AERONIZATION IN MEDICINE

Aeronisation in Medicine. Edited by Professor A. L. TCHIJEVSKY and DR. G. A. LAPIDUS. Vol. III, Transactions of the Central Laboratory for Scientific Research of Ionification. Publishing House "Kommuna," Voronej, USSR. 1934.

IN the issue of SCIENCE for May 31 Professor Alexis L. Romanoff, of Cornell University, had a brief review of "Problems of Ionization" published in Moscow. Since several inquiries received by Professor Romanoff have been referred to me, as I had the privilege personally to know Professor Tchijevsky, and to visit him in Moscow, I believe the readers of SCIENCE will be glad to have additional information about the Central Laboratory for Scientific Research of Ionification.

A few days ago the writer had the pleasure of receiving a letter from Professor Tchijevsky, and also a copy of Volume III, entitled "Aeronisation in Medicine." This volume contains fifty-eight articles on aeronization in medicine, contributed not only by Dr. Tchijevsky and his associates in the Central Laboratory, but a number of experimenters in other medical institutions in Moscow, Voronej and other cities. Among the subjects treated are: Application of aeroions in physiotherapy; aeroionotherapy of wounds; influence of aeronization on the tubercular process in rabbits. There are also four articles on treatment of tubercular patients with inonized air, the reactive changes in the internal organs, and in the nervous system by aeronization, influence of aeronization on the growing organisms, also on the polyavitaminosic pigeons, etc. There are several chapters on apparatus for the production of pharmacological aeroions and for their count, method of producing highly ionized water, steam, medicinal solution, highly concentrated heavy ions in medical solutions produced by electrostatic pulverization. Several chapters are also devoted to aeronization of shops and factories. The work on ionization by Professor Dessauer and other European scientific men is discussed.

Dr. Tchijevsky writes that his apparatus for ionization is different from that used elsewhere, and that he has the invention patented in USSR.

Volumes II and IV are now in press. The tables of contents of all volumes are announced. Volume III has an English table of contents and a fifteen-page résumé in French by Dr. Tchijevsky.

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SPECIAL ARTICLES

BACTERIAL CONTENT OF THE AIR AT HIGH ALTITUDES

NUMEROUS investigations of the upper air for the presence of bacteria and fungi have been made by several observers. Procter in Boston has made about forty flights, one up to the height of 20,600 feet, and has taken cultures from the air under diverse conditions. Meier, in Washington, in conjunction with the Naval Department, has made extensive studies but has confined himself mainly to the search for fungi. In the recent flight over the Atlantic by Lindbergh, glass plates covered with an adhesive material were exposed at different heights and under diverse conditions over land and water in order to catch the spores of fungi. These plates were studied by Meier.

On October 3, 1934, I made a flight to the height of 20,000 feet and exposed blood agar in Petri dishes at every 1,000 feet. Technical difficulties prevent the procuring of accurate data.

Prior to my recent flight the highest altitude at which this work had been done was 20,600 feet.

With the permission of General MacArthur, of the U. S. Army, a recently constructed bombing plane at the Glenn Martin Plant was put at my disposal for a flight above 20,000 feet.

This plane was selected more particularly on account of the compartment provided for the machine gunner, which formed a kind of a nose of the plane and the farthest point forward. The propellers and the other sections of the plane were behind this prominence. This compartment was encased in glass and aluminum framework and had a slit in the front through which the hands could be projected and the plates exposed. In this manner one could be certain that the air striking the plates was free from contamination from any other part of the plane.

Blood agar in Petri dishes and a special medium in other Petri dishes for fungi were used. These dishes were sterile on the outside and were wrapped in sterile gauze and sterile paper. They were packed in sterile containers and placed in a convenient location in the plane. After exposure the plates were again wrapped in the material which had been around them and put in a second sterile container.

I was alone in the compartment. The pilot, Captain Polk, occupied the pilot's seat and had charge of the plane. I had on a very thick flying suit and was definitely restricted in my movements.

The technique was as follows: The plates were taken out of their container and unwrapped. Sterile rubber