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330. Dobrianin, A. and Shishkalov, A., Results of tularemia vaccination in the Brest oblast. Zdravookhranenie Belorussii (1960) 10: 53-54.

As the authors briefly describe, owing to suitable ecological conditions (spring floods, abundance of rain, abundant vegetation) the population density of the water rats, the reservoir of tularemia, was high in the Brest oblast. The number of tularemia attacks in man during the period 1949-1959 was:

<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952-54</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>Total</u>
4	2	4	0	167	109	4	40	0	330

From 1950-1959 369,190 persons were vaccinated against tularemia, in 1959 alone 112,096 persons (90,000 before the commencement of agricultural work).

Tests with tularin, made in persons who had been vaccinated 1-3 years previously, gave positive results in 88-94%.

The absence of human attacks in 1959 even in the localities with the highest density of water rats is considered by the authors as proof for the efficacy of tularemia vaccination.

331. Leiman, V.N., To the clinique of brucella-caused meningo-encephalitis. Vrachebnoe delo (1960) 10: 71-73. (From the Clinic for Infectious Diseases, Kuibyshev Medical Institute.)

During recent years the author observed 14 patients with severe brucella-caused affections of the central nervous system. Thirteen of them lived in a rural locality and attended animals affected with brucellosis. Seven of the patients showed signs of meningo-encephalitis, two such of serous meningitis. The clinical features of these and other affections of the central nervous system (myelitis or spinal ataxia) are briefly described and the history of one patient with signs of meningo-encephalitis is quoted.

332. Sliusarev, F.M., On tick-borne two-wave meningo-encephalitis in Transcarpathia. Vrachebnoe delo (1960) 10: 111-112. (From the Neurological Clinic, Uzhgorod University.)

In this note the author describes the clinical manifestations in 25 patients in whom the diagnosis of tick-borne meningo-encephalitis was confirmed through serological examinations. Most of the patients had close contact with goats, the raw milk of which they drank. The tick species involved in the spread of infection was Ixodes ricinus.

333. Salina, V.V., Changes of the electrocardiogram in brucellosis patients under the influence of treatment with vaccine and antibiotics. Vrachebnoe delo (1960) 10: 131-132. (From the Clinic of Internal Diseases, Orenburg Medical Institute.)

The author of this note reports on observations in 50 brucellosis patients, 39 of whom were treated with antibiotics. Twenty-six patients were treated with intravenously administered vaccine doses. The main conclusions were that:

(a) The use of antibiotics (synthomycin and biomycin) in half the patients, hand in hand with a defervescence of the infection, led to a normalization of the electrocardiogram.

(b) Administration of brucellosis vaccine in half of the patients concerned led to changes of the electrocardiogram during the period of reaction. At the end of the vaccinothrapy the electrocardiogram became more or less normal.

(c) In rare cases vaccine administration was followed by changes of the electrocardiogram indicating a disturbance of the coronary circulation. This possibility must be kept in mind when large vaccine doses are used and adequate precautions must be taken.

334. Lvov, D.K., Study of the immunological pattern of the population in regard to tick-borne encephalitis in the Biriliusk raion of the Krasnoiarsk Krai. Meditssinskaia parazitologia i parizarnye bolezni (1960) 4: 398-405. (From the Department of Epidemiology, Mart'sinovskii Institute of Medical Parasitology and Tropical Medicine, M.H., USSR.)

The incidence of tick-borne encephalitis in the study area was as follows: 1951--5 cases; 1954 and 1955--2 cases each; 1956--9 cases; 1957--17 cases; 1958--2 cases.

To study the immunity level of the population the author made complement fixation tests with 492 sera from 395 inhabitants, and virus-neutralization tests with 369 sera from 363 persons. Complement fixation tests gave a positive result in 25%-30%. Virus-neutralization tests proved positive in 90-100% of the adults who were most exposed to tick bites; 21% of the children of pre-school age and 65% of those of school age gave positive reactions.

As estimated by the author, the proportion of clinically manifest and inapparent affections of tick encephalitis in the study area varied from 1:9 to 1:30. He recommended thorough vaccination of newcomers and children.

335. Bogomaikov, M.P., Some remarks on the pamphlet by S.G. Gladkikh. "Tick encephalitis and measures against it." (Perm. 1958). Meditssinskaia parazitologia, etc. 29 (1960) 4: 489-490.

Quoted by title only.

336. Adamovich, V.L. and Feldman, I.U. M., On the methods of detecting natural tularemia foci. Zhurnal mikrobiologii, etc. 31(1960) 9: 71-76. (From the Sanitary Epidemiological Station of the Volynsk oblast.)

The authors found that agglutination tests with the sera of cattle were a reliable and convenient means to detect foci of tularemia infection. In such foci 57-91% of the cattle examined reacted positively. Control tests made in tularemia-free localities were negative except in animals showing evidence of brucellosis infection.

337. Pavlov, P.E.N., Pavlovskii's studies on the natural focality of diseases and development of these studies in Bulgaria. Zhurnal mikrobiologii, etc. 31 (1960) 9: 80-84.

Quoted by title only.

338. Vershilova, P.A. and Ostrovskaia, N.N., On the classification of brucella species. Zhurnal mikrobiologii, etc. 31 (1960) 9: 101-105. (From the N.F. Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

As the author discusses, an interdepartmental commission, attended by staff members of the USSR ministries of health and agriculture, decided to leave the hitherto adopted method of classification of brucella species unchanged.

339. Shevtsova, Z.V., The state of immunity in guinea-pigs immunized with live brucellosis vaccine under conditions of exposure to radiation. Zhurnal mikrobiologii, etc. 31 (1960) 9:105-109. (From the N.F. Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

The conclusions reached by the author were that:

(a) Guinea-pigs immunized with the live brucella vaccine 19-BA on the 3rd or 10th day after irradiation with a dose of 200 gamma showed a 4 times, respectively a 2 times higher death-rate than unvaccinated irradiated animals. If immunization was made 30 days after irradiation, the death-rate from radiation sickness was only slightly higher than that in the controls. Immunization 30 days before irradiation exerted no influence on the death-rate.

(b) In tests made with the usual challenge doses (2-4 infective doses) of a virulent brucella culture the guinea-pigs immunized after

irradiation were not susceptible to the infection. However, if the challenge dose was doubled, the irradiated animals were found to be more susceptible to the infection.

(c) Irradiation of guinea-pigs which had already become immune to brucellosis did not increase their susceptibility to infection with 2 or 4 infective doses of the brucella culture.

340. Kharina, N.P., On the increase of the sensitivity of the serological agglutination reaction for brucellosis in vitro. Zhurnal mikrobiologii, etc. 31 (1960) 9: 109-113. (From the Department of Infectious Diseases and Epidemiology, Cheliabinsk Medical Institute.)

To increase the sensitivity of the agglutination test, the author used as antigen 1-2 drops of a suspension of 5 doses of dry brucellosis vaccine in 1 ml of normal saline. The amount of organisms per ml was equal to 1-1.5 billions. As shown by the following table, results of agglutination tests made with the sera of 100 brucellosis patients were markedly better than those of controls with killed brucella antigen.

<u>Titer</u>	<u>Results in percent</u>	
	<u>Killed antigen</u>	<u>Live antigen</u>
Negative	24	2
1:50	29	15
1:100	28	31
1:200-1:400	19	48
1:800	-	4
Total positive reactions (%)	47	83

Agglutination tests with the live antigen made with the sera of 60 patients suffering from infectious diseases other than brucellosis yielded only one positive reaction at a titer of 1:50.

341. Moldavskaya, A.A. et al., A brucellosis epidemic caused by the transition of Br. melitensis into cattle. Zhurnal mikrobiologii, etc. 31 (1960) 9: 113-117. (From the Sanitary-Epidemiological Station of Lugansk oblast and the Rostov Scientific-Research Anti-Plague Institute.)

The authors described an epidemic outbreak of brucellosis due to the transition of Brucella melitensis from sheep to cows in one of the

communal agricultural establishments (kolkhozes) of the Lugansk oblast. As a result of drinking the raw milk of the infected cows 14 inhabitants of the kolkhoz and 54 inhabitants of a neighboring town, to which the infected milk was delivered, contracted the disease.

Typical Br. melitensis cultures were isolated from 9 cows as well as from 2 patients.

342. Nikiforov, V.N., Length of discharge of anthrax bacilli following various methods of treating the cutaneous form of the disease. Zhurnal mikrobiologii, etc. 31 (1960) 9: 118-125. (From the Department of Regional Pathology of Siberia, Institute for Experimental Biology and Medicine, AS Siberian Division, USSR.)

The author reports observations in 305 patients with skin anthrax treated by various methods, mainly with anti-anthrax serum (102) or with both serum and penicillin (167). In patients treated by these methods or with penicillin alone in most instances anthrax bacilli could be isolated from the carbuncles for only 2 days. Following biomyacin treatment, a longer discharge of the organisms was noted.

The author draws attention to some instances of prolonged discharge of the anthrax bacilli in the feces of patients receiving specific treatment with penicillin and serum.

343. Ogarkov, I.P. et al., Characterization of the tularemia outbreaks in the Ural and Pre-Ural regions in 1957. Zhurnal mikrobiologii, etc. 31 (1960) 9: 131-134. (Reported at the Sverdlovsk meeting of the Mechnikov Society of Epidemiologists, Microbiologists, and Infectionists, October 1958.)

The authors give a fairly detailed description of the 1957 tularemia manifestations in the areas mentioned in the title of their paper, which stood in causal connection with a greatly increased density of the water rats. At the end of their article they briefly refer to the great value of large-scale tularemia vaccination.

344. Uglovoi, G.P., Epidemiological characterization of a winter outbreak of tularemia and experiences on its liquidation. Zhurnal mikrobiologii, etc. 31 (1960) 9: 139-140. (From the Department of Infections with Natural Focality, N.F. Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

The winter outbreak of tularemia observed by the author in the Krasnosel'skii raion of the Kostroma oblast stood in causal connection with delayed threshing of the grain. The epidemic could be rapidly terminated through temporary interruption of the threshing, large-scale use of the hitherto neglected method of tularemia vaccination and public health education. Evidently tularemia had existed in the district also in the past without being recognized.

345. Dubov, A.V., Virological diagnosis of tick-borne encephalitis with the aid of the tissue culture method. Voprosy virusologii 5(1960) 4: 412-415. (From the Department of Microbiology, Novosibirsk Medical Institute.)

The conclusions of the author were that:

(a) Out of 77 specimen of the blood of tick encephalitis patients collected during the first week of illness, 8 strains of the virus were isolated with the aid of cultivation on human fibroblasts.

(b) The virus produced in white mice an illness with paralysis of the hind legs.

(c) Paired sera of 60 patients with tick-borne encephalitis taken respectively within the first week of illness and again after 2-4 weeks were subjected to neutralization tests in tissue cultures of human fibroblasts; 2-fold or higher increases of the antibody titer could be demonstrated in 36 instances.

346. Zhdanov, V.M., Towards a speedier tempo in the reduction and eradication of infectious diseases. Klinicheskaya meditsina 38 (1960) 8: 13-20.

In connection with the provisions made in the new Seven Years Plan for medical work in general and for the fight against the infectious diseases in particular, the author states that under the Soviet regime have been liquidated smallpox, cholera, plague, parasitic typhus and some other formerly widespread diseases. During 1960 malaria will be liquidated.

The problem of further progress in the fight against infectious diseases was recently considered by the collegium of the Ministry of Health, USSR while earlier still the Academy of Medical Sciences had organized a special coordinating committee for the liquidation of these affections.

Among the diseases, the liquidation of which may be hoped for during the next years, malaria stands first in line. The incidence of this disease was still high in 1946 (3,300,000 cases). Through systematic work, consisting of large-scale use of DDT and hexachlorane, treatment with new effective drugs (bigumal and chinocide) and mass observation for the detection of carriers, since then the malaria incidence decreased two times during each succeeding year. In 1952 a considerable part of the USSR had become malaria-free. Since then limited foci of this infection have been observed only in the Transcaucasian republics (mainly in Azerbaidzhan), in Central Asia in the Kazakh SSR and Uzbek SSR and in Siberia. In 1959 only a little more than 1,500 patients were counted--mainly such infected during previous years. Steps for the

complete liquidation of malaria have now been taken by the Health Ministry.

The author deals then with the problems of liquidating diphtheria, which is still comparatively frequent in some Central-Asian republics, in the Armenian SSR and some towns of the central part of the USSR.

As the author next notes, in a considerable part of the USSR the case incidence of typhoid is 1 per 10,000 of the population, but the incidence is higher in places with an unsatisfactory water supply and canalisation. Such situations must be adequately dealt with hand in hand with properly conducted vaccination campaigns.

The incidence of brucellosis is presently low, not exceeding 0.3 per 10,000 of the population; there were a little more than 6,000 cases in 1959, mainly in sheep-breeding districts.

As a result of the use of live vaccine, continuous brucellosis infections, which in the previous 6-8 years amounted to 50% of all infections, form only 10-15% of the infections.

The favorable experiences of the vaccine-prophylaxis of brucellosis among persons engaged in animal husbandry permit to extend the work also to those using milk products in the affected areas. Until recently the liquidation of brucellosis in animal-breeding farms was mainly effected with the aid of sanitary-veterinary methods to render the herds free from brucellosis. These measures were supplemented by brucellosis vaccination of the animals, which was found to be highly effective. Consequently the health authorities together with the veterinary staff can make joint plans for the prevention of human brucellosis (vaccination, pasteurization of milk products and measures of individual protection against infection) and radical improvement of the brucellosis situation in sheep farms.

In the present seven-years' plan it is also proposed to liquidate the foci of ankylostomiasis still existing in the Transcaucasus and some southern areas of Central Asia. As has been shown, this task can be accomplished through treatment of the affected persons and adoption of methods of environmental sanitation in the mines. This program must also be adopted in other infested areas like the tea plantations in Georgia and Azerbaidzhan. An identical program must be adopted to deal with taenia-infestation.

Another disease to be dealt with during the seven-years period is syphilis. Its incidence is not high and is diminishing from year to year. The antibiotics necessary for its treatment are manufactured in sufficient quantities.

The liquidation of trachoma is also planned. This infection, which was formerly widespread, is restricted presently to not many areas like the Turkmenian and Tatar republics.

After briefly mentioning some infrequent infectious diseases like leishmaniosis and tick-borne relapsing fever, the author deals with the problem of poliomyelitis. Through the work of Chumakov and Smordintsev in collaboration with A. Sabin a live vaccine against this infection has been introduced.

Fundamental observations on this method of oral vaccination have been made in the Baltic republics where as a result of wholesale vaccination of the population up to 20-25 years in the course of 2.5 years poliomyelitis was practically liquidated. On account of this experience the Health Ministry adopted a larger program, according to which up to 15 million were vaccinated by the end of 1959. For 1960 mass vaccination of the total population of the USSR up to age 20 is planned.

Of great importance is also a reduction of the incidence and mortality of the most widely spread infectious and parasitic diseases, in the first line of the acute intestinal infections, children's diseases, especially pertussis and measles, epidemic hepatitis, influenza, angina and ascaris-infestation, for the liquidation of which no specifics are available.

Anti-pertussis vaccination lowers the incidence of the disease 5-6 times and leads to a lesser severity of the attacks in the vaccinated but the reactions after administration of the vaccine are considerable. Still, such vaccinations ought to be made, the more so as in children up to four years they are made in combination with diphtheria anatoxin.

During the last 5-6 years the incidence of dysentery and other acute intestinal infections, which had been maximal in 1954, incessantly decreases at a comparatively slow rate. This progress is due to a new system of measures against dysentery, based upon intensive case-detection, systematic treatment, prolonged observation of those treated in "dispensaries" and implementation of sanitary measures in the foci.

When it was recently established that the etiology of the acute intestinal affections is not uniform, this program was extended and supplemented, particularly in regard to the infection of small children with Escherichia coli. To treat this infection other antibiotics are used than for dysentery treatment (colimycin, mycerin).

In order to deal with endemic hepatitis, of all intensive investigations are called for to isolate and study its virus. Prophylactic measures against this infection must be based on the one hand on the early detection and isolation of the patients and the implementation of general sanitary measures, on the other hand on the prevention of parenteral infections occurring during mass vaccination, blood-transfusion, taking of blood specimens, etc. The use of gamma globulin for the prophylaxis of measles excludes the danger of hepatitis transmission.

For the prophylaxis of measles in general a vaccine for active immunization would be most desirable. For the present efforts must be made to lower the lethality and to prevent pneumonic complications and to use passive immunization with gamma globulin in early childhood. Energetic treatment, as far as possible in hospitals, is most essential.

Discussing the problem of influenza, the author states that:

"The experience of the last three pandemics as well as the study of more limited grippe epidemics. . . shows that neither general hygienic measures nor anti-epidemic and quarantine measures can in any way materially limit the spread of this infection. The morbidity level and its periodic oscillations is determined, on the one side, by the state of immunity of the population to the various influenza viruses, on the other side --by the variability of the antigenic structures of the viruses of influenza proceeding progressively and simultaneously in the whole world. It is therefore natural to attempt the rise of the immunity level artificially with the aid of mass vaccination."

Two methods have been tried for the latter purpose, namely those of using killed vaccines or live attenuated influenza viruses. The efficacy of even immunologically adequate vaccines is rather limited. Totally they lower the morbidity among the vaccinated 2-3 times or at best 5-6 times. The last mentioned figures are probably maximal, since even the naturally acquired immunity against influenza is limited in intensity and time. The natural immunity is quite high during the days and months after recovery but becomes considerably lower already after 1-1 1/2 years, and this process is accelerated by the fact that the viruses undergo changes of their antigenic structure and consequently of their immunological properties in the course of a few years. These circumstances complicate the solution of the problem of influenza vaccination. Nevertheless for the present this method remains the most effective measure of influenza prophylaxis.

Difficulties similar to those just described confront also the immuno-prophylaxis of diseases resembling influenza, like the adenovirus infections, and also of streptococcal infections.

347. Magazanik, S.S. and Pogodina, V.V., On erythematous skin reactions in tick encephalitis. Klinicheskaya meditsina 38 (1960) 9: 59-64. (From the Sverdlov Institute of Balneology and Physiotherapy and the Encephalitis Laboratory of the Virus Institute, AMS, USSR.)

The observations made by the author on 32 patients seen from 1957-1959 in the Sverdlovsk oblast confirmed the presence of erythematous skin reactions in tick-borne encephalitis. Usually the erythematata were met with in mild meningeal or frustrane forms of the disease. In one

instance the skin erythema formed the only clinical sign of an otherwise latent tick encephalitis attack. It might be justified to speak of a special erythematous form of tick-borne encephalitis.

348. Rerberg, M.S., On the types of tick-borne encephalitis foci in the Krasnoiarsk region. Meditssinskaia parazitologia i parizarnye bolezni 29 (1960) 5: 528-532. (From the Sanitary-Epidemiological Station, Krasnoiarsk Krai).

The tick encephalitis foci in the Krasnoiarsk region may be classified into three groups: Taiga foci; hill-taiga foci; and forest-steppe foci. Epidemiologically most important are the taiga and the hill-taiga foci where Ixodes persulcatus serves as vector, as well as the forest-steppe foci in which Haemaphysalis concinna is the principal vector. The forest-steppe foci, where this role is played by I. persulcatus, are less dangerous unless they are visited by large groups of the population.

349. Zolotarev, E. Kh. and Stavroskaia, V.I., Investigation of the X diethyltoluamide repellents. Comparative study of the flea-repellent properties of the ortho-, meta-, and para-isomers. Meditssinskaia parazit. etc. 29 (1960) 5: 559-563. (From the Laboratory for the Study of Control of Harmful Animals and Plant Diseases, Faculty of Soil Biology, Lomonsov State University, Moscow and the Martsinovskii Institute for Medical Parasitology and Tropical Medicine, MH, USSR.)

While all three repellents tested were found to be effective for short periods, the most lasting effect was obtained with paradiethyltoluamide, the least lasting effect with the ortho-isomer.

350. Ivanova, L.V. and Stavrovskia, V.I., Preliminary data on field trial tests with diethyltoluamides. Meditssinskaia parazit. etc. 29 (1960) 5: 564-570. (From the Entomological Department and the Department of Synthetic Preparations, Martsinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR.)

The authors obtained satisfactory results in field tests against mosquitoes with meta-diethyltoluamide and with mixtures of the isomers.

351. Mandelbaum, I.A. A. and Safianova, V.M., Diethylamide of metatoluyil acid --an effective repellent against blood-sucking insects and ticks. Meditssinskaia parazit. etc. 29 (1960) 5: 570-575. (From the Laboratory of Organic Insectofungicides, Scientific Research Institute of Manures and Insectofungicides and the Department of Diseases with Natural Focality, Gamaleia Institute of Epidemiology and Microbiology, AMS USSR.)

The diethylamid of metatoluyil acid was synthesized in the institute of manures and insectofungicides of the Gamaleia Institute. It gave good results as a repellent against (a) the tick Ixodes persulcatus in the tick encephalitis focus of the Perm'oblast; (b) mosquitoes (Aedes and Theobaldia) in the same locality; and (c) against sand-flies (Phlebotomus) in southern Turkmenia.

352. Gershkovich, N.L., A new method for estimating the number of fleas in the burrows of Rhombomys opimus. Meditssinskaia parazit., etc. 29 (1960) 5: 578-584. (From the Anti-Plague Control Observation Station.)

As bases for the work of the author served the anti-plague stations of the Aral Sea area and at Gur'ev. To inspect the corridors of the rodent burrows, a towel was spread out at the entrance of each and then a plait (band) was introduced, turned round for a few seconds, and the plait was then removed and put on the towel for inspection. Estimation of the number of fleas was made according to a standard scale.

353. Shiranovich, P.I. and Pushnitsa, F.A., Species composition of the fleas on the rats of the European part of the USSR. Meditssinskaia parazit., etc. 29 (1960) 5: 584-590. (From the State Scientific Research Anti-Plague Institute, Rostov-on-Don.)

As summarized by the authors, within the European part of the Soviet Union 40 species of fleas were found on the rats, but only four species (Nosopsyllus fasciatus, Xenopsylla cheopis, Leptopsylla segnis and Echidnophaga murina) were of common occurrence.

354. Kosminski, R.B., On the method of determining the age of the fleas Leptopsylla segnis Schonch 1811 and L. taschenbergi Wagn. 1898 and on the results of an age analysis of a L. segnis population. Meditssinskaia parazit., etc. 29 (1960) 5: 590-594. (From the Scientific Research Anti-Plague Institute of the Caucasus and Transcaucasus, Stavropol'.)

Quoted by title only.

355. Belikova-Aldakova, V.D. et al., Results of smallpox vaccination in different age groups. Zhurnal mikrobiologii, etc. 31 (1960) 10: 28-32. (From the Department of Epidemiology, Sechenov Moscow Medical Institute I.)

The authors report on the results of smallpox vaccination in over 1,500 individuals (out of a larger total) who were closely studied. All of them had been previously vaccinated against smallpox. For the purposes of the study main use was made of the dry smallpox vaccine supplied by the Gamaleia Institute of Epidemiology and Immunology, AMS, USSR, but some advantage was also taken of a vaccine obtained from the Tashkent Vaccine and Serum Institute.

The conclusions reached by the authors were that:

(a) In persons older than 40 years a considerable decrease of the immunity against smallpox was noted. The development of the vaccinal process in these revaccinated older persons was slower than in younger individuals, thus being similar in type to the development of the process in individuals vaccinated for the first time.

(b) The success of vaccination depended to a considerable degree on the technique used: too superficial scarifications as well as too deep scarifications, leading to bleeding, reduced the number of takes.

(c) If smallpox vaccine of an adequate quality is used, it is sufficient to make two scarifications.

On account of these findings the authors recommended that:

(i) Supplementary revaccinations ought to be made at the age of 30 and of 40 years;

(ii) In older individuals the results of vaccination ought to be checked not only after 3-5 days, but also after 7-8 days.

356. Aleksandrov, N.I. et al., Aerosol immunization with dry live vaccines and with anatoxins. Report III. Experimental study of the efficacy of aerosol immunization with dry vaccines in dust form against anthrax, brucellosis, tularemia and plague. Zhurnal mikrobiologii, etc. 31 (1960) 10: 44-50.

The authors worked with dry vaccine powders prepared respectively from the following live vaccinal strains: Anthrax strains STEI No. 1 and 3; brucella abortus bovis strain No. 19 VA; tularemia strain No. 15 (reconstituted) and plague strains 1 and 17. As test animals served guinea-pigs, rabbits, sheep and monkeys.

The conclusions reached were that:

(a) Aerosol vaccination against anthrax and brucellosis prevented the death or infection of the test animals after administration of massive doses of virulent cultures of the corresponding strains. The intensity and length of immunity following aerosol vaccination were not below the levels obtainable through subcutaneous administration of the corresponding live vaccines.

(b) It was found possible to create in guinea-pigs a satisfactory immunity against plague and tularemia with the aid of aerosol vaccination. However, in order to come to final conclusions in these respects, further studies in monkeys are in progress.
(In order to evaluate the results of this study in detail, a full translation of the article is indispensable.)

357. Muromzev, S.N. and Nenashev, V.P., Study of aerosols. Report III. A supersonic aerosol dispenser. Zhurnal mikrobiologii, etc. 31 (1960) 10: 50-56. (From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

Quoted by title only.

358. Vlodavets, V.V., An experimental model of the dust phase of bacterial aerosols. Zhurnal mikrobiologii, etc. 31 (1960) 10: 56-62. (From the Central Institute for the Advanced Training of Physicians,)

Quoted by title only.

359. Pypina, I.M., Sanitary protection of the frontiers and the international epidemiological situation. Zhurnal mikrobiologii, etc. 31 (1960) 10: 89-94. (From the State Sanitary Inspectorate, MH, USSR.)

Three years ago, when again beginning to take part in the work of WHO, the USSR consented to use the international sanitary regulations for their territory (April 1957). These regulations are implemented in agreement with the "Regulations for the sanitary protection of the Soviet Union frontiers" approved by the Health Ministry in August 1958.

Generally speaking the State Sanitary Inspectorate of the USSR Ministry of Health is in charge of the protection of the frontiers, but the central medical-sanitary administration of the Ministry of Communications is responsible for the railway traffic. In the Soviet republics the work is done by the sanitary-epidemiological administrations and departments of the health ministries and by the republican sanitary-epidemiological stations. Actual quarantine work in the frontier zones is done by the quarantine detachments and stations in the ports, airports and the points of the frontiers crossed by railways or motor roads. The methodological part of the work is entrusted to the scientific research anti-plague institutes and anti-plague stations of the USSR Ministry of Health.

From the viewpoint of quarantine work, most dangerous are the frontier districts bordering on countries in which the epidemiological situation is unfavorable and the localities serving for the international transit of passengers and goods. There are 36 raions falling into the first mentioned category; airplanes from abroad arrive in 13 airports and ships from abroad in about 40 ports.

The author then discusses and tabulates the data supplied by WHO in regard to the world incidence of the four quarantinable diseases (plague, cholera, smallpox and yellow fever). Evaluating this information, she emphasizes the importance of quarantine work for the Soviet Union. Most essential among the measures to be taken are an early diagnosis of the diseases in question, rapid isolation of the patients and their contacts

and creation of a state of immunity in the resident local populations. Since, however, in spite of the measures taken at the frontier stations, patients in the incubation stage or in the prodromal period of the quarantinable diseases might arrive in any region of the Soviet Union, the physicians, especially those working in polyclinics and the specialists for infectious diseases must be well acquainted with the differential diagnosis of these affections and must be capable of taking the necessary emergency measures.

360. Govallo, V.I., On the peculiarities of the changes of the immunological reactivity to smallpox vaccination in children with different types of nervous systems. (Autoreferate) Zhurnal mikrobiologii, etc. 31 (1960) 10: 94-95.

The conclusions reached by the author of this short note were that;

"The immunisatory reaction to smallpox vaccination in children with marked nervous processes was characterized by considerable intensity and short duration, while in children with an attenuated type of mobilization of the protective apparatus the immunisatory reaction developed more slowly and immunological reconstitution took place gradually but later reached an equally high level."

361. Kotliarova, R.I. and Ledovskaia, A.P., Study of the bactericidal action of acetic acid on the plague bacillus and on the cholera vibrio. (Autoreferate.) Zhurnal mikrobiologii, etc. 31 (1960) 10: 102. (From the Scientific Research Anti-Plague Institute for the Caucasus and Transcaucasus, MH, USSR.)

As the authors found, a 2.5% solution of acetic acid exerted a bactericidal action on the cholera vibrios within 7-10 minutes; with concentrations of the acid of five or more per cent the same effect was obtained within five minutes. On the plague bacillus a 2.5% solution of the acid exerted a bactericidal action within 15-20 minutes; with concentrations of five or more per cent the same result was obtained within 5-7 minutes.

Acetic acid also exerted a marked bactericidal action on pieces of the liver and spleen of guinea-pigs which had succumbed to plague or cholera septicemia.

362. Korolev, P.A. and Konstant, E.G., Peroral immunization with live brucellosis vaccine. (Autoreferate.) Zhurnal mikrobiologii, etc. 31 (1960) 10: 103. (From the Infectious Diseases Department, Crimean Medical Institute and the Oblast Sanitary-Epidemiological Station.)

The authors worked with the live brucellosis vaccine of the Gamaleia Institute, AMS, USSR which they administered to white mice and guinea-pigs either orally in one-billion doses in 0.5 ml of milk or, for the purposes of control, in 100 million doses subcutaneously. In both groups of animals Wright's agglutination reaction became positive 6-10 days after

immunization and remained so up to two months (titres from 1:20 to 1:160). Burnet's allergic reaction also gave identical results in the two groups, becoming positive 40-45 days after vaccination and continuing so up to 5 months.

In order to study the degree of immunity, 9 perorally immunized and 8 subcutaneously vaccinated guinea-pigs were orally infected with 5-billion doses of a virulent brucella strain. When the animals were sacrificed 3 months after infection, no positive cultivations could be made from one third of the perorally immunized animals nor from one half of the subcutaneously immunized animals.

The authors ascribed the somewhat lesser efficacy of peroral vaccination to an insufficient dosage of the vaccine. In their opinion the dosage should be 20-50 times higher than the dose used for subcutaneous vaccination.

363. Iliencko, V.I., Influence of feeding of the tick vectors of the virus of two-wave meningo-encephalitis on immune animals on the fate of the virus. Voprosy virusologii 6 (1960) 5: 521-525.
(From the Virus Department, Institute of Experimental Medicine, AMS, USSR, Leningrad.)

The author summarized the results obtained when infecting ticks (Ixodes ricinus) with the encephalitis virus and then feeding them on guinea-pigs, respectively (in the case of the tick larvae or nymphs) on white rats rendered immune against the infection in the form of the following table:

Fed on Immune Animals

<u>Stage of ticks</u>	<u>No. of ticks</u>	<u>Carried the virus</u>	
		<u>Number</u>	<u>Per cent</u>
Larvae	40	0	0
Nymphs	40	18	45.0
Adults	40	32	80.0

Fed on Controls

<u>Stage of ticks</u>	<u>No. of ticks</u>	<u>Carried the virus</u>	
		<u>Number</u>	<u>Per cent</u>
Larvae	40	29	72.0
Nymphs	40	31	77.5
Adults	40	27	67.5

Thus a neutralization of the virus appeared to take place only in the tick larvae, but not in the nymphs or the adults. Under these circumstances it could be understood why in the encephalitis foci the ticks showed a high percentage of virus infection, even though they often fed on cattle, 50 to 80% of which had virus-neutralizing antibodies in their blood.

364. Blinova, M.I., Detection of specific antibodies in the serum of convalescents and healthy persons in the Tomsk focus of tick encephalitis. Voprosy virusologii 6(1960) 5: 525-528. (From the Ivanovskii Institute of Virology, AMS, USSR.)

The author found in 61 sera collected from healthy non-vaccinated inhabitants of the Tomsk tick-encephalitis focus in 31% virus-neutralizing and in 26% complement-fixing antibodies.

In patients suffering from tick encephalitis complement-fixing antibodies began to appear on the 10-15th day of illness, virus-neutralizing antibodies from the 15th day after onset of the disease.

As far as observed, a full course of vaccination against tick encephalitis (with mouse-brain formolvaccine) led in 88% to a persistence of the virus-neutralizing antibodies in the sera of the vaccinated for a period of two years. Complement-fixing antibodies were found in the sera only in 20-28%.

365. Drozdov, S.G., On the nature of milk diphasic fever. (Data on a study in the European part of the USSR.) Report III. Study on the relation of the milk diphasic fever virus to the tick-borne encephalitis, louping-ill and Omsk hemorrhagic fever viruses. Voprosy virusologii 6 (1960) 5: 528-532. (From the Institute for the Study of Poliomyelitis, AMS, USSR.)

Though the serological studies of the author revealed a close relationship of the diseases enumerated in the title, in his opinion it was necessary for the present to regard milk diphasic fever as a separate nosological entity.

366. Basova, N.N. et al., Q-fever and ornithosis in wild birds. Voprosy virusologii 6 (1960) 5: 586-591. (From the Virus Department of the Scientific Research Anti-Plague Institute for the Caucasus and Transcaucasus, Stavropol'.)

The author detected antibodies to the Q-fever antigen in 51 out of 354 sera of various wild birds. Out of 276 sera of such birds 23 contained antibody to the ornithosis antigen. Antibodies to the Q-fever antigen were also demonstrated in the sera of guinea-pigs inoculated with material from some rooks and shrikes as well as in the sera of guinea-pigs inoculated respectively with 3 batches of the tick Ixodes frontalis and one batch of Rhipicephalus rossicus.

367. Daiter, A.B., The bedbug as a possible reservoir of Coxiella burneti. (Experimental and epidemiological data.) Voprosy virusologii 6 (1960) 5: 591-598. (From the Pasteur Institute of Epidemiology, Microbiology and Hygiene, Leningrad.)

Feeding bed-bugs on Q-fever-infected guinea-pigs, the author established that these insects could be infected with C. burneti in all stages of their postembryonal development. The rickettsiae could survive in the bugs for a long time (limit of observation 285 days) without a loss of their virulence, multiply in the body of the hosts and be excreted in the feces of the latter. Evidence was also obtained for a transovarian and interphase transfer of the rickettsiae.

Field observations led to the detection of 3 instances of Q-fever infection in 147 bed-bugs collected in the focus of the disease in the Leningrad oblast. It is noteworthy that, though past evidence of human infection was found, no patients actually suffering from Q-fever were met with in the houses in which the bed-bugs had been collected.

The author postulated on account of the above quoted observations that dis-insectization ought to be made obligatory in Q-fever affected premises where bed-bugs were present.

368. Savchenko, E.N., Tick-borne encephalitis in Sakhalin. (Preliminary communication.) Voprosy virusologii 6 (1960) 5: 625.

The observation of a serologically confirmed instance of Q-fever in Sakhalin led to the organization of an expedition to detect the cause of infection of the patient. The village where she lived appeared to be free from the disease but significant findings were made in the 5-6 km distant locality used as a cow pasture, where ticks (Ixodes persulcatus) abounded. Complement-fixation tests with the sera of the 16 residents in this locality gave a positive result in two instances and a weakly positive result in two or more persons. The above mentioned patient was evidently infected by ticks brought to her compound by her cow.

369. Ostrovskaya, N.N. and Soloviev, N.N., Electron microscopy of brucella phagolysis. Zh. mikrobiologii, etc. 31 (1960) 11: 4-10. (From the N.F. Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

Studying the action of the brucella phage TB (abortus type) on the Br. abortus strains 19 BA and 104 M, the authors found that phagolysis took place slowly: intensive adsorption of the phage and changes in the structure of the brucella cells could be noted only after an incubation of 9-12 hours. The slow course of the lysis was possibly due to the presence of phago-resistant forms of Br. abortus side by side with phagosensitive organisms.

The morphology of the brucella phages showed marked variations.

370. Mikhailov, B. IA. et al., A rapid method for the diagnosis and detection of *B. anthracis*. Zh. mikrobiologii, etc. 31 (1960) 1: 10-15.

The author describes a rapid method for the recognition of virulent anthrax bacilli, based upon the detection of the capsules which are formed by the organisms in cultures made on solid serum-containing media in the presence of carbon dioxide. Observations of this phenomenon, stated to be specific for *D. anthracis*, could be made within 4-5 hours.

If this method could not be implemented, because too few anthrax bacilli were present besides other microorganisms, incubation was prolonged for 16 hours and then the growth was stained on the plates with a 1% aqueous solution of safranin. As a result of this procedure, colonies of virulent anthrax bacilli became distinct from all other colonies by showing a bright yellow color. The colonies of the vaccinal anthrax strain STI (which formed no capsules when grown in a CO₂ atmosphere) assumed a pink color.

371. Sinitski, A.A. et al., On the use of the indirect method of staining *P. pestis* fluorescent antibodies. Communication I. Specificity of the staining and morphological peculiarities of the fluorescence of the cells of plague vaccines. Zh. mikrobiologii, etc. 31 (1960) 11: 35-39. (From the Order of Lenin Kirov Military Medical Academy.)

For the investigations described in this paper the authors used (a) an anti-plague serum obtained through immunization of horses with a titer of 1:1,500; and (b) a precipitating anti-horse serum obtained through prolonged intravenous immunization of rabbits with the gamma globulin fraction of horse serum, to which as fluorescent conjugate the second isomer of fluorescein isocyanate (prepared according to the scheme of Coons and Kaplan, Journal of Experimental Medicine, 1950, vol. 91, No. 1, pp.1-13) was added.

The specimens of the vaccinal plague strains 1-17, EV and NIEG used as test objects by the authors were prepared for luminescent microscopy as follows:

On heat-fixed films was placed one drop each of the plague-agglutinating serum (a) in a dilution of 1:10 and this was allowed to act for 1-2 minutes either at room temperature (18-22°C) or at 37°C in the thermostat. Next the preparations were vigorously washed with tap water for 1-2 minutes and they were then dried between layers of filter paper. Then one drop each of the fluorescent anti-horse serum (b) in a dilution of 1:2 was allowed to act on the films for 3-5 minutes as specified above. Finally the specimens were again washed and dried.

If such preparations were examined under a luminescent microscope, the plague vacilli showed a characteristic fluorescence of their rims. The same phenomenon was shown to a lesser degree by many pseudo-tuberculosis strains, but not by tularemia bacilli or other bacterial

species tested by the authors. The characteristic fluorescence was retained or only slightly reduced in preparations made from growths kept at 4, 18-22 or 37 degrees C, but it was found to be markedly decreased or was even absent in growths kept at a temperature of 300 C for several days.

372. Dashkevich, I.O. et al., On the use of the indirect method of (examination with) fluorescent antibodies for the species- and type-specific staining of some pathogenic bacteria. Zh. mikrobiologii, etc. 31 (1960) 11: 43-48. (From the Order of Lenin Kirov Military Medical Academy.)

Using a two-step method analogous to that described in the preceding review, the authors obtained good results when examining various bacterial species including dysentery bacilli, vaccinal strains of anthrax, tularemia and brucellosis, Mechnikov's vibrio and R. prowazeki. It was a great advantage that one and the same fluorescent serum could be utilized for the examination of these various bacterial species.

373. Malikova, M.V., Catalase activity of brucellae. Zh. mikrobiologii, etc. 31 (1960) 11: 93-99. (From the Mechnikov Institute of Epidemiology and Microbiology, Odessa.)

As described in detail by the authors, the highest catalase activity was shown by B. suis, B. melitensis ranking second and B. abortus bovis taking the third place. However, these differences were not marked enough to be of differential-diagnostic importance.

374. Chistiakov, G.N., On the action of gamma-radiation on the STI (anthrax) vaccinal strain. Zh. mikrobiologii, etc. 31 (1960) 11:103-105.

When agar cultures of the STI strain were repeatedly irradiated with low gamma ray doses, marked morphological changes were seen in the bacterial cells, resulting in a progressive degeneration of the cultures. Irradiation with large doses not only exerted a bactericidal effect but also reduced the immunogenicity of the strain.

In the opinion of the author gamma-radiation might be suitable for the disinfection of sport-containing anthrax cultures or of objects contaminated with such spores. The advisability of using strains subjected to such radiation for the purpose of vaccination must be cautiously considered.

375. Pogodina, V.V., Experimental study of the pathogenesis of tick encephalitis after alimentary infection. Communication I. Distribution of the virus in the body of the white mouse. Voprosy virusologii 5 (1960) 3: 272-279. (From the Ivanovski Virus Institute, AMS, USSR, Moscow.)

The conclusions reached by the author were that:

(a) Introduction of the tick encephalitis virus into various parts of the gastro-intestinal tract (oral cavity, esophagus or rectum) leads either to a typical attack of the disease or to the development of an immunity without clinical manifestations (see the table inserted below).

(b) Alimentary infection of white mice with tick encephalitis virus leads to quick fixation and subsequent multiplication of the virus in the tissues of the gastro-intestinal tract, particularly in the intestine.

(c) One can note a definite sequence in the invasion of the organs of the internally infected mice: tissues of the gastro-intestinal tract--blood and internal organs--central nervous system.

<u>Mode of infection</u>	<u>Total mice infected</u>	<u>Fell ill and died</u>		<u>Incubation period (days)</u>	<u>Immunity of survivors</u>	
		<u>No.</u>	<u>%</u>		<u>Time of testing (days)</u>	<u>Index of resistance</u>
Orally	70	29	41.4	2-26	38(43)x	223(177)x
Esophageally	72	38	52.7	5-32	38	141
Per rectum	70	30	42.8	9-30	38	223

x Repeat examination

376. Pogodina, V.V., Experimental study of the pathogenesis of tick encephalitis after alimentary infection. Communication II. Study of the routes of excretion of the virus from the white mice. Voprosy virusologii 5 (1960) 3: 279-285. (From the Ivanovskii Virus Institute, AMS, USSR, Moscow.)

The conclusions reached in this second study by the author are:

(a) After alimentary infection the tick encephalitis virus is excreted in the feces of the mice. The excretion starts already during the incubation period and becomes maximal during the acute stage of the disease.

(b) The concentration of the virus in the intestinal wall and in the feces is in excess of that in the other excretory organs and excretions. Consequently the elimination through the intestine has to be considered as the principal route of virus excretion after alimentary infection.

(c) Excretion of the virus through the intestine is characteristic not only for the alimentary mode of infection. An accumulation of the virus

in the intestine and feces takes place also following intracerebral and subcutaneous infection of white mice, but begins later and reaches lower levels.

(d) The importance of the fecal excretion of the virus has to be assessed through epidemiological observations and epizootological studies.

377. Vereta, L.A. and Sushkina, L.M., Some results of studies on the invecton of ixodes ticks with encephalitis in the southern raions of the Khabarovsk krai. Voprosy virusologii 5 (1960) 3: 292-297.
(From the Khabarovsk Scientific Research Institute of Epidemiology and Hygiene.)

As the authors state in the introduction of their article, it was postulated by some workers that in the far-eastern parts of the Soviet Union Ixodes persulcatus was the only vector of tick encephalitis. It was known, however, that there the disease occurred not only in the taiga localities infested by Ixodes persulcatus but also in settlements where not rarely Haemaphysalis concinna predominates.

Carrying out systematic studies on the occurrence of the various tick species in the southern part of the Khabarovsk krai during the period 1956-1958, the authors succeeded in isolating 24 strains of the encephalitis virus from ticks--14 from Ixodes persulcatus, 5 from H. concinna, 4 from Dermacentor silvarum and one from Haemaphysalis japonica (which hitherto had not been identified as a vector).

The authors refer at the end of their article to the following manifestations of tick encephalitis in man:

(a) In 1957 two outbreaks involving 22 persons and causing 5 deaths took place in localities about 70-85 km from the focus where they carried out their investigations. Infection, obviously conveyed by I. persulcatus, occurred in the taiga.

(b) In 1958, 17 persons became sporadically infected in the Obluchensk raion. Most of them contracted infection in the taiga, but two children had not left their home and in two persons infection seemed to be due to the consumption of raw goat milk. Four of the patients died. Any of the tick species mentioned above might have played a role in these manifestations of the disease.

378. Gaidamovich, S.IA. and Obukhova, V.R., Sensitivity of cultures from the renal epithelium of sheep embryos to the viruses of Japanese and tick encephalitis. Voprosy virusologii 5 (1960) 3: 304-309.
(From the Biagnostic Laboratory, Ivanovskii Virus Institute, AMS, USSR, Moscow.)

The viruses of both diseases mentioned in the title as well as 3 variants of equine encephalomyelitis used for control purposes grew well in tissue cultures made with the kidney epithelium of sheep embryos. The multiplication of the Japanese encephalitis virus, and also that of the control strains exerted a marked cytopathogenetic action.

379. Fedorov, N.V., Antigen for complement fixation in tick-borne encephalitis. Communication I. Comparative value of antigens purified with different alcohols. Voprosy virusologii 5 (1960) 3: 377-379.

When preparing antigens for complement fixation tests from the brain of white mice infected with tick-encephalitis virus, the author found that, instead of methyl alcohol, ethyl alcohol could be used for purification of the material.

380. Bogdanov, I.L., The international epidemiological symposium in Prague. Vrachebnoe delo (1960): 141-143.

This brief conference report is quoted by title only.

381. Somova, A.G., Action of antibiotics on the cholera vibrio. Antibiotiki 5(1960) 6: 50-55. (From the Rostov-on-Don Scientific Research Anti-Plague Institute).

As stated in the introduction to this article, "The treatment of cholera vibrios in the intestine. Still, the opinion is held that besides this focus of vibrionic activity there develops also a second focus in the biliary system, where under the presently adopted methods of treatment the vibrios remain unharmed."

In view of this assumption the author studied the bactericidal action of oxytetracycline, tetracycline, streptomycin and synthomycin on *V. cholera* grown respectively in broth and in bile. It was found that these antibiotics exerted a bactericidal action at lower concentrations in broth than in bile. Hence, the author concluded, in the case of infections like cholera, in which it comes to an involvement of the biliary system, cultivations in bile ought to be used for a determination of the therapeutic value of the antibiotics, the use of which is envisaged.

382. Tanchenko, I.M. et al., Production of antibiotics for feeding (of domestic animals) in alcohol distilleries. Antibiotiki 5 (1960) 6: 107-111.

The author discusses the advantages of combining the production of chlortetracycline for the purposes of husbandry with the manufacture of ethyl alcohol.

383. Rogozin, I.I. et al., Elaboration of the methods of urgent prophylaxis. (Experimental findings and further perspectives.) Vestnik Akademii meditsinskikh nauk SSSR 15 (1960) 11: 10-25.

As defined by the authors, "urgent prophylaxis" consists of the implementation of methods aiming at the prevention of manifest illness in persons who had contracted an infection. Means for this purpose include the use of antibiotics or chemotherapeutic substances as well as of immune sera and bacteriophages. Under certain circumstances advantage can be taken also of methods of active immunization. Results obtained with the aid of these methods, particularly with antibiotics and chemotherapeutic substances, are discussed in considerable detail and ample consideration is also given to the problem of using the various available methods in combination, inter alia to the studies on plague by Makarovskaia and co-workers, which have been referred to already in these reviews.

Further studies on the problems dealt with in the article are urged.

384. Aleksandrov, N.I., Gefen, N.E. et al., Experience with mass aerogeneous vaccination of man against anthrax. Voenno-meditsinski zhurnal (1959) 8: 27-32.

The work in the Moldavian SSR described by the authors represents the first mass trial of aerogeneous vaccination. As a rule the immunizations were done in an ordinary hospital room with a content of 40 m³, in which 40-50 people could be accommodated. Two dispensers were used to disperse the dust vaccine made from the anthrax strains STI and 3. In accordance with the titer of the vaccine batches used, 2-3 g of the vaccine were put into each dispenser. Dispersion of the vaccine was continued throughout the time of exposure, which lasted from 5-15 minutes.

To assess the concentration of live anthrax bacilli in the air of the room and also the vaccine doses inhaled, two persons were present during the vaccination periods who wore gas masks provided with gelatin-foam filters. As described by the authors in some detail, these filters were afterwards used for agar cultivation so as to obtain bacterial counts.

Altogether 363 persons (agricultural workers 18-45 years old) were subjected to aerogenic vaccination, 220 of whom received vaccine doses ranging from 15 to 63 million live organisms and 143 doses of from 440 to 640 (?/660) million organisms.

None of the vaccinated had clinically manifest local or general reactions. However, it came apparently often to a slight transient leucocytosis and also to a temporary acceleration of the erythrocyte sedimentation rate.

To assess the efficacy of the method, anthrax allergen reactions were made in the group of persons vaccinated with the aid of aerogenous method and also in control groups of 250 persons each, inoculated respectively with STI anthrax vaccine subcutaneously and cutaneously. Positive results of these tests are shown in the following table:

<u>Time after vaccination (days)</u>	<u>Method of vaccination</u>	<u>Number tested</u>	<u>+</u>	<u>++</u>	<u>+++</u>	<u>++++</u>	<u>Total positive</u>
7	Aerogenous	19	9	-	-	-	9
	Subcutaneous	25	5	5	7	-	17
	Cutaneous	25	3	6	2	-	11
15	Aerogenous	26	4	7	6	2	19
	Subcutaneous	49	11	7	5	-	23
	Cutaneous	50	5	10	7	-	22
30	Aerogenous	64	14	9	8	-	31
	Subcutaneous	50	8	-	10	-	18
	Cutaneous	50	6	2	4	-	12
90	Aerogenous	52	18	9	7	1	35
	Subcutaneous	52	12	4	11	-	27
	Cutaneous	24	8	1	-	-	9

Commenting upon these observations, the authors pointed out that 7 days after vaccination fewer positive reactions were found in the group vaccinated with the aid of the aerogenous method than in the other two groups. The reason was that the persons of the first group had been immunized with sub-optimal doses of 42-63 million organisms.

15 and 90 days after aerogenous vaccination, when a considerable number of the persons concerned had received doses of 440-660 million organisms, about 3/4 of the vaccinated showed a positive allergen reaction, while fewer positive reactions were found in the two control groups. 30 days after immunization about half of the persons receiving aerogenous vaccination reacted positively, as against about 1/3 in the control groups.

In order to confirm the relation existing between the size of the vaccination dose and the frequency of positive allergen reactions, the authors quoted the following figures:

(see table on following page)

The authors added that sheep, which had been vaccinated by the aerogenous route with 500-700 million organisms, proved resistant to challenge with virulent anthrax bacilli in doses of from 10 to 10,000 MLD.

<u>Time after vaccination (days)</u>	<u>Size of the immunizing dose (million organisms)</u>	<u>Number tested</u>	<u>Allergic reactions positive</u>
7	43 - 63	19	9
15	43 - 63	17	12
15	440 - 660	9	7
30	43 - 63	20	7
30	440 - 660	44	24
90	43 - 63	26	17
90	440 - 660	26	18

In conclusion of their article the authors emphasized the great expediency of the aerogenous method of immunization, with the aid of which in a room with an air space of 40-50 m³ 1,000 or more persons could be vaccinated per hour.

385. Zakovich, F. A., Experience in the fight against the water-rat in one of the raions of Belorussia. Zdravookhranenie Belorussii 6 (1960) 12: 50-52. (From the Belorussian Institute of Epidemiology, Microbiology and Hygiene).

A number of authors, like N. G. Olsufiev (1950), G. N. Dunaeva (1950) and S. P. Karpov (1937) have shown that, owing to its high susceptibility to tularemia, the water-rat is the main reservoir of this infection in the USSR. In the laboratory of the Belorussian Institute of Epidemiology, etc. B. tularense cultures have repeatedly been isolated from such rodents, captured in different geographical zones of the republic. The water-rat is also the natural carrier of leptospirosis.

As described by the author, the ecological conditions of Belorussia are generally rather favorable for the water-rats. However, as was the case in the summer of 1959, at the time of drought these animals are apt to migrate to cultivated areas, where their density may become excessively high. As a result in the summer of 1959 the water-rats destroyed in some localities up to 50-60% of the cultivations.

In view of this situation in the autumn of 1959 an attempt was made to destroy the water-rats in a cultivated area of 5 hectares with the aid of zinc phosphide. As bait material served fresh carrots, sugar-beets, potatoes and Indian corn. These were cut into hazel nut-sized pieces, smeared with sunflower oil and carefully mixed with 6% zinc phosphide. The persons engaged in this work wore gas masks, rubber gloves, half sleeves and aprons.

Even distribution of baits made from potatoes in an area of one hectare proved unsatisfactory, but good results were obtained when the baits were deposited near the exits of the rodent burrows at a ratio of 5 baits per hole. Baits made from potatoes, sugar-beets or carrots proved more effective than those from Indian corn.

The author admitted that mechanical destruction (slaying) of the water-rats at the time of ploughing gives good results. Since, however, during such campaigns a part of the rodents remains sheltered in their deep burrows, he recommended to follow up mechanical destruction of the water-rats with the distribution of zinc phosphide baits.

386. Shumkov, M. A. and Semenova, V. N., Intensive pasturage as one of the prophylactic methods against tick encephalitis. Meditssinskaia parazitologiya i parazitarnye bolezni 29 (1960) 6: 681-686.
(From the Republic Scientific Research Institute for Malaria and Medical Parasitology, MHI, RSFSR, Rostov-on-Don).

As shown by observations in the Shalinski raion of the Sverdlovsk oblast, the tick infestation of cattle in intensively used pasturages is 5 times lower than the corresponding infestation rate in little used pasturages where no DDT dusting is used. Even if DDT dust was applied to the cattle, the tick infestation was 1.5 times higher than on the cattle in intensively used pasturages not treated with DDT.

The reduction of the tick incidence in intensively used pasturages is the result of changes in the vegetation and reduction of rodent shelters.

387. Kunitskaia, N. T., To the study of the reproductive organs of female fleas and the determination of their physiological age. Meditssinskaia parazitologiya, etc. 29 (1960) 6: 688-701.
(From the Scientific Research Anti-Plague Institute for the Caucasus and Transcaucasus in Stavropol; M.H., USSR.)

This well documented and illustrated article can be quoted by title only.

388. Muratov, I.A., An instance of observation of a plague-infected ixodes tick in the Azerbaidzhan SSR. Trudy iubil. nauchnoi konferentsii Azerbaidzhanskoi protivochumnoi stantsii, posv. 40-letiiu velikoi oktabrskoi soialisticheskoi revolutsii. Baku, 2(1959): 116-118.

Quoted by title only in a reference list in Meditssinskaia parazitologiya, etc. 29 (1960) 6: 747.

389. Olsuf'ev, N.G. and Petrov, V.G., Observation of natural tularemia infection in the tick Haemaphysalis concinna Koch. Trudy instituta zoologii Akademii nauk Kazanskogo SSR. Alma-Ata, 12 (1960): 54-56.

Quoted by title only in a reference list in Meditssinskaia parazitologiya, etc. 29 (1960) 6: 747.

390. Kravchenko, A.T. and Vasil'ev, V.N., Comparative study of the properties of two strains of the tick encephalitis virus in tissue cultures. I. Conditions for the cultivation of tick encephalitis virus in tissue cultures. Voprosy virusologii 5 (1960) 6: 649-653. (From the Ivanovskii Institute of Virology, AMS, USSR, Moscow.)

The tick-borne encephalitis virus was found to multiply in tissue cultures irrespective whether these had been derived from the tissues of man or of susceptible animals (monkeys) or from animals resistant to the infection (rabbits).

391. Kravchenko, A.T. and Pautova, L.P., Treatment of experimentally induced psittacosis. Voprosy virusologii 5 (1960) 6: 686-691.

The conclusions reached by the authors were:

(a) Out of the Soviet-produced antibiotics tested (penicillin, streptomycin, levomycetin and biomydin) the last mentioned (biomydin) proved most efficacious for the treatment of experimental psittacosis in mice.

(b) The therapeutic effect of biomydin was not correlated to a marked degree to the virus dose used for infection of the animals. Timely commenced treatment was of great importance.

(c) To prevent relapses, two courses of biomydin treatment were necessary.

392. Smirnov, S.M., Brucellosis as a social-hygienic problem. Zh. mikrobiologii, etc. 31 (1960) 12: 14-20. (From MH, USSR.)

Though during the period from 1952-1959 the incidence of brucellosis in the Soviet Union was greatly reduced, the author admits that "this infection still represents a serious threat for the health of the workers and continues to cause great losses in the development of husbandry." The number of initial applications for medical help made on account of brucellosis is greatly in excess of those made by patients suffering from other zoonoses or from malaria.

Characteristic for brucellosis is its prolonged course with frequent exacerbations and the appearance of various complications. In his work on "Chronic brucellosis" (Alma-Ata, 1957) Beklemishev recorded in this respect that among 1,756 patients only 21.4% were ill for one year, whereas in 31.5% the illness lasted up to 3 years, in 15% 3-5 years, in 19.6% 5-10 years and in 11.7% more than 10 years. 2.5% of the sufferers became invalids with a complete loss of their working capacity.

Brucellosis is not solely a disease of adults, but in the areas where the infection is entrenched, 10-15% of the total patients are

children or adolescents. Further, brucellosis affects not only persons engaged in husbandry or having otherwise contact with diseased domestic animals in the rural areas, but alimentary infections are apt to appear in towns, due to the consumption of goats' milk or cheese made from the milk of sheep.

Thus far no methods have been found for the radical cure of brucellosis. Nevertheless the author maintains without giving details that:

"even at present the Soviet medicine has at its disposal methods of treating brucellosis patients which, if used properly and strictly individually, give the possibility of cutting short the active process, to prevent severe complications, quickly to restore the lost working capability and to improve or liquidate the sequelae of the disease."

Deaths from brucellosis in the Soviet Union have presently become rare (Not over 0.4% as against 1.5-3.6% during the period from 1930 to 1940).

Nevertheless, emphasis has to be laid upon the implementation of preventive methods. In spite of all difficulties in some areas marked success has been obtained with the aid of such measures. Brucellosis has been declared to have been liquidated in the Crimea and in a few other areas. In the Kirghiz republic epidemic outbreaks of the infection have ceased to occur and the brucellosis morbidity has been lowered in 1959 sixty-five times in comparison to 1952. Less spectacular reductions in the incidence of the disease have been recorded in some other areas.

Most effective among the prophylactic measures is large-scale vaccination. The author stresses in this connection that, according to official data, 50-90% of the total brucellosis patients contracted the infection in compounds which hitherto had been considered to be free from the disease. Hence, in the areas where brucellosis is enzootic, vaccinations must be administered in all compounds where sheep or goats are kept. Public health education must be undertaken on an equally large scale.

The article concludes with an appeal to the public health authorities to intensify the campaigns against brucellosis.

393. Spasski, S.S., Chlorine disinfection of brucella-contaminated water. Gigiena i sanitariia 26 (1961) 1: 107-109. (From the Department of Communal Hygiene of the I.N. Sechenov Order of Lenin, Moscow Medical Institute I.)

As pointed out by the author, within recent years increasing attention has been paid to the danger of a spread of brucellosis through water supplies. It appeared essential, therefore, to establish under what conditions brucella-contaminated water could be rendered safe through

chlorination. To study this problem, the author worked with water samples artificially contaminated with various types of brucellae. The main conclusions reached were that:

(a) The routinely adopted method of chlorination (residual chlorine content 0.3-0.5 mg/liter) was found to be fully effective as far as the abolition of brucella contamination was concerned.

(b) Water samples containing both E. coli (9,500-200,000 organism per liter) and Br. bovis (900-260,000 organisms per liter) were found free from brucellae after chlorination if the coli index of the chlorinated water did not reach 57.

394. Khazanov, M.I. et al., Materials on the reactions produced by a polyvaccine not containing the cholera component. Zh. mikrobiologii, etc. 31 (1960) 12: 59-64. (From the Mechnikov Vaccine and Serum Institute, Moscow.)

As stated by the authors, the polyvaccine NIISI (which confers protection against gastro-intestinal infections as well as against tetanus) possesses the great advantage of being effective when administered in single doses. Nevertheless it is rather unpopular because it produces severe reactions. The workers of the Moscow Serum and Vaccine Institute tried to find out which of the components of the vaccine was responsible for these untoward manifestations. In the present article they report upon the study of one of the variants tested which, in contrast to the usual NIISI polyvaccine, contained no cholera antigen.

As shown by careful observations on a group of over 10,000 persons, this modified vaccine produced in most instances only moderate reactions so that it could be used for the inoculation of adolescents of over 13 years as well as for adults.

(It is noteworthy that the modified vaccine contained a lesser total of bacterial antigens than the usual NIISI polyvaccine - 1.15 mg per vaccinal dose as against 1.45 mg. It is possible that this difference accounted for the milder reactions of the modified vaccine. Ample experiences in China have shown that, whereas inoculation with combined cholera-TAB vaccines was responsible for rather severe reactions, these produced by cholera monovaccines were almost invariably quite mild).

395. Viazhevich, V.K., On the epidemiology of anthrax in the Novosibirsk oblast during the last decade (1949-1958). Zh. mikrobiologii, etc. 31 (1960) 12: 100-101. (From the Sanitary-Epidemiological Station of the Novosibirsk Oblast.)

During the period under review (1949-1958) anthrax attacks were observed in the Novosibirsk Oblast in 23 adults, only 5 of whom were permanently engaged in work with domestic animals (2 shepherds, 2 veterinary workers, 1 groom).

The main causes of infection were infringement of the rules for the dissection of animal carcasses, their burial without due precautions, and forced slaughter (Notschlachtung) of diseased animals in private compounds, leading to handling of the skin and meat of the animals.

With one exception (primary intestinal lesion) the patients suffered from the cutaneous form of anthrax, the carbuncles being situated 21 times on the hand, once in the face. The latter patient as well as that with intestinal anthrax succumbed to the infection.

Careful sanitary measures and systematic yearly vaccination prevented a spread of the infection to the meatpacking factories.

Particularly important for the prevention of anthrax in man are a careful control of the forced slaughter of cattle in private compounds and health education. Close cooperation between the medical and the veterinary workers is also most essential.

396. Leibenson, A.S. and Lucheva, Z.F., Preliminary data on the cultivation of the causative organisms of tularemia, brucellosis and plague on a medium prepared with the Soviet-produced fermentative hydrolysate amino-peptide 2.1st communication. Zh. mikrobiologii, etc. 31 (1960) 12: 102-103.
(From the East-Kazakhstan Oblast Sanitary-Epidemiological Station.)

In 1958 the authors demonstrated the possibility of cultivating embryonal fibroblasts on a Soviet-produced medium containing amino-peptide 2. The present short paper deals with the use of this medium for the cultivation of vaccinal tularemia, plague and brucellosis strains and of listerellae. Best results were obtained with a medium containing 70% of the amino-peptide, 27.5% distilled water and 2.5% agar. Sterilization was done in the autoclave (0.75 atmospheres for 10 minutes).

The authors lay stress upon the fact that B. tularensis grew rapidly and well on this medium without losing its antigenic or pathogenic properties. When working with this medium, large inocula are necessary. Possibly for this reason it did not prove useful for direct cultivations from infected animals.

As added by the authors, amino-peptide 2 (the preparation of which is not described) is furnished by the Leningrad meatpacking factory (miaso-kombinat) and is clinically used.

397. Dzhavadov, R.B., On the state of immunity to smallpox in the adult population. Zh. mikrobiologii, etc. 31 (1960) 12: 110-111.
(From the Institute of Epidemiology, Microbiology and Hygiene of the Azerbaidzhan SSR.)

The presently adopted practice in the Soviet Union is to administer smallpox inoculation to infants of 3 months and to make revaccinations at the age of 4, 8, 12 and 18 years.

The question how long the immunity to smallpox thus produced persists in the adult population has been studied in the past by Dorofeev and Gubenok (Zh. mikrobiologii, etc. 29 [1958] 2: 132) and by Vrochinskii (ibidem 30 [1959] 9: 139). The former two workers revaccinated 249 persons over 21 years and obtained positive reactions in 66%. Vrochinskii observed takes in 33% of the 269 persons over 20 years whom he revaccinated against smallpox.

The present author made analogous observations in 1960 on a total of 5,951 persons, i.e. 150-200 persons in each of the 32 raions of the Azerbaidzhan republic, with the aid of dry smallpox vaccine prepared in the Gamaleia Institute, AMS, USSR. The results are shown in the following table:

		<u>Age groups (years)</u>				<u>60 years</u>	<u>Total</u>
		<u>20-29</u>	<u>30-39</u>	<u>40-49</u>	<u>50-59</u>	<u>or more</u>	
Total	revaccinated	3,012	1,721	697	380	141	5,951
Positive	[Number	907	563	234	130	65	1,899
	[Per cent	30.1	32.7	33.5	34.2	46.0	31.9

It is interesting that the percentage of positive reactions in the individual raions varied considerably. In 15 of these districts it was above the average (in some more than 50%), in 7 it varied from 4.8 to 13.7%. In the latter raions, situated on the frontiers of the Soviet Union, extraordinary smallpox vaccinations had been made in 1958-1959. In the opinion of the author the excessively high percentages of takes observed in some of the above mentioned 15 districts stood in causal relation to the widespread influenza epidemic raging there from December 1958 until February 1959, attacks of this disease exerting an untoward influence on the immunity to smallpox.

The author postulates that until smallpox has disappeared from the world, smallpox revaccinations every 4-5 years ought to be made obligatory in the Soviet Union.

398. Keller, K.A., From the history of plague and cholera control in the Russian fleet. Zh. mikrobiologii, etc. 31 (1960) 12: 125-127. (From the Kirov Order of Lenin Academy of Military Medicine.)

This historically interesting and well documented article can be quoted by title only.

399. Cholera articles quoted by title in the Zh. mikrobiologii, etc. 31 (1960) 12: 138.
- A. Vasiurenko, K.I., Acquired resistance of cholera vibrios to some antibiotics in vitro. Trudy Kharkovskogo nauchno-issledovatel'skogo instituta vaktsin i syvorotok 25 (1958): 47-52.
 - B. Dzhugin, G.E., To the problem of the causes of termination of cholera outbreaks in countries with a moderate climate. Trudy molodykh uchenykh Kievskogo meditsinskogo instituta (1958): 189-194.
 - C. Nikonov, A.G. et al., Intraspecies relations of cholera vibrios. Trudy Astrakhanskoi protivochumnoi stantsii (1958) 2: 438-477.
 - D. Nikonov, A.G. et al., Interspecies relations of the vibrios. Trudy Astrakhanskoi protivochumnoi stantsii (1958) 2: 423-437.
 - E. Pustovalova, L.M., Changes of the chemical constitution of the cholera vibrios in vaccine stored for a prolonged time. Avtoreferaty i tezisyy nauchnoi konferentsii po probleme vliianiia faktorov sredi na zhivotnye belki. Krasnodar (1959): 44.
400. Aleksandrov, N.I., Gefen, N.E. et al., Aerosol immunization with dry live vaccines and anatoxins. IV. Character and dynamics of the Vaccinal process in aerosol immunization with brucella, tularemia, anthrax and plague dust vaccines. Zh. mikrobiologii, etc. 31 (1960) 12: 38-44.

For a study of the bacteriological characteristics of the vaccinal process caused by aerosol immunization with dust vaccines against brucellosis, tularemia, anthrax and plague the authors worked with 428 guinea-pigs, 60 sheep and 14 monkeys (*M. rhesus*). The dust vaccines were prepared from the following strains: *Brucella* BA-19; *Gaikiis* tularemia strain 15; anthrax strains STI-1 and No. 3; plague strains 1-17 and EV. At different intervals after immunization a part of the test animals was sacrificed for the purpose of bacteriological examination. The results of these examinations are set forth in three tables, upon which the authors comment in the text as follows:

(a) Brucellosis--In guinea-pigs

"the brucellae penetrated into the upper respiratory passages, the lungs, the gastro-intestinal tract and into the lymph nodes regional for these organs; if a sufficiently large immunizing dose was used (200,000-300,000 live organisms or more), after the phase of a local vaccinal process, or simultaneously with it, the brucellae reached the blood stream causing a generalization which led to the invasion of the parenchymatous organs (spleen, liver) and the peripheral (groin) lymph nodes. The length of the process of generalization varied, in relation with the vaccine dose inhaled, from 15 to 60 or

more days. It is characteristic that after inhalation of massive vaccine doses (100-200 million organisms or more) generalization took place already within the first 6 hours after immunization, whereas after inhalation of small doses (less than 200,000-300,000 organisms) the process was restricted to the regional phase

The disappearance of the brucellae, standing in relation to the vaccine dose inhaled, occurred in reverse order and became usually complete within 2-3 months, when the sterile phase of immunity ensued."

Observations made in the case of monkeys showed in general results similar to those in guinea-pigs. In sheep, on the contrary, one observed a tendency for localization in the lungs and their regional lymph nodes. The non-sterile phase in sheep was shorter: 30 days after immunization the process of purification of the body from the brucellae was manifest and 2 months after immunization it was impossible as a rule to isolate the organisms.

(b) Tularemia

Isolations of the vaccinal organisms from the animals immunized against tularemia were comparatively rare, but as far as could be judged, the process following immunization was rather similar to that observed in the case of brucellosis. At the end of the first month after aerosol vaccination only few cultures were obtained from the regional lymph nodes of the respiratory or gastro-intestinal tract.

(c) Anthrax and plague

The character and the dynamics of the vaccinal process resulting from aerosol immunization against anthrax or plague were quite similar to those described in the case of brucellosis and tularemia. As the authors stated in this respect,

"the regional vaccinal process following anthrax and plague vaccination in sufficient doses is always accompanied by a generalization with invasion of the parenchymatous organs (spleen, liver). Then, the organs getting rid of the organisms, followed the sterile phase of immunity."

However, as the authors continued,

"in the case of anthrax and plague dust vaccines there were a number of peculiarities, particularly regarding the extraordinarily rapid and intensive dispersion of the vaccinal microbes in the body of the animals: generalization in the case of guinea-pigs began already 6 hours after immunization with comparatively small doses, so that the period of localization of the process was almost always non-existent. The maximum of isolations after aerosol immunization with these vaccines was observed up to 7 days, when a rapid disappearance of the organisms from the body of the animals followed. The sterile

phase of immunity after immunization with anthrax vaccine began in guinea-pigs within 30 days, in sheep within 15 days.

After immunization with plague vaccine in dust form the sterile phase of immunity began in guinea-pigs within 15 days. The results obtained through aerosol immunization of monkeys with dry plague vaccine (dose of 100 million) indicated an intensive settling down of the organisms in the lungs, the regional lymph nodes and the parenchymatous organs, beginning from the first to the 15th day (limit of observation) after immunization."

As far as the general dynamics, the length of the non-sterile phase of immunity and the period of generalization of the process were concerned, there existed no fundamental difference between the aerosol and subcutaneous methods of immunization against anthrax or plague. Still, in guinea-pigs, the period of generalization was longer after aerosol immunization (15 days) than after subcutaneous immunization (7-10 days). According to Aleksandrov and his co-workers the explanation for this difference was that in the case of aerosol immunization, as a result of which the organisms penetrated through the conjunctivae, the upper respiratory passages, the bronchi, the lungs and the gastro-intestinal tract, various systems of lymph nodes became involved in the vaccinal process, whereas the number of lymph nodes becoming involved after subcutaneous or cutaneous inoculation was limited. In the opinion of these authors the involvement of numerous lymph nodes created favorable conditions for the development of a state of immunity.

401. Korotich, A.S. et al., Results of the fight against brucellosis and prospects of liquidating this infection in the Ukrainian SSR. Zh. mikro-biologii, etc. 31 (1960) 12: 104-107. (From the Sanitary and Anti-Epidemic Administration of the Ukrainian Health Ministry, the Kiev Institute of Epidemiology and Microbiology, and the Bassin-ovoe Sanitary and Anti-Epidemic Station of the Ukrainian Health Ministry.)

Brucellosis, the existence of which in the Ukraine was proved in 1930, became widely spread at the time of occupation of this area by the German armed forces during World War II. Mainly involved are the southern and southeastern parts of the republic where the infection is not only entrenched among the sheep but spread from them to the cattle. As a consequence cows' milk plays a dangerous role in the spread of the infection to man, not only in the foci of the disease but also among urban populations. As established by Korotich ("Zoonotic infections," Kiev, 1959) human infections in the Ukraine were derived in 70.6% from sheep, in 28.8% from cattle and in 0.6% from pigs.

As stressed by the authors, animals with inapparent brucellosis are of little epidemiological importance. The authors also maintain that the infections observed in various wild animals, like hares, sisels and rats, are of a secondary nature. It appears legitimate therefore to concentrate attention upon manifestly brucellosis-affected domestic animals.

Owing to energetic work, within the last years the brucellosis situation in the Ukraine has much improved. As the authors put it, now a "positive balance" has been reached, the number of localities where the infection appears to have been suppressed being in excess of that of newly detected brucellosis foci.

The health and veterinary authorities of the Ukraine have given up methods aiming at a gradual abolition of brucellosis in favor of drastic measures aiming at a rapid liquidation of the foci where the infection is entrenched among the sheep. This policy is in the realm of tactical politics because, as the authors maintain, at present only about 20 such foci exist in the Ukraine. They state in this connection that, in order to obtain complete success in these foci, it is necessary to destroy not only the diseased animals but the whole flocks.

To cut short the perpetuation of the infection among the cattle, it is essential to prevent breeding from cows showing a positive brucellosis reaction.

The reduction of the number of foci where brucellosis is present in the domestic animals has led to a marked decrease in the incidence of the disease in man. If one puts the incidence of human brucellosis in 1952 at 100%, the incidence rates in the following years were 70.7% in 1953, 67.7% in 1954, 28.9% in 1955, 30.8% in 1956, 20.5% in 1957, 14% in 1958 and 8.4% in 1959. Generally speaking the incidence of human brucellosis has become much lower in the USSR than in other countries.

Hand in hand with sanitary measures, vaccination plays an important role in the control of human brucellosis. From 1952 large-scale vaccination campaigns have been conducted in the foci of sheep brucellosis, inoculations being administered to persons engaged in husbandry work both on infected and non-infected farms and also to the workers of meatpacking concerns. This work has led within the last few years to a rarity or even absence of new human infections. The authors postulate in this connection that vaccinations given during the lambing time are little effective.

Another useful method is dispensary observation of the persons engaged in husbandry work during the epizootic season and 2-3 months after it so as to detect and promptly to treat newly infected patients. Such work in its turn has often led to the detection of hitherto unknown foci of brucellosis.

The authors feel confident that through implementation of the above outlined measures it will become possible during the period from 1960 to 1962 to eradicate all foci of sheep brucellosis and considerably to reduce the number of farms where the infection is present in cattle. To safeguard brucellosis-free farms, it is of great importance to prevent, under veterinary control, with the aid of quarantine measures and laboratory tests the importation of infected domestic animals.

As the authors finally state, the anti-brucellosis work in the Ukraine is directed by a coordinating commission for the control of zoonoses formed by representatives of the ministries of health and agriculture. The scientific conduct of the work is coordinated by a commission organized by the Ukrainian Academy of Sciences.

402. Beklemishev, V.N., Planning of measures against tick encephalitis. Meditssinskaia parazitologiya, etc. 30 (1961) 1: 6-10.
(From the E.I. Martsinovskii Institute of Medical Parasitology and Tropical Medicine, MH, USSR.)

As in the case of malaria, the program of campaigns against tick-borne encephalitis ought to comprise the implementation of (a) current measures, feasible with the aid of the presently available facilities, and (b) long-range measures, aiming at the ultimate eradication of this infection in the USSR.

It must be kept in mind that (1) patients suffering from tick encephalitis are incapable of spreading the infection; and (2) its tick vectors do not multiply in the human settlements. Thus the infection of man is derived directly or indirectly from the natural foci through tick-bites in the foci; transport of infected ticks to the settlements; and the consumption of the milk of goats infected in the foci. The encephalitis-affected settlements are thus merely "pseudofoci" of the infection.

In order to formulate a plan for the campaigns against tick encephalitis, it is necessary in the first line to make lists of all the pseudofoci as well as of the natural tick encephalitis foci. Since, however, frustrane forms (formes frustes) and symptomless forms of tick encephalitis are frequent, in the areas affected by this infection all rural settlements are to be regarded as potentially involved and must be investigated by carefully searching for actual or suspect attacks of the disease and, whenever possible, also with the aid of serological methods (complement fixation and neutralization tests).

An epidemiological evaluation of the natural foci of tick encephalitis is also of great importance. Attention has to be devoted in this connection to the abundance of infected ticks, the seasonal incidence of their infection and to investigations on the state of immunity in the wild animals serving as hosts for the ticks and as reservoirs of the infection. The same holds true of the cattle of the affected areas.

Of particular importance among the methods of investigation outlined above is that of serological tests among the human population, which, as the author postulates, ought to rank with the examination of blood films in malaria work.

As in the case of the latter disease, in that of tick encephalitis it is necessary to classify the pseudofoci and to determine the prophylactic measures adequate for the different types of these foci.

For mobile units of the population, one can use only methods of personal prophylaxis like vaccination, use of tick-repellents and of protective garments. To protect the permanently resident population, one has to consider methods like tick eradication in the foci, prevention of infection through milk and the implementation of forest amelioration. To illustrate the possibilities for such work, the author quotes three examples:

1) Small villages situated within an active natural focus of tick encephalitis, where almost all the people frequent the forests and almost everybody is exposed to tick bites. As a result, the whole adult population becomes gradually more or less immune, so that only children and newcomers fall a prey to the infection. In view of the extent of the areas concerned, tick-eradication measures are unprofitable. Comparatively best among the prophylactic measures is through vaccination of the children of pre-school and school age and of newcomers.

2) Villages in forest-steppe areas or artificially aforested areas with a spotwise distribution of infected forest parcels. Here the risk of infection and consequently the immunity level of the population are low. In such localities the possibilities for contact of the people with the ticks may be reduced, e.g. by felling the trees for the supply of wood in winter instead of in summer. Tick eradication may be effected by the distribution of DDT with the aid of airplanes. Methods of personal prophylaxis, including vaccination, are of supplementary value.

3) A large town in the taiga, from which forests have become more or less remote. However, infection may be contracted in suburban parks and small remnants of woods near the inhabited zone. Moreover, the people visit the forests during the periods of their leave and groups of children are taken there. Others go out for work in the forests.

To cope with this situation, the tick encephalitis foci near the town must be eradicated (tick destruction, forest amelioration, etc.). The same program must be adopted in the places regularly visited by people going on leave. All groups of people who cannot be safeguarded through these operations, must be protected with the aid of methods of personal prophylaxis. Public health education is of great importance in this respect as well as in the prevention of tick encephalitis in general.

As the author states in conclusion of his article, the three conditions for a successful fight against tick encephalitis are: (1) knowledge of the real extent of the affected areas and listing of all pseudofoci, silent foci of the infection included; (2) epidemiological investigation and classification of the pseudofoci, so as to obtain information indispensable for a rational conduct of the prophylactic work; and (3) timely and thorough conduct of this work.

403. Maslov, A.I. and Krivenkov, G.N., Aerogenous immunization and re-immunization with live brucellosis vaccine on the basis of the action of ionizing radiation. (Experimental investigations). Voenno-meditsinskii zhurnal (1961) 2: 27-31.

The authors experimented with 65 guinea-pigs, 25 of which were used for aerogenous immunization and 30 for subcutaneous vaccination. Part of the animals of each group was exposed 5 hours before immunization to the action of X-rays (dose 250 r). The remaining 10 guinea-pigs were exposed to the same doses of X-rays without subsequent immunization.

Aerosol immunization was done in a chamber, in which the test animals were exposed for 30 minutes to the dispersion of a live vaccine prepared from the strain Br. abortus bovis 19-BA and containing 50 billion organisms per ml. The pulverizator used dispensed aerosol drop-lets of 15-30 microns. One litre of the chamber air was found to contain 14.6 million of live brucella organisms.

The dose for subcutaneous immunization amounted to 500 million organisms of the vaccinal strain.

In the radiated guinea-pigs, which had been vaccinated with the aerosol, there developed a radiation sickness of the third to fourth degree, leading to the death of up to 60% of the animals within 8-14 days. In the nonimmunized control group as well as in the subcutaneously vaccinated guinea-pigs developed radiation sickness of the second to third degree only, causing death of 10% of the animals within 30 days. There were no deaths among the not radiated animals which had received aerosol vaccination.

The agglutinin titres in the immunized animals are shown in the following table:

<u>Group of Animals</u>	<u>Mode of Vaccination</u>	<u>Mean Agglutinin Titers</u> <u>After vaccination (months)</u>		
		<u>0.5</u>	<u>1</u>	<u>3</u>
Radiated	By aerosol	5	160	80
	Subcutaneously	60	35	5
Not radiated	By aerosol	217	526	500
	Subcutaneously	100	232	120

Thus one could observe a marked suppression of the immunological reactivity 2 weeks after aerosol immunization in the radiated animals. This is in accord with the severe character of the radiation sickness in this group of guinea-pigs. One to three months after vaccination the

agglutinin titers in the aerosol-vaccinated animals were higher than those in the subcutaneously inoculated animals.

Revaccinations of the immunization animals were made after 7 months with 250 million doses of the live vaccine subcutaneously and by exposure of the test animals to aerosol immunization for 15 instead of 30 minutes. Part of the animals were exposed to radiation 5 hours before revaccination.

In the radiated revaccinated animals as well as in the radiated but not revaccinated controls developed a radiation sickness of the second degree, to which only one subcutaneously revaccinated guinea-pig succumbed 8 days after radiation. The agglutinin titers in the test animals are shown in the following table:

		Mean Agglutinin Titres					
<u>Method of</u> <u>Revaccination</u>	<u>Sub-groups</u>	<u>Before revac-</u> <u>cination</u>	<u>Times after revaccination</u>				
			<u>1 wk.</u>	<u>2 wk.</u>	<u>1 mth.</u>	<u>6 wk.</u>	<u>2 m.</u>
By aerosol	Radiated & revaccinated	330	240	960	480	2,600	500
	<u>Only revac-</u> <u>cinated</u>	160	160	1,600	800	2,880	480
	Only radiated	0	20	80	0	40	20
Subcutane- ously	Radiated & revaccinated	10	55	373	270	347	227
	Only revac- cinated	0	200	480	320	800	320
	Only radiated	90	80	120	160	160	120

Commenting on the figures the authors stated:

"that the aerosol method of revaccination after radiation is more efficacious than the subcutaneous method. Already one week after aerosol revaccination one noted a quite high agglutinin titer (1:240) which exceeded that in the aerosol-revaccinated but not irradiated controls (1:160). . . . Afterwards also the agglutinin level in the aerogenically revaccinated guinea-pigs was two times higher than the titers in the radiated subcutaneously revaccinated animals and also in the revaccinated guinea-pigs which had not been radiated."

Discussing the results of allergic tests with brucellin (which are also shown in tabular form), the authors stated that:

"in the radiated guinea-pigs, in the case of aerosol revaccination as well as in that of subcutaneous revaccination one could observe 2 weeks after radiation a more marked lag in the development of an allergic state which, however, was made up more rapidly in the case of the aerogenically revaccinated animals (after 1 month) than in the guinea-pigs revaccinated by the subcutaneous route (2 months after revaccination)."

The conclusions reached by the authors were that:

(a) In the radiation sickness of guinea-pigs aerogenically immunized with live brucellosis vaccine after radiation with a dose of 250 r one notes an increased mortality in comparison with that of subcutaneously vaccinated animals, as well as a suppression of the immunological reactivity throughout the period of acute illness.

(b) Aerogenous revaccination 7 months after the primary immunization does not exert an adverse influence on the course of radiation sickness in the radiated animals; immunologically it is 2-3 times more efficacious than subcutaneous revaccination.

(c) During the course of acute radiation sickness, regardless of the mode of revaccination, one observes a considerable lag in the development of an allergic state, which in the case of the aerogenically revaccinated guinea-pigs is made up quicker (within a month) than in the animals revaccinated subcutaneously (within 2 months after revaccination).

404. Kukavskaia, S.A., Acute toxic encephalitis as a result of poisoning with a DDT preparation. Vrachebnoe delo (1961) 1: 118-119.
(From the Department of Nervous Diseases of the "October Revolution" Hospital, Kiev.)

The 65 year old patient against orders used highly concentrated DDT dust in her home. She was eventually discharged with a slight hemiparesis on the right side.

Besides this, only one instance of DDT poisoning has been recorded in the USSR.