

PHYSIOLOGY

Find Blood Platelet Types

► **DISCOVERY OF** groups and types for the mysterious platelets of the blood was announced by Drs. Mario Stefanini, Jyota B. Chatterjea, Gerald I. Plitman and William Damashek and Mrs. Irma B. Mednicoff of the New England Medical Center and Tufts Medical School, Boston, at the meeting in Chicago of the American Association of Blood Banks.

Platelets are colorless, disk-shaped bodies found in the blood of humans and all other mammals. They play a part in the blood clotting mechanism, but are still not well understood. Transfusions of platelets from blood may help save victims of any future atomic bomb attacks, it is thought, since such platelet transfusions have saved dogs and other animals from killing doses of X-rays.

The Boston scientists find that platelets can be grouped and typed as red blood cells are before blood transfusions.

The four groups and six types of platelets are sometimes incompatible, which suggests that if platelet transfusions are much used in future, their types will have to be identified before use.

A blood disease of new babies, thrombocytopenia, in which blood oozes out of the vessels under the skin, may be due to platelet incompatibility between mother and unborn baby, just as Rh incompatibility causes trouble of another kind for the baby.

Adults also suffer from the blood-oozing disease and the gradual failure of repeated platelet transfusions to help them may be due to incompatibility of the donor's platelets with the patient's.

There is no correlation between the four platelet groups in human blood and the familiar four groups of red blood cells.

Science News Letter, October 31, 1953

PHYSIOLOGY

Spleen, Glands Make Antibodies for Disease

► **THE FIRST** direct evidence that the spleen and lymph nodes, or glands as the layman calls them, produce disease-fighting antibodies is announced by Drs. William M. Hale, professor of bacteriology at the University of Tennessee Medical School, Memphis, Tenn., and Richard D. Stoner of the Medical Department of Brookhaven National Laboratory. The experiments were conducted at Brookhaven, under sponsorship of the U. S. Atomic Energy Commission.

For decades, bacteriologists have known that antibodies can be found in almost every organ of the body of immune animals. Where antibodies actually are formed, however, remained a matter of speculation.

At Brookhaven, the two bacteriologists

immunized a group of mice with the antigen, tetanus toxoid. An antigen is any substance, such as tetanus toxoid, which incites the production of specific antibody when injected into the body. Tetanus, or lockjaw, is an acute infectious disease caused by a toxin produced by the bacterial organism. A toxoid is a toxin whose poisonous action has been destroyed.

Once sufficient time had been allowed for the production of antibody (tetanus antitoxin) by mice, immunized but not irradiated, Drs. Hale and Stone removed the spleen and lymph nodes from these animals. The tissues from immunized mice were implanted into non-immunized, irradiated mice. Antitoxin is an antibody formed in response to a toxoid capable of neutralizing a toxin.

The irradiated animals had been exposed to amounts of cobalt 60 gamma radiation known from previous experiments to be sub-lethal, yet sufficient to destroy the animals' ability to produce antibody. Since the radiation prevented antibody formation in the recipient animals, any antibody now formed could be produced only by the transplanted tissues while growing in the anterior chamber of the eyes.

The spleen and lymph node transplants produced significant amounts of antibody (antitoxin) under these conditions. In addition, intravenous injection of the recipient animals with the antigen, tetanus toxoid, greatly increased antibody formation by the tissues in the eyes of irradiated mice.

The two collaborators in the antibody experiments are now testing tissues other than spleen and lymph nodes to determine whether these, also, may be sites of actual antibody production. Bone marrow, liver, lungs, blood, central nervous system, and other sites have been mentioned as possibilities by various investigators.

The research with the spleen and lymph nodes was reported in the *Yale Journal of Biology and Medicine* (Sept.)

Science News Letter, October 31, 1953

MEDICINE

Warm Fast in Frostbite Cases

► **WARM FROSTBITTEN** toes, fingers, ears or other parts of the body quickly instead of thawing them gradually, Red Cross first aid instructors will start teaching.

The change is one of two major ones in first aid adopted by the American Red Cross on the recommendation of the National Research Council's Committee on Surgery.

The second major change is on use of the tourniquet. Apply close to and above the wound and do not release it, Red Cross first aiders will now be taught. Tourniquets used in first aid should be released only by a physician who is prepared to control bleeding if it starts again.

Previous teaching was to apply tourniquets high on the arm or thigh and release every 15 minutes.

Science News Letter, October 31, 1953



LADYBUGS—O. B. Lester, center, of Sonora, Calif., gathers hibernating ladybugs from the mountain canyons near his home and ships them by air to farmers and gardeners. When they wake up in the spring, they work for their new owner by destroying thrips, aphids and other plant pests. Each of the boxes shown contains about 700,000 ladybugs.