

injection of the blood of another rabbit. If the blood of a different animal is injected into its tissues, it dies immediately. In the case of human beings, blood has been divided into four groups. When an injection has to be made, the blood of the patient has first to be tested to see which group he belongs to. Only rare individuals of the fourth group can give blood to any of the others with beneficial and not dangerous results.

Prof. Yourevitch and his woman colleague have opened up an entirely new line of treatment. They separated the red blood corpuscles from the serum by centrifuging methods. They found that the poisonous qualities which on injection have such harmful effects are in the plasma, and that if the separation or "washing" is thoroughly carried out, the red blood corpuscles of an animal of one species can be injected into another without the slightest danger, but, on the contrary, with complete satisfactory results.

Rabbits which had lost an absolutely fatal quantity of blood could be saved by the injection of sheep's blood which would have been highly poisonous to them, provided only the washed red corpuscles were injected.

A rabbit which had received 10 to 15 cubic centimeters of unwashed ox blood died within five or six minutes. Another rabbit was given similar blood which had been partially washed, added to some of its own. After a period of serious prostration, it recovered. But a rabbit which had received only the red blood corpuscles of ox blood, which had been thoroughly washed, recovered completely without any detrimental symptoms.

It is confidently suggested by the investigators that in cases where human blood of the right group is not immediately available for transfusion, blood of any other group would be equally beneficial, provided only the washed red corpuscles were used. They also indicate that in their opinion blood of animals could probably be used in the same manner, if no human blood could be obtained.

It is further stated that a preparation of red blood corpuscles in a salt solution has been kept perfectly in bottles, and that there is no reason why such a preparation could not be made up in a standard manner, and stocked for use according to necessity.

AMERICAN WHEAT DISEASE TRACED TO RUSSIAN SOURCE

Wheat from southern Russia, brought to the United States for the purpose of pushing the wheat line west into the dry plains of Kansas and the Dakotas, smuggled in with it a troublesome disease known as "black chaff", according to report by Dr. Erwin F. Smith, which appeared recently in "Science."

The disease, which is of bacterial origin and manifests itself by a darkening of the husks and beards of the wheat, appeared in the wheatfields of the West several years ago. Nobody knew whence it had come, but since it grew in the hard-wheat area, most of whose grain was of recent Russian ancestry, Dr. Smith put forth the opinion that it had come in with the seed wheat. Recently his opinion has been confirmed, for the same disease has been found in a number of places in

the great wheat lands just north of the Black Sea, where Mark Alfred Carleton gathered seed wheat for the U. S. Department of Agriculture nearly thirty years ago.

Dr. Smith, however, does not attach any blame to the work of this explorer, but believes that new plants should be grown under quarantine when first brought to this country, so that lurking diseases may be detected and excluded. Of Mr. Carleton's work he says:

"I have always considered Mr. Carleton's work to be the most far-reaching and practical piece of work ever done by the Bureau of Plant Industry, since in a district in our west stretching from Texas to North Dakota and covering several degrees of longitude, through his energy and ability, we now grow annually 100,000,000 bushels of the Russian hard wheats, where previously we did not grow any.

"I write this not to condemn Mr. Carleton but only to point out that, if our government were as intolligent as it ought to be (few governments have much foresight), we should now have agents scouring the whole world studying all sorts of crops and crop diseases so that in future when we import valuable ornamental plants and food plants we may do so without at the same time bringing in their parasites. Had we known of this Russian wheat disease in 1889 weshould have imported the Russian hard wheats more slowly and grown the plants in quarantine first and so have avoided introducing the parasite along with the grain. In similar ways we might have avoided the introduction of a dozen very destmictive parasties which have come to us from the old world in the last three decades. The United States, even at the present time, is very derelict in making explorations in foreign countries for the benefit of its citizens and the conservation of its industries, but if we would lead the world we must change our policy. Japan is the only country thoroughly awake to the need of foreign exploration. Her scholars are in every quarter of the globe, dozens of them picking up every grain of information possible for use in the mother country. It is much to be regretted that we have not already adopted the same far-sighted and commendable policy."

TUBERCULOSIS VACCINATION MAY BE POSSIBLE IN FUTURE

Will our descendants be vaccinated for tuberculosis much as we now are for smallpox? That even the most conservative in the medical world do not consider such a future development impossible is shown by the editorial attitude of the Journal of the American Medical Association.

Discussion of the most recent results of the tuberculosis inoculation experiments of Prof. Albert Calmette of the Pasteur Institute, contrasts his methods with those of a German experimenter in this field, Dr. H. Selter, of the medical faculty of the University of Konigsberg. Attenuation of a disease germ to such a degree that it will confer immunity but will not cause serious illness has been the aim of many investigators for many diseases. Prof. Calmette and his associates believe that they have attained such a weakened strain of bacilli, by growing them for thirteen years in a medium consisting exclusively of bile.