raion of the Gorno-Altai Oblast. Three out of 10 strains collected by her were isolated respectively from an O. mongolica, a long-tailed suslik and a steppe polecat and 7 from fleas belonging (a) to the species Amphalius runatus, Paradoxopsyllus scorodunovi and Frontopsylla hetera, collected from the rat-hares and (b) to the species Amphipsylla primaris and Chaetopsylla homoeus obtained from polecats.

Referring in the conclusions to her article to the most outstanding results of a careful examination of these strains, the author admitted that, while otherwise typical for P. pestis, her cultures were peculiar insofar as (a) they acidified rhamnose within the first days of growth and (b) most of them were but weakly virulent for guinea-pigs while comparatively highly virulent for white mice - features which remained unaltered during the five months following their isolation.

The author added that the presence of plague in Chaetopsylla homoeus had been demonstrated by her for the first time.

- 5) Klets, E. I. et al., Susceptibility of some species of steppe rodents to artificial infection with the weakly virulent plague strains isolated in Transbaikalia. Pp. 34-46.

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Commenting upon the results obtained with three plague strains isolated in Transbaikalia in 1960, the authors stated

"that all these strains were weakly virulent for the majority of the animals tested and behaved like avirulent strains in the case of guinea-pigs and tarabagans. The highest sensitivity to the infection was shown by white mice, in which sometimes comparatively small doses produced a fatal infection with an abundance of the causative organisms in the tissues and organs. The same acute process could be observed occasionally in Brandt's mice, Dauria susliks and Mongolian gerbils infected with doses of 3 billion or higher doses....

At the same time, even if infective doses of 15 billion were used, the presence of plague could not be demonstrated through smear or cultural examinations when the surviving animals were sacrificed 2 weeks after infection. Only in single instances one could obtain a growth of P. pestis from material taken from the site of infection (Dauria suslik). It was possible to enhance considerably the susceptibility of the rodents, specially of the white mice, by combining the administration of the infecting suspensions with that of egg yolk. The same phenomenon could be observed if a culture of the (vaccinal) plague strain 17 was administered together with egg yolk. In such cases the animals succumbed to 1 million doses, while doses of 300-500 million organisms were necessary to obtain the same result without egg yolk."

On account of these findings the authors advised to utilize the inhibiting action evidently exerted by the egg-yolk on the protective mechanisms of the body against plague infection for investigations in the enzootic foci.

Two of the strains under test were found capable of protecting animals against infection with a virulent plague strain, but it remains to be seen whether it would be possible to obtain this result with small doses.

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- 6) Sardar, E. A., The susceptibility of some rodent species from the north-west of the Mongolian People's Republic to experimental plague infection during autumn. Pp. 47-51.

The author found that in autumn the populations of Microtus gregalis became comparatively resistant to plague. The mean lethal dose for them then 376.8 times higher than the DCL for guinea-pigs, but individual differences existed in this respect.

The possibility of a peroral infection of the animals of this species and also that of infecting fleas through their exposure on plague-affected voles in the agonal stage were demonstrated.

After subcutaneous infection of these voles P. pestis could remain present at the site of infection for 30 days (limit of observation).

The flat-skulled voles (Alticola strelzowi) were found to be highly susceptible if infected with plague bacilli subcutaneously, perorally or cutaneously. The DL_{50} for subcutaneous infection equalled 3,963 organisms (78.7 times the DCL for guinea-pigs). The plague bacilli could remain in the body of these voles for 15-30 days (limit of the observation period) not only at the site of infection but also in the internal organs. The degree of bacteremia in the susceptible animals was high.

- 7) Timofeeva, L. A., Influence of dry chicken egg-yolk on the susceptibility of white mice to plague infection. Pp. 52-57.

The author concluded her well documented article by stating that

- (1) Tests with cortisone, novoembizin, histamine, glycol sodium and fresh chicken egg-yolk made in order to explore the role of these substances in stimulating the susceptibility of white mice to P. pestis, showed a high efficacy of the egg-yolk both as far as the percentage of deaths and the length of life of the test animals after the infection were concerned.
- (2) Chicken egg-yolk dried with the aid of sublimation proved as active in these respects as fresh egg-yolk. Even if small doses of weakly virulent strains were administered together with dry egg-yolk, the majority of the animals died and yielded an abundant growth of the causative organisms.
- (3) The use of dry egg-yolk for animal experiments in the field was therefore apt to facilitate the diagnostic work.

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- 8) Domaradskii, I. V. et al., Observations on the lecithinase activity of plague and tularemia bacilli. Pp. 98-100.

The main conclusion reached by the authors of this note was that plague and tularemia bacilli did not form lecithinase C.

- 9) Vasil'eva, Z. I. and Domaradskii, I. V., The influence of the toxin of P. pestis on the metabolism of racemic acid. Pp. 101-105.

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

- "1. The toxin of P. pestis lowers in vitro the consumption of racemic acid and, in the presence of this acid, impedes the oxygen intake by the homogenates of the liver of white mice and guinea-pigs.
2. Used in tests in vivo with white mice the plague toxin impedes the decrease of racemic acid and the oxygen consumption.
3. The toxin of the plague bacillus exerts no material influence upon the endogenic respiration of the liver homogenates of white mice and inhibits the endogenic respiration in the case of the liver homogenates of guinea-pigs.
4. The action of the plague toxin on the metabolism of racemic acid is not specific.
5. Other toxins, like that of the cholera vibrio, and of brucellae and pseudotuberculosis bacilli, act similarly on the metabolism of racemic acid."

- 10) Vasil'eva, Z. I. and Domaradskii, I. V., Influence of the vitamin B₁ on the metabolism of racemic acid before and after introduction of plague toxin. Pp. 106-108.

The conclusions to this article state that

- "1. The accumulation of vitamin B₁ in the liver of animals leads to an increase consumption of oxygen and racemic acid in the homogenates of their liver.

2. The plague toxin markedly suppresses the metabolism of racemic acid in control white mice but quite fails to exerts such an action in animals the organism of which is saturated with vitamin B₁."

- 11) Krupenina, V. N., Action of the plague toxin on the activity of the respiratory ferments. Pp. 109-115.

As stated in the conclusions of this article

"1. In white rats the intraperitoneal administration of plague toxin lowers the activity of succindehydrogenase and cytochromoxidase and activates catalase.

2. In vitro the plague toxin exerts no action on the activity of succindehydrogenase, cytochromoxidase and catalase.

3. The action of the toxic fractions of P. pestis on the respiratory functions of white rats stands in connection with an indirect influence of the toxin on the activity of the oxidizing ferments of the mitrochondria."

An adequate reference list is added to this noteworthy article.

- 12) Klimova, I. M., Influence of the plague toxin on the aldolase activity of the liver and blood serum of animals. Pp. 116-119.

Commenting upon her findings, the author stated that

"The increase of the aldolase activity in the blood serum of white mice intoxicated with plague toxin is not a specific phenomenon because it is known that it also takes place in parenchymatous affections of the liver. In both cases the increase of the aldolase activity in the serum is apparently explained by an increased entry of the ferment from the liver into the blood.

Thus far no explanation for the increased aldolase activity in the liver of white mice is available. The changes caused by the plague toxin...seem to indicate an increased destruction of the carbohydrates in plague

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intoxication. One could postulate, therefore, that the increased aldolase activity in the liver is the consequence of a fermentative adaptation.

The plague toxin exerts no influence on the aldolase activity in the liver and blood serum of guinea-pigs. The cause of such selective action of the plague bacillus is still unknown."

The formal conclusions of the author were that

- (1) The intraperitoneal administration of plague toxin leads in white mice to an increased aldolase activity in the liver and blood serum. Guinea-pigs do not respond to the administration of the toxin in this manner.
 - (2) In vitro the toxic extracts do not exert an influence on the aldolase activity in the liver of white mice.
- 13) Tkachenko, V. V. and Krotova, V. A., The hemolytic properties of dried plague bacilli. Pp. 120-128.

The conclusions reached by the authors of this study were that

1. Lyophilized plague cultures are characterized by the presence of fairly marked hemolytic properties, the activity shown by the organisms in this respect were directly related to the degree of their autolysis.
2. As shown through fractionation of the lyophilized plague bacilli, the toxic fractions are devoid of hemolytic properties; hemolytically active were the water-insoluble residues of the plague bacillus which did not exhibit a lecithinase activity.
3. The hemolytic activity of the lyophilized water-insoluble residue is tens of times higher than the corresponding activity of the original lyophilized plague bacilli.
4. In regard to several properties (thermostability, degree of activity towards the

erythrocytes of various animals, inhibiting action of the protein, calcium ions, etc.) the hemolytic activity of the water-insoluble residue is analogous to that of washed and aerated plague bacilli both before and after their lyophilization.

5. Outstanding peculiarities of the hemolytic activity of lyophilized plague bacilli and their water-insoluble residue are the stability of its presence, its inhibition in the presence of an excess of H-ions, its activation in the presence of an excess of OH-ions and its property of lysing human erythrocytes.

6. The hemolytic properties of lyophilized plague bacilli and their water-insoluble residues become inhibited in the presence of magnesium ions and of cholesterolin.

7. The hemolytic activity shown by washed plague bacilli and their water-insoluble residues after drying with acetone is considerably lower than that present after lyophilization."

- 14) Tkachenko, V. V. and Domaradskii, I. V., The hemolytic properties of the lipids of the plague bacillus. Pp. 129-134.

Discussing their findings, for the details of which the text of their article must be consulted, the authors stated that on account of (a) its solubility in acetone as well as other organic solvents; (b) the decrease of the hemolytic activity in the presence of an excess of H-ions; (c) its activation in an alkaline medium; (d) the inhibitory action of protein, cholesterolin, calcium and magnesium ions; (e) its thermostability, etc., the hemolysin of P. pestis stands near the high fatty acids capable of causing hemolysis.

The statements made in the literature to the effect that high fatty acids, particularly oleic acid, are capable of causing hemolysis in vivo, permit the postulate that the plague hemolysin as well acts in this manner. Bearing in mind, however, that the lipid metabolism of the plague bacillus has hardly been studied thus far, an identification of the hemolysin of this organism is difficult at present and requires further studies. The results of the study of the chemical nature of the

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plague hemolysin made by the present authors indicate the possibility of investigating the mechanism of hemolysis in plague and of assessing the role of the hemolysin in the pathogenesis of this disease.

(The authors quote in particular the publications of Greisman in the 1958 and 1959 volumes of the Proc. Soc. exp. biol. and Med.)

- 15) Tkachenko, V. V., A comparative study of the hemolytic properties of some microorganisms. Pp. 135-143.

Working with the STY anthrax strain, a strain of Staph. aureus, one of E. coli, 7 pseudotuberculosis strains and the vaccinal plague strains EV, 1 and 17, the author found that

"1. The lipids of the plague and pseudotuberculosis bacilli, of B. anthracis and E. coli as well as the acetone-soluble fractions of these lipids are capable of lysing washed guinea-pigs erythrocytes; the Staph. aureus strain under test was devoid of hemolytic properties.

2. The lyophilized parent cultures of these organisms with the exception of the plague and pseudotuberculosis cultures were hemolytically inactive. The hemolytic properties of the lyophilized pseudotuberculosis bacilli became manifest at a more or less prolonged interval after lyophilization. The water-insoluble residue of these organisms showed immediately after its isolation comparatively well marked hemolytic properties corresponding to those of the water-insoluble residue of P. pestis.

3. The hemolytic activity of all the bacterial lipids under test resembled in several ways the corresponding activity of the oleic and stearic acids. This supports the postulation that the hemolysins of the plague bacillus and of the other organisms under test are high fatty acids mainly of the unsaturated series."

- 16) Korobkov, G. G., The influence of phenylhydrazine anemia on the susceptibility of white mice to plague infection. Pp. 144-147.

The author found that white mice which had been 3-5 times subcutaneously injected with 0.2 ml doses of a 1% phenylhydrazine solution showed an increased resistance to plague infection which was due presumably to an increased activity of the reticulo-endothelial system.

- 17) Korobkov, S. G., Influence of the function of the thyroid gland on the susceptibility of white rats to plague infection. Pp. 148-150.

The author of this note found that an increased function of the thyroid gland increased the resistance of white rats to plague. A lowered function of this gland exerted no influence on the susceptibility of the animals to this infection.

- 18) Borsuk, G. I., Changes of the phagocytic activity of the leucocytes in the process of immunogenesis following anti-plague vaccination. Pp. 151-158.

The author concluded his well documented article by stating that

"1. During the first 12 days after the subcutaneous immunization of white mice with live anti-plague vaccine the phagocytic index showed an increase of 50-100% and the number of active leucocytes increased 10-15%.

Though afterwards becoming somewhat lower, the phagocytic index continued to be higher in the immunized than in the control animals. At the 19th-21st day after immunization the percentage of the active leucocytes had become increased 20-25%.

2. The phagocytic index found in the immune animals in vivo is considerably higher than that found in vitro tests.

3. In white mice which had been immunized with the EV vaccine one could observe a completed phagocytosis (see Berman and Slav'skaia, Zh. mikrobiol. 1958, No. 3), whereas this phenomenon was as a rule absent in the control (normal) mice."

- 19) Tarasov, N. S. et al., Intensity of the migration of the tarbagans from Mongolia into Transbaikalia. Pp. 220-222.

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In 1956-1958 a protective zone was established in the south-east of Transbaikalia in order to prevent inroads of plague from the adjacent regions of Mongolia into the Soviet Union. This protective belt, which as far as possible was kept free from the reservoir of the infection, the Siberian marmots (tarabagans), had a length of 150 km and was 10 km wide. The authors of the note under review studied during the 3-year period from 1958-1960 the migrations of tarabagans from Mongolia into 3 parcels of the belt, each of which ran for 5 km along the border and had a depth of 1 km, thus measuring 500 hectares.

Summarizing the results of these observations, the authors stated that a migration of tarabagans took place mainly in spring and summer. Within one season the animals penetrated to a depth of about 800 meters, at an average about 9 animals immigrating per kilometer of the border. Thus, the authors concluded,

"the immigration of tarabagans (as a rule of adult animals) from the Mongolian and Chinese Peoples' Republics takes place on a fairly intensive scale and, unless the animals are destroyed, the protective zone will be populated by them within a few years."

- 20) Sarzhinskii, V. A., Zoological investigations in the plague focus of the Gornii Altai. Pp. 232-235.

This ecological study, the contents of which do not lend themselves to the purposes of a brief review, supplements the findings recorded by Shamova (see p. 461, supra).

- 21) Kraminskii, V. A., History and geography of plague in China. Pp. 254-272.

The author concludes this elaborate study, which cannot be briefly reviewed, by stating that

"Natural plague foci still occupy in China enormous territories and their potential danger remains still great. The cultivation of virgin territories and the construction of railways, especially in the north-west and north-east of the country, can bring about a contact of the people with enzootic foci which, owing to a low population density and to the absence of a registration of the infectious diseases, have remained unknown."

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- 22) Domaradskii, I. V. et al., Decarboxylation of histidine by E. coli and extracts of guinea-pigs kidneys. Pp. 391-396.

The authors found that

"the toxin of the plague bacillus exerts no material influence on the decarboxylation of histidine by whole cells of E. coli and cell-free extracts of guinea-pig kidneys."

- 23) Mirotvortsev, M. M., Experience of the destruction and hunting of marmots in the border area of the Gorno-Altai Autonomous Oblast. Pp. 369-375.

In view of the good results obtained with the Soviet-produced hydrocyanic acid compound cyanplav the author recommended its use for destruction of the marmots if campaigns against these animals were indicated on epidemiological grounds.

Results of trapping the animals could be greatly improved when chloropicrin was used to drive the animals out of their burrows.

- 24) Khamaganov, S. A., Experience of the destruction of rat-hares (Ochotona). Pp. 376-383.

The conclusions reached by the author of this article were that

- (1) For the destruction of Ochotona mongolica and O. daurica under the conditions of the Gormi Altai advantage may be taken of treating the burrows of these animals with the exhaust gases of motor cars. This method is highly effective, comparatively cheap, expedient and without any danger for the domestic animals.
- (2) A fairly effective method for the fight against both species of rat-hares is dusting of all burrow entrances with calcium arsenite. An advantage of this method is that it can be used in any kind of territory and soil; it is comparatively cheap and expedient. However, it is dangerous for the domestic animals and requires precautions on the part of the staff distributing the compound.
- (3) Treatment of the burrows with chloropicrin and cyanplav produces a high mortality among the animals, but these methods are inexpedient and comparatively expensive.
- (4) Results of poison-baiting and also those of dusting only a part (25-50%) of the burrow entrances with calcium arsenite were unsatisfactory.

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- 25) Garbuzov, M. A., Tests with poison baits in the fight against mice and allied rodent species in the Khabarovsk Krai. Pp. 384-390.

Various sorts of grains proved satisfactory as bait bases for the fight against small field rodents in the Khabarovsk Krai, but oats and oat meal gave the best results. Most effective among the poisons was zinc phosphide in a concentration of 4-5% by weight. Distribution of the poison-baits at a ratio of 1.5-2 kg per hectare gave average kills of 79.3%. The best times for poisoning were spring and autumn.

The following valuable and excellently documented papers on fleas and other ectoparasites, because they do lend themselves to brief analyses, can be quoted by title only:

- 26) Zhovtyi, I. F., Contribution to the history of the study on fleas in Siberia and the Far East. (5 pages of references.) Pp. 309-330.
- 27) Emel'ianova, N. D. et al., Materials to the study of the rodent ectoparasites of Tuva. Pp. 331-351.
- 28) Letova, G. I., The ectoparasites of the mice and allied rodent species of Tuva. Report I. The ectoparasites of the water-rats. (Arvicola terrestris L.) Pp. 352-359.
- 29) Emel'ianova, N. D. and Letova, G. I., Description of Amphipsylla germani sp. nova (Suctoria). Pp. 360-362.
- 30) Zarubina, V. N., Materials to the biology and ecology of the lice of the Dauria suslik. Pp. 363-368.

Ecological studies (quoted by title):

- 31) Nekipelov, N. V., Observations on the structure of the groupings of the mammals in the principal landscapes of the Asiatic part of the USSR and of Mongolia. (Numerous references.) Pp. 169-204.
- 32) Ol'kova, N. V., Some ecological and physiological peculiarities of the long-tailed suslik. Pp. 205-214.
- 33) Peshkov, B. I., Observations on the biotypes and on the feeding of the water-rats in the Lena Basin. Pp. 215-219.

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- 34) Bibikov, D. I. et al., Experimental observations on the hibernation of the grey marmots. Pp. 223-231.
- 35) Ochirov, I. D. and Bondarchuk, A. S., The rodents of the settlements of the Vitimov-Olekminsk mountain region. Pp. 243-247.
- 36) Deviatkina, M. S., Location and frequency of the mammals in the environment of the Tikhangou Bay. Pp. 248-253.
- 37) Lipaev, V. M., New data on the distribution of the rodents in North-East Mongolia. Pp. 273-280.
- 38) Letov, G. S. et al., Materials on the distribution and ecology of the gerbils in Tuva and the adjacent parts of Mongolia. Pp. 281-285.
- 39) Garbuzov, M. A. and Lipaev, V. M., Materials on the rodents of Kamchatka. Pp. 286-295.
- 40) Shkilev, V. V., Observations on the fertility of the Dauria hamsters in the Primorsk Krai (Far East). Pp. 296-300.
- 41) Sarzhinskii, V. A., Mammals and birds of the basin of the Chikoia River. Pp. 301-303.
- 42) Anikeev, I. K., Remarks on the rodents of the Sovetsko-Gavan Raion of the Khabarovsk Krai. Pp. 304-308.

(Since the Soviet authors quite often refer to the various species of rodents and other animals only by their common names, it seems well to insert the following list culled from the above mentioned paper by Lipaev:

<u>Common Name</u>	<u>Latin Name</u>
Tarabagan	Marmota sibirica Radde, 1862
Suslik dlinnokhvestyi	Citellus undulatus Pallas, 1778
Suslik daurskii	Citellus dauricus Brandti, 1843
Pishchukha daurskaia	Ochotona daurica Pallas, 1776
Pishchukha severnaia	Ochotona hyperborea Pallas, 1811
Peschanka mongolskaia	Pallasiomys unguiculatus Milne-Edwards, 1867

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<u>Common Name</u>	<u>Latin Name</u>
Polevka Brandta	<i>Microtus brandti</i> Radde, 1861
Polevka stadnaia (often called <i>P. uzkocherepnaia</i>)	<i>Microtus gregalis</i> Pallas, 1778
Gornaia (serebristaia) polevka	<i>Alticola argentatus</i> Severtzov, 1879
Vostochnaia polevka	<i>Microtus fortis</i> Büchner, 1889
Obyknovennaia polevka	<i>Microtus arvalis</i> Pallas, 1778
Krasno-seraia polevka	<i>Clethrionomys rufocanus</i> Sundevall, 1846
Aziatskaia lesnaia mysh'	<i>Apodemus speciosus</i> Temminck, 1847
Daurskii khomiachok	<i>Cricetulus barabensis</i> Pallas, 1770
Khomiachok dzhungarskii	<i>Phodopus sungorus</i> Pallas, 1770
Zaiats tolai	<i>Lepus tolai</i> Pallas, 1778
Zaiats-beliak	<i>Lepus timidus</i> Linnaeus, 1758
TSokor zabaikalskii ili daurskii	<i>Myospalax aspalax</i> Pallas, 1778.)

- 43) Kir'ianov, G. I., Influence of the mink on the tularemia foci of the Altai. Pp. 236-242.

The American mink (*Lutreola vison*), imported since 1937 in the interests of the fur industry into the Altai Krai, was apt to play an important role in the epidemiology of tularemia in that area because, while practically resistant to this infection, it persistently attacked the water-rats for the sake of its food. It is not surprising, therefore, that, as stated by the author of this noteworthy article,

"With the appearance of the mink in the krai the epizootological and epidemiological tularemia situation...underwent a marked change. Since about 1954, when the minks had already

become widespread, the tularemia foci became less active. The frequency of the water-rats became markedly decreased. The output of the skins of these animals in 1959 was five times less than in 1953. The incidence of human tularemia in the krai was 20 times less in 1959 than in 1950. Moreover, during the last years the character of the epidemiological manifestations of tularemia underwent a marked change. Whereas before the settlement of the mink the people contracted the infection from sources of water supply situated away from their settlements, during the last years an increasing number of infections was contracted from sources of water supply near the villages and in these, where the minks were absent and the multiplication of the water-rats was not hampered."

On account of these observations the author postulated that, though the decreased incidence of tularemia in the Altai Krai was mainly due to the vaccination campaigns, the minks played a definite role in lowering the frequency of human attacks of this disease.

- 44) Kolesnik, V. S. and Pinigin, A. F., Characterization of the pathogenic properties of the organisms causing brucellosis in reindeers. Pp. 159-168.

Reviewing their findings, the authors stated that

"the changes found in guinea-pigs infected with cultures of the 'reindeer' brucellosis strains resembled closely those met with in animals infected with cultures of the cattle type, inasmuch as they were almost exclusively of a granulomatous character; still, the association of granulomatosis with manifestations of primary and secondary necrosis in the foci to some extent classifies the changes with those in animals infected with cultures of the ovine type. This is in accord with the fact that the 'reindeer' strains show cultural and biochemical properties not quite corresponding to those possessed by either the bovis or the melitensis type."

These findings furnished some reason for the creation of a separate type of "reindeer" brucella strains. However, in the opinion of the authors thus far not enough evidence was available to justify such a classification.

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858. Noteworthy articles in the pamphlet Doklady Irkutskogo Protivochumnogo Instituta Vypusk 6 (1963) - Materialy nauchnoi konferentsii posviashchennoi 50-letiiu Chitinskoi Protivochumnoi Stantsii (Reports of the Irkutsk Anti-Plague Institute: Materials of the SC on the Occasion of the 50th Year of the Chita Anti-Plague Station).

- 1) Pletnikova, G. P., A contribution to the history of the Transbaikalian Anti-Plague Organization. Pp. 5-10.
- 2) Kazimirov, V. V., I. S. Dudchenko - organizer and first director of the Chita Anti-Plague Station. Pp. 11-14.

These two historical articles can be quoted by title only.

- 3) Domaradskii, I. V. et al., The present state of the plague foci in Siberia. Pp. 15-20.

While the Transbaikalian plague focus has been known for a long time, it was only within recent years that an enzootic area has been detected in the southeast of the Gorni Altai.

After a long period of quiescence in 1960, 1961 and particularly in 1963 manifestations of plague were observed in the Transbaikalian focus. The plague cultures then obtained from tarabagans, Dauria susliks, Brandt's mice and Dauria hamsters showed a markedly lowered virulence. They were all obtained in a special locality (spetsuchastok) where, in order to assess the situation in the focus, for some years no eradication work was done and consequently the frequency of the tarabagans had increased. The number of inhabited tarabagan burrows in the uchastok equalled 1-1.5 per hectare as against 0.5 in the other parts of the focus.

From 1946 (when the last plague cultures had been isolated) to 1960 bacteriological examinations were made with negative results in 293,300 animals (including 132,500 tarabagans and 39,700 Daurian susliks) and in one million 300 thousand ectoparasites. Large-scale examinations of rodents and fleas made outside the spetsuchastok in 1961 and 1962 likewise gave negative results. However, in 1963 weakly virulent plague cultures were isolated in a locality on the eastern shore of the Zun-Torei Lake from trapped Brandt's mice, a carcass of the same species, a Daurian suslik and from fleas of the species Frontopsylla luculenta collected at the entrance to burrows of Brandt's mice.

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Since the population density of the tarabagans in Transbaikalia in general was low, eradication measures against these animals were implemented in 1961 only in the spetsuchastok, where poison baits were distributed from motorcars in an area of 59,100 hectares. As a result the number of inhabited burrows was reduced to about one per 3 hectares. In 1962 the tarabagans were destroyed only by hunting. Consideration is also given to an improvement of the methods of destroying the other potentially dangerous rodents and to possibilities for disinsectization. Evaluating the present situation the authors stated that

"As a result of the destruction of the tarabagans at present a high degree of safety for the local population has been reached. Nevertheless continued efforts are made to devise methods for the detection of weakly virulent plague strains under natural conditions. The aims of these investigations are studies of the conditions under which plague continues to persist in Transbaikalia as well as of the mechanism of the appearance of the weakly virulent strains and of their epidemiological importance."

During recent years plague has been active in the raions of the south-eastern part of the Gornii Altai bordering on Mongolia, where in 1961 cultures of P. pestis were isolated from a steppe polecat, long-tailed susliks and Ochotona mongolica as well as from fleas collected from the latter and the steppe polecat. Examinations of 429 tarabagans gave negative results. In 1962 plague cultures were isolated in this locality from ochotona fleas and from a long-tailed suslik.

Since the population density of the tarabagans in the affected locality was high, the trapping of these animals was intensified. For this purpose chloropicrin disks were thrown into the burrows so as to force the marmots to come to the surface and to kill those which stayed behind. In this manner 21,220 hectares were treated in 1961, and an area of over 30,000 ha along the Mongolian border in 1962. The population density of the marmots in the protective belt thus created was lowered from 1.0-1.5 inhabited burrows per ha to 0.2-0.4. The authors warned, however, that

"The lowering of the frequency of the marmots along the frontier does not fully exclude an invasion of plague into our territory, since, as has been observed in 1961 and 1962, the infection may spread among other rodents. A

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complete eradication of the small rodents on the border cannot be achieved at present. Therefore, the frontier territory of the Soviet Altai must be kept under constant observation so that in the case of emergencies measures could be taken to prevent attacks of the disease in man."

The steppe raions of the Tuva Autonomous Republic border immediately on the plague-affected areas of Mongolia. The low population density of the tarabagans in the republic renders their infection unlikely. However, owing to the recent cultivation of virgin territories the numbers of the Mongolian gerbils became high (100-124 animals per ha). Since these rodents are apt to suffer from plague, their high frequency creates a potentially dangerous situation. For this reason and also because they cause much damage to the crops, the destruction of the Mongolian gerbils is indicated. As long as plague is absent, this work ought to be undertaken by the agricultural organizations.

- 4) Nekipelov, N. V., Prospects for a further sanitation of the Transbaikalian plague focus. Pp. 21-28.

Dealing in the introduction to his article briefly with the history of plague in Transbaikalia, the author mentioned that systematic campaigns against the tarabagans were started in 1939 and continued for 17 years. As a result plague epizootics ceased to occur since 1946 and by 1956 the number of inhabited marmot burrows in the formerly plague-affected raions averaged 1 per two hectares or even less.

In order to ascertain whether plague had really disappeared, in 1956 operations against the tarabagans were discontinued in an area of 62,000 hectares. As a result after five years the number of inhabited burrows rose to 1-1.5 per ha and at the same time (1960) weakly virulent plague strains could be isolated from rodents and fleas. Analogous findings were made in 1961, when the efforts to destroy the tarabagans were renewed.

Intensive investigations made from 1961 throughout the focus led in 1963 to the detection of plague in a locality on the eastern shore of the Zun-Torei Lake (see Domaradskii et al., supra). As far as established thus far, the strains isolated there were likewise weakly virulent.

The author stressed that the animals from which the weakly virulent cultures had been isolated were caught alive

and suffered apparently from a mitigated form of plague. Yet the simultaneous isolation of P. pestis from fleas proved the existence of a bacteremia in the diseased animals.

Emphasizing also that an examination of more than 324,000 rodents during the period from 1946 to 1963 had never led to the isolation of virulent plague strains the author postulated that the absence of such strains and of acute epizootics "was explained by the marked decrease in the incidence of the tarabagans under the influence of the eradication work."

Nekipelov stressed the necessity of studies to ascertain whether an increased frequency of the rodents was apt to lead to a reversion of the weakly virulent strains into the virulent state and recommended that once more some test areas should be instituted where the multiplication of the tarabagans was not hindered.

(Since only the most noteworthy statements of the author could be considered in this review, a study of his original article or a translation thereof is recommended.)

List of recent references quoted by Nekipelov:

1. Zhovtyi, I. F., Sketch of the ecology of the fleas of the steppe and commensal rodents in the plague-affected raions of Siberia and the Far East. Manuscript (1963).
2. Klets, E. I. et al., The problem of the susceptibility of the weakly virulent plague strains isolated in Transbaikalia. Doklady Irkutsk. gos. n.-i. protivochumn. inst. Vypusk 2 (1961).
3. Kudinova, Z. S. et al., An instance of the isolation of weakly virulent plague bacilli in the Transbaikalian epizootic focus. Izvest. Irkutsk. gos. n.-i. protivochumn. inst. 24 (1962).
4. Nekipelov, N. V. et al., Epizootological investigations in Gulzheng. Ibidem.
5. Lipaev, V. M., New data on the distribution of rodents in North-east Mongolia. Ibidem 25 (1963).
6. Tarasov, N. S. et al., Intensity of the migration of tarabagans from Mongolia into Transbaikalia. Ibidem.
7. Timofeeva, L. A. and Aparin, G. P., Characterization of the plague strains isolated in Transbaikalia in 1960 and 1961. Doklady Irkutsk. protivochumn. inst. Vypusk 4 (1962).

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- 5) Khurstselevskii, V. P., Contributions to the problem of the biocenotic factors of the plague enzootics in the foci of the marmot and gerbil types. Pp. 29-32.

This brief ecological study does not lend itself to the purposes of a review.

- 6) Timofeeva, L. A. and Aparin, G. P., Report on microbiological investigations in the Transbaikalian plague focus. Pp. 33-36.

The authors of this note briefly enumerate the investigations made in the Transbaikalian plague focus from the time of its detection to the present. No reference list is added.

- 7) Solodkaia, A. D. et al., Observations on the seasonal susceptibility of the tarabagans to plague. Pp. 37-39.

Confirming the results of previous investigations, the authors found that the susceptibility of the tarabagans to plague infection showed profound seasonal variations: the animals were highly susceptible in spring and summer to become markedly more resistant in autumn and maximally resistant at the time of their hibernation. One animal infected in the hibernating state succumbed to generalized plague 125 days later after it has awaked in spring.

- 8) Timofeeva, L. A. and Aparin, G. P., Study of the cells composition of plague cultures. Report I. Detection of avirulent cells in virulent and vaccinal plague strains. Pp. 40-43.

In order to detect avirulent bacilli in plague growths, the authors used a modification of the magnesium-oxalate medium of Higuchi and Smith (J. Bact. 81 [1961]: 605), prepared with Hottinger's agar in place of meat-peptone agar. Plain blood agar plates were used as controls. After they had been implanted with inocula of 10^2 or 10^5 organisms, the plates were incubated for 72 hours at 37° and colony counts were made.

For their tests the authors used (a) 8 virulent plague strains; (b) the vaccinal strains EV, 1 and 17; (c) two weakly virulent and immunogenic strains recently (1960-61) isolated in Transbaikalia and (d) 4 weakly virulent but not immunogenic strains obtained there at the same time.

As shown in a table, with a single exception the virulent strains as well as the EV and the two recently isolated

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immunogenic strains, implanted in 10^2 amounts, gave no growth on the Higuchi-Smith medium. If inocula of 10^5 organisms were used, growths of avirulent organisms resulted. The weakly virulent but not immunogenic Transbaikalian strains grew equally well on the selective and on plain blood-agar plates.

The authors postulated that the method of differential cultivation recommended by them might be useful for the selection of vaccinal plague strains and for the differentiation of virulent and weakly virulent non-immunogenic plague strains.

- 9) Khrustselevskaia, N. M., Observations on the cell composition of the plague strain 1378 after its passage through fleas and pregnant guinea-pigs. Pp. 44-46.

As reported by Bibikova et al. (1961) and by the present author and her associates (1963), it had been possible to attenuate the virulence of the plague strain 1378 through its maintenance in fleas (Ctenophthalmus dolichus and Xenopsylla gerbilli minax). In the case of the variant 610-A of this strain the virulence could be restored by passing it through pregnant guinea-pigs or X. cheopis fleas. Two instances were also observed in which this flea transmitted the avirulent organisms to white mice.

In the present paper the author reported the results of further observations on the variant 610-A and two other variants obtained respectively through passage through pregnant guinea-pigs (strain 610-B) and maintenance in cheopis fleas (strain 610-V).

Virulence tests in groups of 3 white mice each with 100 million doses of 118 single colonies of the subculture 610-A and with 50 single colonies each of the variants 610-B and 610-V showed

"that the population of the subculture 610-A consisted mainly of avirulent cells, only 13.5% of the colonies tested causing partial death of the white mice (one or two out of the 3 tested). In the case of the subculture 610-B the number of virulent organisms reached 60%; suspensions of 4 out of the 50 colonies tested killed all infected mice. The subculture 610-V showed a fairly uniform composition, consisting mainly of virulent organisms and accordingly 100% of the mice succumbed."

The author postulated that P. pestis could lose its virulence under unfavorable environmental conditions like a long

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survival in resistant hosts or a high temperature and that the resulting accumulation of avirulent organisms taking place under these circumstances represented an adaptation of the strains to unfavorable conditions, rendering them fit for survival. If brought once more under favorable conditions through passage through pregnant guinea-pigs or cheopis fleas, once more a multiplication of the virulent organisms took place in these strains.

Tests made with the three variants in glycerol-containing media gave the following result:

<u>Sub-culture</u>	<u>Colonies Tested</u>	<u>Glycerol</u> <u>On 2nd Day</u>	<u>Acidified</u> <u>Within 5 Days</u>	<u>Within 8 Days</u>
610-A	50	1	3	49
610-B	50	26	50	-
610-V	50	50	-	-

Out of the 50 colonies of the subculture 610-A 28% acidified rhamnose after 6-40 days. The corresponding figures were 26% in the case of the variant 610-B and only 8% in the case of the subculture 610-V.

On account of these findings the author postulated the existence of a correlation between the acidification of rhamnose and glycerol and the virulence of the cultures tested. She concluded her note by stating that

"as shown by our data (1961, 1963), a plague strain losing under certain conditions its virulence, but preserving in its population some sufficiently virulent organisms, can regain its virulence under changed environmental conditions.

The presence of a bacteremia and the possibility of an infection of fleas on such rodents can apparently ensure a further circulation of the causative organisms under natural conditions and such strains may be of definite importance in the epizootological process."

- 10) Kasatskii, N. F., The cell composition of the plague bacillus. Pp. 47-48.

This brief note, because unsuitable for a condensation, must be studied in the original or in a translation. The 11 strains investigated by the author had been isolated from various species of voles during plague epizootics in Mongolia and the Armenian SSR. They were little virulent for guinea-pigs, white rats, small susliks and midday gerbils, but highly virulent for white mice and common voles (Microtus arvalis). The strains from Armenia rapidly acidified arabinose and reduced nitrates to nitrites, whereas those from Mongolia were inactive in these respects.

The author added that

"An examination of 59 museum strains of P. pestis on the differential medium of Higuchi and Smith in the modification of M. I. Levi and N. F. Kasatkina showed that the stability of the cells composition of the strains depended upon their belonging to one or the other of the races and the length of their preservation on artificial media. This differential agar medium permits separation of the avirulent mutants from the general mass of the microbial population."

- 11) Kozakevich, V. P. et al., The susceptibility of small susliks to plague and the level of ascorbic acid excretion in their urine. Pp. 49-50.

In the introduction to this note the authors pointed out that

(a) according to Kratinov et al. (1947) and some subsequent workers the ascorbic acid content of the organs, particularly the suprarenals and the kidneys of some rodents in subject to seasonal variations and that according to Kozakevich and his associates (1963) the susceptibility of susliks to plague is correlated to some extent with the ascorbic acid saturation of their food.

Further studies, aiming at the investigation of the ascorbic acid balance in the test animals were made by the present authors in 1961 on 170 susliks caught in the Kalmyk ASSR, which were subcutaneously infected with a virulent plague culture.

It was found that in spring the level of the urinary excretion of ascorbic acid before infection was higher ($5.9 \pm$

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0.8 mg%) in the animals succumbing to generalized plague after 4-10 days than in the animals which survived and were sacrificed 17 days after the infection, the urinary excretion level in this group equalling 3.6 ± 0.5 mg%.

These differences were less marked in late summer before the animals started to hibernate. Still, the authors stated,

"during this period also...succumbed to plague those animals in which the initial level of the urinary excretion of vitamin C was almost twice higher (11.6 ± 2.3 mg%) than in the recovering animals killed on the 19th day (6.7 ± 0.7 mg%)."

Investigations by A. IA. Mutsiniek (1955) had shown that the intensity of phagocytosis became lowered in scorbutic guinea-pigs. One could expect, therefore, an increased phagocytosis in the animals succumbing to the infection.

"Apparently," the authors continued, "in this case as in the tests on midday gerbils by Kalabukhov and his co-workers (1963) a rapid and massive lysis of the plague bacilli takes place, which leads to an earlier death of the animals due to plague intoxication than is the case in the animals with a lower ascorbic acid content (in our experiments the recovered and sacrificed animals), in which the fight against the infection takes place less actively."

- 12) Iaromiuk, G. A. et al., Production and properties of an auxotrophic mutant of P. pestis. Pp. 51-52

Describing the method for obtaining auxotrophic mutants of P. pestis, the authors stated that they used the synthetic medium of Domaradskii and Ivanov (1955) containing phenylalanine, methionine, cystine, serine, threonine and thyrosine. A washed 2-day agar culture of the EV strain was used for the inoculation of this fluid "minimal" medium and the culture was kept for 4 hours at 28°C when streptomycin was added so as to obtain a concentration of 200 microgram per ml. The cultures were again incubated at 28° for 2 hours and then plated

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on Hottinger's agar. After two days each colony which had grown was tested for auxotrophy by cultivation in the minimal medium as well as on Hottinger's agar. As a result a mutant was obtained which even after repeated passages on Hottinger's agar was unable to grow in the minimal medium. The mutant grew on suitable media like the parent strain and did not differ from the latter in regard to its fermentative properties and sensitivity to plague and pseudotuberculosis phages as well as in regard to its sensitivity to streptomycin and agglutinability with plague immune serum.

A growth of the mutant in the synthetic medium could be rendered possible by the addition of glutamic acid or proline, but not by that of glutamine or ornithine.

- 13) Konstantinova, N. S. and Goncharova, N. S., A contribution to the problem of maintaining the virulence of P. pestis. P. 53.

Examinations of the virulence of a plague strain (No. 708) showed that out of 106 subcultures 12 were highly virulent, 73 moderately virulent and 21 weakly virulent. Through single colony subcultivations from the most virulent growths one could obtain a subculture, the DCL of which for guinea-pigs and white mice was one organism.

- 14) Gordienko, O. IA. and Kirpichnikova, N. A., Some data regarding the immunogenicity of the weakly virulent P. pestis strains isolated in the Transbaikalian plague focus. Pp. 54-57.

Out of the six plague strains isolated in 1960-1961 in the Transbaikalian plague focus from various sources (tarabagan, suslik, Brandt's mice, Daurian hamster and fleas) 5 (Nos. 803, 798, 263) did not acidify glycerol, while 3 (Nos. 420, 805, 580) were glycerol-positive. While not acidifying rhamnose, all the strains showed nitrifying and denitrifying properties and were avirulent for guinea-pigs and but weakly virulent for white mice (infecting dose 300-500 million organisms).

Making tests in guinea-pigs, the authors found that a subcutaneous administration of either of the strains in doses of 50 million and 15 billion organisms was innocuous for the animals. The morbid changes caused by the injections were

"slight and as a rule of a productive character (limited abscesses and inflammatory infiltrates at the site of injection; moderate enlargement of the regional and para-aortic lymph nodes; rarely sporadic whitish nodules in the spleen

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and liver). The organisms could be cultivated for periods of up to 10 days from the site of injection, the lymph nodes and occasionally from the spleen."

Single inoculations of the strains 798, 263, 803 and 420 in doses of 5,000 organisms protected guinea-pigs against challenge with 200 DCL of a highly virulent plague strain. Administrations of two of the strains (Nos. 798 and 263) in doses of 500 organisms gave identical results, while only 40-80% of the guinea-pigs immunized with the same doses of the other two strains withstood challenge.

On account of these findings further investigations of the immunogenic properties of the strains 798 and 263 appeared to be indicated.

- 15) Domaradskii, I. V. et al., Some experimental data on the capability of pseudotuberculosis bacilli to produce an immunity against plague by way of combined vaccinations. Pp. 58-62.

Commenting upon the results of their investigations, for the details of which the original or a translation must be consulted, the authors stated

"that the combined vaccination of guinea-pigs against plague with the vaccinal strain EV and the pseudotuberculosis strains 201 and 496,* performed either through simultaneous administration of mixtures of the strains or through their successive administration, renders the animals resistant against infection with large doses of a virulent plague culture (200- 3,000 DCL). Still,...the resistance of the combinedly vaccinated animals is not higher than that of the animals vaccinated only with the pseudotuberculosis strains - a fact apparently explained by the high immunogenicity of the latter.

This is confirmed by the fact that after combined vaccination with a mixture of the EV

* The strain 496, which had been found highly immunogenic by Romasheva and Bratkova (1961), belonged to Thal's serological type I, the strain 201 to type IV. The latter strain was used in the first series of tests, strain 496 in the second series.

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strain and a killed culture of pseudotuberculosis bacilli the resistance of the guinea-pigs proved to be lower, not exceeding that due to the administration of the EV strain alone.

If one compares the resistance of the various groups of the guinea-pigs to plague, one cannot help to note a somewhat higher efficacy of vaccination with live pseudotuberculosis bacilli. Thus out of 20 animals vaccinated with the EV strain, 6 succumbed to the challenge, whereas in the groups vaccinated with pseudotuberculosis bacilli either no deaths occurred (first series of observations) or only one out of 20 guinea-pigs succumbed."

In the conclusion to their article the authors expressed the opinion that since the pseudotuberculosis strain 496 in particular produced a fully satisfactory immunity against plague, it ought to be used for the manufacture of a combined vaccine. Immunogenic fractions of pseudotuberculosis strains might be useful for the preparation of a chemical vaccine against plague. Such strains, used by themselves or in combination with plague strains might likewise prove effective for the manufacture of therapeutic anti-plague sera.

- 16) Khveshchenko, E. N., Course of the infectious process in experimentally plague-infected grey and black rats. Pp. 63-64.

Working in the Primorsk Krai, the author infected 48 black rats (R. rattus) and 44 grey rats (R. norvegicus) with sublethal doses of a virulent plague strain and then from the first to the 30th day after infection sacrificed at various intervals groups of three animals for the purpose of a systematic bacteriological examination. The main conclusion reached was that, in contrast to the black rats, plague in the grey rats appears more frequently in a localized form without a marked bacteremia.

- 17) Korobkova, G. G., Some peculiarities of the development of anti-plague immunity. Pp. 94-95.

This brief note, dealing with observations in laboratory animals immunized with the EV vaccine, must be studied in the original or in a translation.

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- 18) Martinevskii, I. L., Observations on the nutritional requirements and pesticin production of the plague strains isolated in the Gorni Altai and Transbaikalia. Pp. 152-153.

Investigated by the author were (a) six plague strains isolated in 1961 in the Gorni Altai; (b) four such strains obtained in 1960 in the Gulzhenga Raion of Transbaikalia and (c) for the sake of comparison strains from Central Asia, the Transcaucasus, the Volga-Ural focus and India. It was found that

"the strains isolated in the Gorni Altai, in contrast to those isolated in the other natural foci, are dependent on leucine and arginine (or on their predecessors ornithine or citruline) and grow without methionine. Consequently indispensable for their growth is...the presence of five amino-acids: arginine, leucine, cysteine, phenylalanine and threonine."

The Transbaikalian strains like the Central-Asiatic desert strains grew in the presence of these five amino-acids and of methionine.

The Gorni Altai strains produced pesticins little active against pseudotuberculosis bacilli. The Transbaikalian strains differed from each other in the character of their pesticin production.

In conclusion of his unfortunately brief note the author suggested that possibly the Gorni Altai and the recently isolated Transbaikalian strains should be considered as separate varieties of P. pestis.

- 19) Kraminskii, V. A., Quarantinable diseases in 1962 and the possibility of their importation through the eastern frontiers of the USSR. Pp. 130-138.

This article, considering the incidence of the quarantinable and other infectious diseases in the world, can be quoted by title only.

- 20) Mironov, N. P. and Klimchenko, I. Z., The method of visual evaluation of the frequency of the small susliks in the practice of large-scale epizootological observations. Pp. 65-67.

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Working in the plague focus north-west of the Caspian Sea, the authors found that a careful visual inspection of the areas to be surveyed, including an estimation of the density of the suslik burrows and of the number of animals seen on the surface, sufficed to get an adequate idea of the population density of these rodents.

- 21) Klimova, Z. I. et al., Observations on the inter-species contacts of the rodents in some raions of Mongolia. Pp. 68-69.

Quoted by title.

- 22) Tarasov, N. S., Changes of the frequency of the marmots in the south-east of Transbaikalia. Pp. 70-72.

Dealing with the present situation, the author stated that, owing to the cultivation of virgin territories and to unlimited hunting, in most parts of Transbaikalia the population density of the tarabagans has become much reduced. A survey of an area of about one million hectares in 1962 showed that in about two thirds of this territory the density of inhabited tarabagan burrows did not exceed one per 10 hectares and that only in a small area more than one burrow was found per 5 hectares. An increase in the frequency of the tarabagans noted at present in the areas bordering on Mongolia is partly due to an immigration of marmots across the frontier. The author considers a recrudescence of the tarabagan populations in the other parts of Transbaikalia as unlikely.

- 23) Pavlov, A. N., Observations on the frequency of birds of prey in Eastern Mongolia. Pp. 92-93.

The population density of the birds of prey in the various regions of Eastern Mongolia was found to vary from 3.8 to 33.1 per 25 square kilometers. It was highest in localities densely populated by rodents, particularly Brandt's voles.

As the author pointed out with great reason, observations on the accumulation of birds of prey (particularly of kites which greedily feed on the tarabagan carcasses) are of value for the detection of plague epizootics.

- 24) Guzhevnikov, I. A., The present state of the (rodent) eradication work in the south-east of Transbaikalia. Pp. 73-75.

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Initial campaigns, undertaken in a somewhat un-systematic manner against all rodents in the Transbaikalian plague focus from 1940 to 1945 were followed since 1946 by such directed against the tarabagans alone. Recently, however, attention is paid also to the destruction of the Dauria sisels, Brandt's voles and the Mongolian gerbils.

Most suitable for the destruction of the tarabagans proved the following two methods:

- (1) As proposed by Tereshchenko in 1948, cotton-covered clay disks of a diameter of 5.5 cm moistened with chloropicrin were introduced into the burrows of these rodents at a ratio of 100 g of the fumigant per burrow entrance.
- (2) The second method consisted of gassing with cyanplav in a dosage of 50 g per burrow entrance (Lipaev, 1948).

Both these methods proved at least 85% effective. One pedestrian worker could deal with an area of 5-16 ha per day.

As proposed by Nekipelov, since 1954 motocars were used for the transport of the workers. In this way a territory of up to 340 hectares could be covered per day by one operator.

V. T. and L. P. Shvedko established in 1950-1951 that for the fight against the Daurian susliks advantage could be taken of oat baits containing 2% of zinc phosphide. Leont'ev, applying this method during the period from 1961 to 1963 found it more than 65% effective. Apparently he used oat baits with a higher concentration of zinc phosphide (15% per weight of the bait base).

After many attempts to destroy Brandt's voles had given unsatisfactory results, Leont'ev and Khamaganov (1956-1959) found that at least 90% of these animals could be destroyed with the aid of oatmeal baits containing 10% of zinc phosphide. If a sowing machine was used for distribution, a territory of 125 ha could be dealt with per working day.

Leont'ev and Khamaganov established the efficacy of oatmeal containing 2-2.5% zinc phosphide for the fight against the Mongolian gerbils. Manual distribution of this poison mixture led to a destruction of 93% or more of these rodents.

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Further improvements of the methods of rodent destruction in Transbaikalia, including the use of airplanes or helicopters for bait distribution, are envisaged.

- 25) Guzhevnikov, I. A. and Tarasov, N. S., Use of the exhaust gas of motorcars for the fight against Brandt's voles. Pp. 76-78.

As discussed in this note, gassing of the burrows of Brandt's voles with the exhaust gases of a motorcar proved highly efficacious.

- 26) Leont'ev, A. N., Use of grain poison baits for the fight against the Daurian susliks. Pp. 79-80.

Using since 1961 grain baits containing 15% of zinc phosphide by weight of the base, the author recorded the following observations:

- a) In 4 separate test areas, measuring respectively 100, 100, 35 and 25 ha, 15 g of the poison baits were used per burrow. Within 6 days 71% of the adult susliks and 43% of the young animals were killed.

If distribution was made with the aid of a sowing machine at the ratio of 400-700 g per ha, within 4 days in one area 100% of the adult animals and 43% of the young were killed as against 83% and 57% in a second test area.

- b) In April 1962 a campaign was conducted in an area of 5,000 ha with the aid of an airplane. In one sector of 1,250 ha, where 1.1 kg of bait had been used per ha, within 10 days 25% of the susliks were killed. Results in the other parts of the area, where lesser doses had been used, were quite unsatisfactory.
- c) In May 1962 three areas of 50 ha each were baited with the aid of a sowing machine. The amounts of bait used and the percentages of efficacy were respectively 0.96 kg and 50%; 1.28 kg and 100%; 1.76 kg and 66.5%.
- d) In May 1963 poison baits were distributed in an area of 100 ha at a ratio of 1.92 kg per ha. Within 10 days 67% of the susliks were found to be killed.

- 27) Khamaganov, S. A., Experience of the use of long-keeping grain baits with zinc phosphide in the fight against domestic rodents. Pp. 81-84.

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The author summarized that

"laboratory investigations and field tests permit the assumption that poison baits from oatmeal with 4% zinc phosphide and 3% vegetable oil, when kept in storage in a dry condition, do not lose their attractiveness and toxicity and ensure a sufficient efficacy in the fight with grey rats and domestic mice during 3 years (limit of observation). Quite probably a similar result would be obtainable after a more prolonged storage of the dry baits in hermetically sealed containers."

- 28) Fomushkin, V. M., A new kind of bait to replace grain in tests to assess the population density of rodents. Pp.85-87.

The author found that penopolyurethane, a plastic spongy material, could be used in place of grain baits for the assessment of the population density of small mammals.

- 29) Zhovtyi, I. F., Some debatable problems of the ecology of the rodent fleas in relation to their epidemiological importance. Pp. 96-104.

This polemical article, to which a list of 13 mostly recent references is appended, does not lend itself to the purpose of a brief review.

- 30) Maksimova, E. D., Observations on the influence of the destruction of the marmots on the frequency of their ectoparasites. Pp. 105-106.

Making observations in the area of 59,000 hectares, where in 1960-1961 campaigns against the tarabagans had been conducted, the author found that

"the treatment of the burrows with cyanplav, while causing the death of the tarabagans, exerts little influence on the entomological fauna of the nests. In the territory freed from the tarabagans during the two years following the campaign fleas of various species, including Oropsylla silantiewi persisted in the nests and at the burrow entrances. In connection with the absence of

its specific host, the frequency of O. silantiewi in the treated territory decreased and evidently this decrease will continue."

- 31) Shvedko, L. P. and Dubovik, V. I., The fleas of the synanthropic rodents in south-east Transbaikalia. Pp. 107-108.

Furnishing data only for the most frequent house mice (Mus musculus tomensis), the authors stated that they found on 1,817 animals of this species, trapped from 1958 to 1962 in the communities of Chita and Borzia as well as in the Zabaikal'sk station, 1,946 fleas belonging to the following species: Leptopsylla segnis (predominant); Nosopsyllus mokrzeckyi, Neopsylla bidentatiformis and Amphipsylla vinogradovi.

The authors pointed out that the occurrence of N. mokrzeckyi on the house mice of Eastern Siberia had been demonstrated for the first time. N. bidentatiformis and A. vinogradovi were wild rodent fleas, evidently brought into the settlements by immigrating hosts.

- 32) Shvedko, L. P., Observations on the occurrence of Nosopsyllus mokrzeckyi Wagn. 1916 in Transbaikalia. Pp. 113-114.

This note supplements the statements made by Shvedko and Dubovik (supra).

- 33) Flegontova, A. A. and Malafeeva, L. S., The activity of the flea N. mokrzeckyi Wagn. 1916 as a plague vector. Pp. 154-155.

As stated by the authors, Nosopsyllus mokrzeckyi (in contrast to the internationally accepted nomenclature called Ceratophyllus mokrzeckyi by the Soviet authors) is a specific parasite of M. musculus living in the open spaces of steppes and semi-deserts and is apt to become abundant during the autumn and winter whenever the population density of the mice and allied species of small rodents becomes abnormally high. N. mokrzeckyi has been found naturally plague-infected during epizootics among the rodents in the Volga-Akhtuba floodlands in 1937-1938 and in the lowlands of the Ural River in 1958-1959.

In order to study their hitherto uninvestigated vector capacity, infected fleas of this species were fed by the authors on plague-infected white mice showing an intensive bacteremia. A part of the infected fleas was kept on sand at temperatures

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ranging from 9°C to 25°C and periodically fed on white mice, while the second lot was constantly kept on white mice. The total number of fleas tested amounted to 2,522, of which 1,437 belonged to the second group and 1,085 to the first, but periodically fed group.

The percentage of fleas which became blocked was found to be considerably higher in the fleas constantly kept on white mice (37.9%) than in those fed at intervals of 2-3 days, among which 10.9-18.5% became blocked. The authors maintained in this connection that, since N. mokrzecky was a nest-dwelling flea, the constant presence of white mice and the consequent possibility for frequent blood-meals created conditions favoring the formation of a blockage.

Out of the 186 white mice on which plague-infected fleas had been kept constantly, 137 succumbed to the infection, whereas out of 158 mice exposed to the fleas at intervals, 90 succumbed.

In conclusion of their article the authors stated that

"It is known that at the time of a mass multiplication of the mice and allied rodent species and their seasonal migration into the settlements of the steppe and semi-desert raions fleas of the species N. mokrzecky penetrate into the human habitations. Through special experiments it was established by us that these fleas feed quite willingly on man. Consequently, at the time of epizootics among the mice and allied species in the settlements, bites of these fleas may produce plague infections in man. Consequently rodent destruction and disinsectization are indispensable prophylactic measures in the settlement of raions where epizootics among the mice and allied species are apt to occur."

- 34) Goncharov, A. I., Zoo-geographical characterization and epizootological importance of the fleas of the genus Neopsylla Wagner 1903 in the USSR. Pp. 111-112.

Besides enumerating the 12 species and 6 subspecies of neopsyllae met with in the Soviet Union the author stated that 4 species (N. setosa, N. pleskei orientalis, N. mana and N. meridiana) have been found naturally plague infected.

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N. setosa, an effective plague vector, was also found spontaneously infected with tularemia. Under experimental conditions it proved capable of harboring tularemia bacilli for 4 months and to transmit brucellosis.

N. pleskei and N. bidentatiformis were found naturally infected with salmonellosis and erysipeloid. Experimentally the first mentioned flea was proved capable of transmitting erysipeloid to mice and of harboring the causative organisms of listeriosis for some time. N. bidentatiformis was found able to transmit plague.

- 35) Shiranovich, P. I., Modern pesticides and Pulex irritans. Experiences of campaigns and epidemiological considerations. Pp. 124-125.

As stated in this note, the modern insecticides DDT and hexachlorane have been used against the fleas in the area northwest of the Caspian Sea since 1946, on a specially large-scale in 1948. A survey of more than 1,500 human habitations in 46 settlements of that area made from 1951 to 1960 showed an almost complete absence of fleas, particularly of P. irritans. However, the cat-flea Ctenocephalides felis continued to be present and occasionally abundant, and at times wild rodent fleas, particularly such from susliks and gerbils, were met with in the house. The possibility of an invasion of plague into the houses is therefore not altogether excluded.

The author considers it not only as unjustified but also as harmful to ascribed the absence of fleas in the settlements of some raions of the USSR to the prevailing climatic conditions, because this belief is apt to lead to a neglect of flea surveys and, if necessary, anti-flea campaigns.

Papers on fleas mentioned by title:

- 36) Kir'iakova, A. N., Importance of a study of the flea larvae for the knowledge of the life cycle of the imago. Pp. 109-110.
- 37) Gershkovich, N. L. et al., The fleas of the human habitations in a large town. Pp. 115-118.
- 38) Kozlovskaja, O. L. and Chernykh, P. A., Parasite fauna of the synanthropic rodents in the Priamur'ie. Pp. 119-121.

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- 39) Violovich, N. A., Observations on the bird fleas of Tuva. Pp. 122-123.
- 40) Antsiferov, M. I., Some results of the study of the natural tularemia foci in Eastern Siberia and the Far East. Pp. 139-144.

In this valuable article information concerning the incidence and ecology of tularemia is furnished for the following regions of Eastern Siberia and the Far East:

- (1) Most active among the tularemia foci in Eastern Siberia is the Iakutsk focus, situated in the floodlands of the middle course of the Lena River and its tributaries. There attacks of the disease were recorded every year since 1944 with major outbreaks in 1959 (459 cases), 1960 (1,107 cases) and 1961 (114 cases). 44 cases were recorded in 1962. The total case incidence of tularemia in Iakutia from 1944 to 1962 amounted to 2,409.

The main reservoir of the infection in this area are the water-rats, while the mosquitoes Aedes cinereus and A. flavescens, and also the gnat Titanopteryx maculata act as vectors. Human infections are mainly vector-borne. Since ixodes ticks are practically absent in this focus, it is not clear in what way the infection is carried over from one season to the next.

To deal with the situation, a complex plan has been adopted, envisaging besides vaccination measures against the water-rats and of protection against the diptera. The number of anti-tularemia vaccinations administered from 1960 to 1962 amounted to 315,570.

- (2) In the Krasnoiarsk Krai the first major tularemia outbreak was recorded in 1950, when the Biriliusk Raion (202 cases) and the Pirovsk Raion (11 cases) were involved. Subsequently the presence of tularemia foci in the kraï has been established also in 8 other raions and a total of 325 attacks has been recorded from 1950 up to the present. Here also water-rats form the reservoir of the infection while the mosquito Aedes vexans and the tick Hemaphysalis concinna serve as vectors.
- (3) In the Irkutsk Oblast a vector-borne tularemia outbreak has been recorded in the Nizhne-Udinsk Raion in 1951 and sporadic attacks were observed in the Nizhne-Ilimsk Raion in 1951 and 1959. Surveys made from 1952 to 1962 led to

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the detection of 155 persons with a positive tularin reaction in 8 raions of the oblast including the two mentioned above. These foci are all situated in the basins of the Angara and Enisei rivers. Water-rats are the reservoir of the infection, the presence of which has also been proved in musk-rats and in the tick Dermacentor silvarum.

- (4) In the Gorno-Altai Autonomous Oblast tularemia manifestations have been recorded since 1946 in 6 raions. Up to the present 170 attacks have been noted of which 137 occurred in the Maiminsk Raion. Water-rats are the reservoir of the infection and the human attacks are mainly the result of water-borne infections.

Investigations made since 1958 proved the presence of tularemia, besides in the water-rats and in numerous water samples, also in field mice and in the ticks D. silvarum and H. concinna.

In 1960 a new tularemia focus was detected in the alpine tundra of the oblast, where thus far B. tularense has been isolated from a water shrew (Neomys fodiens), 3 Microtus gregalis and one long-tailed suslik.

- (5) In the Buriat ASSR tularemia is known since 1941. Two active foci have been detected there, situated respectively in the delta region of the Selenga River and in the basin of the Upper Angara.

In the Selenga focus, where water-rats are absent, voles (Microtus oeconomus and M. orientalis) are the reservoirs of the infection, but the musk-rats, which are hunted for the sake of their fur, are apt to become periodically involved in the epizootics with ominous consequences. The tick D. silvarum plays an important role in the maintenance of the infection. The human attacks are due to contact with the musk-rats or are contracted through the use of contaminated sources of water supply. So far only 44 cases in man have been recorded in this focus as against 40 in the Upper Angara focus.

- (6) In the Chita Oblast 3 tularemia attacks were noted in 1955 in the Nerchinsk Raion, where cultures of B. tularense could be isolated from long-tailed susliks and the tick Dermacentor nuttalli. Persons reacting positively to tularin were discovered in three other raions of the oblast.

In 1957 a new tularemia focus was detected in the steppes of South-Eastern Transbaikalia, where positive cultures were obtained from tarabagans and D. nuttalli.

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As the author pointed out, owing to the absence of water-rats the tularemia situation in the Chita Oblast did not appear threatening.

- (7) In the Khabarovsk Krai in 1956 two persons fell ill with tularemia in a suburb of Khabarovsk and in the following year one attack was noted in the Evreiskii Autonomous Oblast. Besides from one of the patients, tularemia cultures were isolated in 1956 from field mice and grey rats. Afterwards tularemia strains were also obtained from field, forest and domestic mice and from the ticks Ixodes persulcatus and H. concinna. It is noteworthy, however, that the number of tularemia cultures isolated from 1958 to 1962 in the Khabarovsk Krai through examinations of thousands of rodents and ticks totalled only 6.

A survey made from 1958-1962 among 10,320 persons living in 10 raions of the krai led to the detection of 41 individuals reacting positively to tularin. Here also the absence of water-rats seems to account for the low activity of the tularemia foci.

- (8) Whether natural tularemia foci exist in the Primorsk Krai, is still undecided. The local Anti-Plague Station, examining during the period from 1958 to 1962 6,980 rodents and 11,700 ixodes ticks, obtained no positive results. 1,185 tests made with the sera of musk-rats and cattle likewise gave a negative result. Allergic tests made on 2,887 persons in 12 raions yielded positive reactions in 66 instances. Since, however, most of the positive reactors were newcomers, further investigations are necessary to confirm the presence of tularemia in the krai.
- (9) Large-scale examinations of rodents and ticks made in the Tuva ASSR from 1958-1962 gave entirely negative results.
- (10) So far hardly any efforts have been made to establish the presence of tularemia in the Amur, Magadan, Sakhalin and Kamchatka oblasts. The detection of tularemia in Alaska calls for adequate surveys in these four oblasts.

- 41) Zonov, G. B. and Tygutov, L. D., Observations on the water-rats in Yakutia during winter. Pp. 88-91.

Quoted by title.

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- 42) Zaikove, F. I., Fauna of the gamasid ticks of the rodents of the Transbaikalian plague focus. Pp. 126-129.

Quoted by title.

- 43) Kraminskii, V. A. et al., Some results of the study of tick-borne encephalitis by the anti-plague institutes of Siberia and the Far East. Pp. 145-151.

Concluding their article, the details of which must be studied in the original or in a translation, the authors maintained that it would be wrong to incriminate the ixodes ticks alone in the preservation and transmission of the tick-borne encephalitis virus. For

"In any case the circulation of the virus in winter takes place without their participation. The vertebrates are donors and recipients of the virus of tick-borne encephalitis, functioning as intermediary hosts of the virus which accumulates and possibly becomes activated in the body of these animals. Under the conditions of Eastern Siberia and the Far East a particularly important role is played by the birds, which populate the foci of the disease in large and stable numbers, are to a considerable degree affected by the virus and transport the ticks and the virus over considerable distances."

859. Noteworthy articles in the book: Synnoi tif. Infektsii s prirodnoi ochagovost'iu (Typhus and Naturally Focal Infections) Vol. XXV, Leningrad (1963). (From the Leningrad Pasteur Institute of Epidemiology and Microbiology.)

A. Papers on tularemia

- 1) Grachev, IU. and Ivanova, D. P., Observations on the epidemiology of tularemia in the Karelian ASSR. Pp. 320-326. (From the Department of Specially Dangerous Infections of the Republic Sanitary-Epidemiological Station, Karelian ASSR.)

The information on human outbreaks of tularemia in the Karelian ASSR furnished in this article may thus be tabulated:

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<u>Year</u>	<u>Season</u>	<u>Number of Attacks</u>	<u>Locality</u>	<u>Remarks</u>
1945	June-September	57	Sortavala Raion	Vector-borne outbreak preceded by an unusual mortality among the water-rats (no bacteriological examinations)
1946	Dto.	150	Dto.	Vector-borne outbreak
1947	Summer	2	Dto.	-
1948	Dto.	5	Dto.	-
1950	Dto.	18	Sortavala and Suoiarvi raions	Vector-borne outbreak
1953	Dto.	23	Dto.	Dto.
1958	Winter	6	Sortavala Raion	Infection evidently due to contact with dead rodents in the hay
1959-1960	Dto.	?	Pudozh Raion	Retrospectively diagnosed major outbreak. 67% of the major suffered from the influenza-like form of tularemia, 22% from the anginose-bubonic form
1961	?	1	Dto.	-

4,474 tularin tests made during the period from 1960 to 1961 in 7 raions in the south of the republic (including apparently unaffected parts of the Pudozh Raion) gave a positive result in 116 instances.

Examinations of 7,675 ticks and 2,752 rodents during the period 1959-1961 yielded no evidence of tularemia infection. The authors emphasized the need for more extended investigations and large-scale vaccination of the population.

- 2) Pokrovskaja, V. I., Tularemia in the Novgorod Oblast. Pp. 327-333. (From the Department of Specially Dangerous Infections of the Sanitary-Epidemic Station, Novgorod Oblast.)

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Dealing with the tularemia situation in the Novgorod Oblast from 1942 to 1963, the author distinguished between two types of foci, (a) such of the meadow-field type situated in the lowlands west of Lake Il'men' and mainly causally related to epizootics among the grey voles, and (b) foci of the marsh-lake-river type, where water-rats formed the reservoir of the infection and blood-sucking diptera were mainly responsible for a transmission of the disease to man. However, within recent years (1961-1963) water-borne infections also played an important role. Thus all 8 patients observed during the first quarter of 1963 seemed to have contracted the disease in the latter manner.

During the period from 1958 (when vaccinations on an oblast-wide scale were started) to 1962 a total of 202,575 persons were immunized against tularemia, 160,200 in the 13 raions affected by the disease. The level of immunity in these raions ranged from 40% to 90%.

- 3) Gavilevskii, I. U. M., Evaluation of the state of anti-tularemia immunity of the population of some raions in the North-West. Pp. 334-335.

(From the Department of Epidemiology of the Leningrad Order of Lenin S. M. Kirov Institute for the Advanced Training of Physicians and the Department of Specially Dangerous Infections of the Leningrad Pasteur Institute.)

In order to determine the level of herd immunity against tularemia in the population of (a) 4 raions of the Novgorod Oblast; (b) 2 raions of the Kaliningrad Oblast; and (c) 2 raions of the Komi ASSR, the author made cutaneous tularin tests and partly agglutination tests in three groups of people - persons immunized against the infection, not vaccinated persons and such who had suffered from tularemia. His general conclusion, which alone can be considered here, was that

"Notwithstanding the administration of vaccinations, the immunity level in the population of the majority of the investigated raions is insufficiently high, which may depend upon various causes (absence of adequate conditions for the storage of the vaccine and of a preliminary control of its inoculability, insufficient control of the inoculations, etc.). All this leads to the conclusion that it is indispensable to pay most serious attention to tularemia and its specific prophylaxis in the North-West with the aid of a control of the immunological structure in the various age

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groups through the large-scale use of tularin tests. Such tests are more promising than agglutination tests for judging the state of protection of the people and for planning preventive measures."

- 4) Gavilevskii, IU. M., Materials for an evaluation of the serological examination of agricultural animals for the assessment of the activity of tularemia foci. Pp. 346-351. (From the Department of Epidemiology of the Leningrad Order of Lenin S. M. Kirov Institute for the Advanced Training of Physicians and the Department of Specially Dangerous Infections of the Leningrad Pasteur Institute.)

Observations made in the areas enumerated in the foregoing article led the author to the following conclusions:

- (1) An infection of cattle with tularemia is apt to take place only at the time of widespread epizootics among the rodents. During the inter-epizootic periods it is not possible to find convincing evidence of serological shift in these animals.
- (2) It must be kept in mind that after vaccination and revaccination of the cattle against brucellosis specific agglutinins remain demonstrable in the sera of the animals at titers of 1:100-1:200 for 6 months or even longer, at titers of 1:10-1:40 for a quite prolonged time.
- (3) When comparing the results of agglutination tests with tularemia and brucellosis antigens (diagnostica), one finds not rarely cross reactions due evidently to a common antigen of the two causative organisms. Still, the positive results obtained at low dilutions may be due to other antigenic components.
- (4) A serological examination of the cattle some years after the occurrence of tularemia epizootics does not furnish reliable data regarding the activity of the foci and the results of such tests must be interpreted with great caution.

B. Papers on Q-fever

- 1) Tokarevich, K. N., Present state and further tasks of the study of Q-fever in the Soviet Union. Pp. 56-65.

This article does not lend itself to the purposes of a brief review.

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- 2) Krasnik, F. I. and Balaeva, I. Zh., Some data on Q-rickettsiosis in the Tuva Autonomous Republic. Serological observations. Pp. 66-69.

(From the Department of Specially Dangerous Infections of the Pasteur Institute and the Sanitary-Epidemic Station of the Tuva ASSR.)

This article contains a brief description of an outbreak taking place in 1960 in a village of the Tuva ASSR and involving 103 persons (11% of the population) which with the aid of complement fixation tests was retrospectively diagnosed as Q-fever.

Complement fixation tests also made in 682 inhabitants of two southern raions of the republic proved positive in 78 instances (11.2%).

- 3) Timofeeva, S. S., Materials concerning the occurrence of Q-fever in the extreme north. Pp. 70-74.

Working in 1962 in the Nenets National Okrug of the Arkhangelsk Oblast the author obtained positive results in complement fixation tests with R. burneti antigens in 31 (20.3%) of 152 persons and in 143 (16.8%) of 847 reindeers. There could be hardly any doubt that these animals were the source of the human infections.

- 4) Amosenkova, N. I. et al., Characterization of some biological properties of the R. burneti strains isolated in Leningrad. Pp. 75-82.

The conclusions reached by the author of this well documented article were that

- (1) Titration tests on guinea-pigs made with 9 R. burneti strains isolated from patients, rodents, ticks, bed-bugs and cattle indicated that the pathogenicity of the organisms obtained from different sources varied to a considerable degree. Most virulent were the strains obtained from wild animals and arthropods.
 - (2) R. burneti strains, after 2-5 passages through chick embryos, differed in their activity in complement fixation tests.
 - (3) Due account must be taken of these differences when selecting strains for the preparation of diagnostica and vaccines.
- 5) Amanzhulov, S. A. et al., Experience of the virological confirmation of the presence of Q-fever in the Kazakhstan. Pp. 83-91.

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(From the Institute of Regional Pathology, AS Kazakh SSR and the Department of Specially Dangerous Infections of Pasteur Institute.)

As described in this paper, the authors were able to isolate R. burneti strains from the ticks Dermacentor deghestani and Hyalomma scupense, the horse-fly Tabanus staegeri, an aborted sheep fetus and cow's milk.

- 6) Daiter, A. B., Experience of infecting some arthropods on Q-fever patients. Pp. 92-100.

Summarizing his findings the author stated that

- (1) Bed-bugs (Cimex lectularius) and ticks of the species Ornithodoros papillipes became infected with R. burneti when fed once upon a Q-fever patient. An ingestion of the organisms by bed-bugs was observed both when the patient had fever and during the three days following the drop of temperature.
 - (2) There could be no doubt that these arthropods played a supplementary role in the circulation of Q-fever infection.
 - (3) If the implementation of the usual diagnostic methods meets with difficulties, advantage may be taken of an examination of O. papillipes.
- 7) Daiter, A. B., Contribution to the problem of the role of ticks of the super-family Ixodoidea in Q-rickettsiosis. Report III. Experimental infection of the ticks Ixodes ricinus L. and Hyalomma asiaticum Sch. et Schl. with R. burneti. Pp. 101-122.

This well-documented article, to which a long reference list is appended, can be quoted by title only.

(The first article of this series, entitled "Observations of the natural infectibility of the tick Ixodes ricinus with R. burneti" by Daiter et al. appeared in the book Rikketsiozy. Bolezni s prirodnoi ochagovost'iu, Leningrad 1961, pp. 154-165, the second, also by Daiter et al., Ibidem, pp. 166-180 under the title "Experimental infection of the tick Ornithodoros papillipes with R. burneti.")

- 8) Daiter, A. B., Contribution to the problem of the role of the ticks of the super-family Ixodoidea in Q-rickettsiosis. Report IV. Preservation of R. burneti in wintering ticks of the species Ixodes ricinus L. under experimental conditions. Pp. 123-134.

The exhaustive observations recorded in this study led the author to postulate that in the natural Q-fever foci "a preservation of R. burneti in winter may be ensured by any phase of the tick Ixodes ricinus."

- 9) Balashov, IU. S. and Daiter, A. B., Contribution to the problem of the role of the ticks of the super-family Ixodoidea in Q-rickettsiosis. Report V. Localization and dissemination of R. burneti in the body of the tick Hyalomma asiaticum P. Sch. et E. Schl. Pp. 135-153.
(From the Laboratory of Parasitic Arthropods and Vectors of the Zoological Institute, AS, USSR and the Department of Specially Dangerous Infections of the Pasteur Institute.)

This well-documented and amply illustrated article must be studied in the original or in a translation of the text.

- 10) Amosenkova, N. I. and Khavkin, T. N., Observations on the course of experimental rickettsial pneumonia in white mice. Experience with intranasal infection. Pp. 154-159.
(From the Department of Specially Dangerous Infections of the Pasteur Institute and the Laboratory of Infectious Pathology of the Department of Morbid Anatomy of the Institute of Experimental Medicine, AMS, USSR.)

In the conclusion to their article the authors stated that the lung process produced in white mice through respiratory infection with R. burneti is characterized by a chronic course with an absence of external manifestations of the disease and a prolonged preservation of the causative organisms in the lung tissue.

- 11) Khavkin, T. N. and Amosenkova, N. I., Observations on the local reaction of the peritoneum of white mice to experimental infection with Q-rickettsiosis. Pp. 160-169.
(From the Laboratory of Infectious Pathology of the Department of Morbid Anatomy of the Institute of Experimental Medicine, AMS, USSR and the Laboratory of Specially Dangerous Infections of the Pasteur Institute.)

Summarizing the results of their observations, the authors of this well-documented and illustrated article stated that

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"The infectious process, produced in white mice through intraperitoneal infection with R. burneti, regardless of the strains of this organism used and of the dose and character of the infectious material, is accompanied by an abundant multiplication of the rickettsiae in the fixed and migrating cells of the peritoneum, mainly in the elements of a histiocytary origin. The liberation of the peritoneum from the rickettsiae is effected with the aid of leucocytes which phagocyte the microorganisms set free through the breaking up of the cells containing them. Some part of the rickettsiae is preserved in the cells without causing a noticeable reaction.

The results of the present study give reason to recommend the large omentum as a suitable object for an investigation of the relationship between R. burneti and the cells of the host in experimental Q-fever infection."

- 12) Tokarevich, K. N., Problems of the epidemiology and prophylaxis of zoo-anthroposes of an occupational (industrial) character. Pp. 260-269.
(From the Leningrad Pasteur Institute and the Department of Epidemiology of the Leningrad Order of Lenin S. M. Kirov Institute for the Advanced Training of Physicians.)

This article, in which the author deals specially with leptospirosis and Q-fever, must be studied in the original or in a translation.

C. Papers on tick-rickettsiosis (quoted by title)

- 1) Legkodimova, K. V., Epidemiological characterization of Asiatic tick rickettsiosis in the central raions of the Primorsk Krai. Pp. 107-177.
(From the Rickettsiosis Laboratory of the Vladivostok Institute of Epidemiology, Microbiology and Hygiene and the Department of Specially Dangerous Infections of the Pasteur Institute.)
- 2) Legkodimova, K. V. and Somov, P. G., Observations on some biological properties of the Dermacentroxenus sibiricus

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cultures isolated in the central raions of the Primorsk Krai. Pp. 178-184. (From the Rickettsiosis Laboratory of the Vladivostok Institute of Epidemiology, Microbiology and Hygiene and the Department of Specially Dangerous Infections of the Pasteur Institute.)

D. Papers on leptospirosis (quoted by title)

- 1) Tokarevich, K. N. et al., Materials on leptospirosis in the polar region. Preliminary communication. Pp. 270-276.
- 2) Tokalova, K. A. et al., Results of a further study of leptospirosis infections in the Kaliningrad Oblast. Pp. 277-285. (From the Sanitary-Epidemiological Station of the Kaliningrad Oblast and the Department of Specially Dangerous Infections of the Pasteur Institute.)
- 3) Tokarevich, K. N. et al., A balnear leptospirosis outbreak of the Pomona type. Pp. 286-292. (From the Department of Specially Dangerous infections of the Pasteur Institute, the Railway Sanitary-Epidemiological Station of the Oktiabr'sk Railway and the Railway Polyclinic in Petrozavodsk.)
- 4) Lesnikov, A. L. and Popova, E. M., Leptospirosis attacks complicated by meningitis. Pp. 293-304. (From the Department of Infectious Diseases of the First Leningrad Academician Pavlov Medical Institute and the Department of Specially Dangerous Infections of the Pasteur Institute.)
- 5) Popova, E. M. and Lesnikova, A. L., Leptospirosis of the Tarasov type Pp. 305-312. (From the Department of Specially Dangerous Infections of the Pasteur Institute and the Department of Infectious Diseases of the First Leningrad Academician Pavlov Medical Institute.)
- 6) Popova, E. M., Some biological properties of the leptospirae of the Sorex type isolated from R. rattus L. Pp. 313-319.

E. Papers on ornithosis

- 1) Tokarevich, K. N. et al., Ornithosis outbreak of an occupational character. Pp. 185-191. (From the Department of Specially Dangerous Infections of the Pasteur Institute and the S. P. Botkin Hospital.)

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The authors describe an ornithosis outbreak taking place at Leningrad in the summer of 1961 and involving 23 persons, which was causally related to the slaughtering of ducks for commercial purposes.

- 2) Gladkovskii, A. P., Clinical characterization of ornithosis. Pp. 192-200.
(From the Leningrad S. P. Botkin Infectious Diseases Hospital.)

Quoted by title.

- 3) Filatov, I. F. et al., Contributions to the problem of the role of virus and rickettsial agents in the etiology of acute pneumonias. Pp. 201-209.
(From the Department of Specially Dangerous Infections and the Influenza Laboratory of the Pasteur Institute.)

As described in this article, it was possible to establish with the aid of serological examinations that out of 121 patients with acute pneumonia 7 suffered from ornithosis and one from Q-fever.

- 4) Vishniakova, L. A., Materials for the evaluation of the results of complement fixation tests in human ornithosis. Pp. 210-218.

The conclusions reached by the author of this study were that

"1. On account of the studies made one may assume that a four-fold increase of the titer of the complement-fixing antibodies and also titers of 1:64 or higher titers with the clinical and epidemiological data furnish evidence for the ornithosis nature of disease attacks.

2. In the presence of low or median titers of the complement-fixing antibodies (1:8-1:32) one must take into account the possibility of 'anamnestic' and cross reactions (in patients with typhus or Q-fever). In view of the inhibitory action of early treatment with antibiotics on the immunogenesis, of individual peculiarities of the patients and their frequently late observation, one should base final conclusions upon the complex of the clinical and epidemiological data and the results of the laboratory tests.

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3. A sine qua non for the adequate sero-diagnosis of ornithosis are tests repeated three times: during the first week of the disease, at the end of the second week and during the 3rd-4th weeks."

- 5) Vishniakova, L. A. and Gladkovskii, A. P., Observations on the length of persistence of the complement-fixing antibodies after ornithosis attacks. Pp. 219-224.
(From the Department of Specially Dangerous Infections of the Pasteur Institute and the S. P. Botkin Hospital.)

An examination of 80 serum specimens from 67 patients showed that generally after an ornithosis attack complement-fixing antibodies remain present not longer than for a year or 1.5 years. However, in exceptional cases, the antibodies may persist longer in patients in whom the disease ran a chronic course.

- 6) Vishniakova, L. A., A study of the immunological structure of Leningrad in regard to ornithosis. Pp. 225-232.

Complement fixation tests with the sera of 1,484 healthy inhabitants of Leningrad gave a positive result in 94 instances (6.3%). Since according to the author only a few tens of ornithosis attacks were noted in the city per year, this comparatively high percentage of positive reactions in the population

"was related to a failure of diagnosing the ambulatory and the majority of the typical forms of ornithosis and also with the presence of an asymptomatic course of the disease."

Since positive results of complement fixation tests had been obtained in 8% of healthy children 3 to 7 years old and even in 11.3% of those 7-14 years old, a performance of laboratory tests for the presence of ornithosis was particularly important in children suffering from atypical pneumonia or other respiratory ailments with fever.

- 7) Vishniakova, L. A., The inhibitory complement fixation reaction for the study of ornithosis. Pp. 233-244.
- 8) Tokarevich, K. N. et al., Experience of the serodiagnosis of ornithosis with the aid of immuno-fluorescent method. Pp. 245-250.

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(From the Department of Specially Dangerous Infections of the Pasteur Institute and the Order of Lenin S. M. Kirov Military-Medical Academy.)

- 9) Gol'din, R. B. and Krasnik, F. I., Use of complete and incomplete antibodies for the observation of the ornithosis virus. Experimental materials. Pp. 251-259. (From the Order of Lenin Military-Medical Academy and the Department of Specially Dangerous Infections of the Pasteur Institute.)

These three articles can be quoted by title only.

F. Papers on typhus (quoted by title)

- 1) Tokarevich, K. N. and Meitin, B. I., New facts regarding the so-called hospital infections with spotted typhus. Pp. 7-13. (From the Department of Specially Dangerous Infections of the Pasteur Institute and the Leningrad Municipal Sanitary-Epidemiological Station.)
- 2) Krasnik, F. I. et al., Materials for the characterization of the cutaneous allergic test with a R. prowazeki antigen. Pp. 14-25. (From the Department of Specially Dangerous Infections of the Pasteur Institute and the Order of Lenin S. M. Kirov Military-Medical Academy.)
- 3) Krasnik, F. I., Experience of the use of the method of fluorescent antibodies for the study of R. prowazeki in tissue cultures. Pp. 26-31.
- 4) Gol'din, R. B. et al., Experimental typhus infection and immunity in irradiated animals. Report I. Course of typhus infection and immunity in cotton-rats subjected to X-ray irradiation. Pp. 32-41. (From the Order of Lenin S. M. Kirov Military Medical Academy and the Department of Specially Dangerous Infections of the Pasteur Institute.)
- 5) Krasnik, F. I. and Gol'din, R. B., Experimental typhus infection and immunity in irradiated animals. Report II. Influence of general irradiation on the immunity against typhus. Pp. 42-49. (From the Department of Specially Dangerous Infections of the Pasteur Institute and the Order of Lenin S. M. Kirov Military-Medical Academy.)

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- 6) Krasnik, F. I., Observations on the method of cultivating R. prowazeki in chick-embryos. Pp. 50-55.

860. Leikina, G. A., Contribution to the study of blood-sucking diptera on the lower course of the Terek and Kuma rivers and of the role of these insects in the tularemia focus. Med. parazit. 33 (1964) 1: 40-44.
(From the SR Anti-Plague Institute of the Caucasus and Transcaucasus.)

Studying the incidence and seasonal occurrence of the blood-sucking diptera various raions of the Dagestan SSR and the Checheno-Ingush ASSR, the author was able in 1955, when a tularemia epizootic was present among the water-rats in the delta region of the Terek River, to isolate cultures of B. tularense from 4 species - Anopheles maculipennis, Aedes vexans, Culex sp. and a Chrysozona, all of which were seasonally prevalent at the time. These findings were compatible with the postulate of Pilipenko that the prevalent winds were responsible for a transport of infected diptera from their breeding sites into the settlements of the Tarumov, Kizliar and Krainov raions in the Dagestan ASSR.

861. Zolotarev, E. Kh. and Elizarov, IU. A., Study of the chemoreception of insects and ticks: the behavior of the tick Ixodes persulcatus P. Sch. under the influence of repellents. Med. parazit. 33 (1964) 1: 47-53.
(From the Faculty of Soil Biology of the Moscow M. V. Lomonosov State University.)

The findings of the authors indicated that the repellents tested were equally effective when used either for moistening the protective garments or for a direct application to the skin. The ticks did not become accustomed to the repellents.

862. Krylov, A. S. and Sazonova, E. V., Investigation of the toxicity and tolerance of the repellent benzimine. Med. parazit. 33 (1964) 1: 53-57.
(From the Pharmacological Laboratory of the Department of Helminthology of the E. I. Martsinovskii Institute of Medical Parasitology and Tropical Medical Parasitology and Tropical Medicine, MH, USSR.)

The tests on laboratory animals described in this article showed that the insect repellent benzimine (benzoi-hexamethylenimine), recently synthesized by workers of the Moscow State University, was suitable for field tests.