PHYSIOLOGY-MEDICINE

New Studies on the Blood Promise Medical Advances

An Extract to Help Save "Bleeders," Instrument to Measure Clotting of Blood Among New Developments

BLOOD featured discussions of the American Physiological Society at Washington. While this may sound as if a gory time was had, no blood was shed.

The discussions were so technical that at times they seemed far removed from the vital red fluid that courses through the arteries and veins of the human body.

Among the many important reports at one session were:

1. An extract from maternal tissue which may help to save the lives of "bleeders," persons suffering from the hereditary disease, hemophilia.

2. A substance in brain tissue and another in the eye which affect the clotting of blood.

3. An adaptation of the photoelectric cell to measure clotting of blood; the new apparatus is called a "coagelometer."

4. Discovery of the primary cause of dangerous blood clots in veins.

5. A method of studying blood regeneration involving total removal and replacement of the blood of dogs and cats.

The extract that may prove valuable in treating hemophilia was obtained from the placenta by Drs. Arda Alden Green, Hope Lowry, R. C. Eley and C. F. McKhann of Harvard University. Dr. McKhann had previously used an extract from this maternal tissue for treatment of measles. The one now reported is a different extract from the same kind of tissue, and seems to have the property of making the blood of bleeders clot more rapidly.

From Cornea

From the cornea of a dog's eyeballs, Dr. John H. Ferguson of the University of Alabama extracted a substance which he found can play a part in the process of blood clotting. This effect of the eyeball tissue indicates, according to Dr. Ferguson, the possibility of preparing a blood-clotting agent from tissues that have no blood in them. The clotting of blood is generally supposed to depend on a substance found in the blood itself. Inability of the blood to clot normally when shed, as in hemophilia, has been thought due to the absence of such substance. He reported other experiments supporting another theory on blood clotting. This is that cephalin from the brain, as well as calcium, is an essential factor in directly activating the clotting substance in blood.

The coagelometer was designed at the Mayo Clinic by Drs. E. J. Baldes and K. K. Nygaard to determine the coagulability of blood in such diseases as hemophilia, obstructive jaundice and thrombocytopenic purpura, in which the blood takes a long time to clot, and in certain cases of thrombosis, or stoppage of a blood vessel by a clot, in which the clotting time is shortened. The coagelometer makes use of the photo-electric cell. Studies with this new tool of modern physics show that there are four and possibly five stages in the process of blood clotting. Clinical application of the coagelometer are under way and will be reported on later.

Clotting of blood within the blood vessels, which may be extremely dangerous, is due primarily to the action of tissue extract, Drs. Stearley P. Harrison and Edward C. Mason of the University of Oklahoma Medical School concluded from experiments they reported at the same meeting. They were able to produce such clots within the veins of an artificial blood-vessel system. Minute amounts of the tissue extract produced the clots when relatively large amounts of blood were circulating through the artificial blood vessels. The clots thus formed were examined under the microscope and found strikingly similar to those occurring in human disease.

The problem of how fast the plasma protein content of the blood supply of the body can be restored to normal after extensive blood loss was investigated by the apparently drastic but harmless operation of removing all the blood and then replacing it by a salt and blood cell mixture, a sort of modified transfusion. In the case of dogs, the plasma protein is regenerated within 200 hours and in cats within 100 hours, Drs. William R. Amberson, John Stanbury and Edna Warweg, of the University of Tennessee and the Marine Biological Laboratory at Woods Hole, Mass., reported.

The operation is performed under ether and the animal suffers no pain or damage. Blood is withdrawn from the carotid artery in the neck. Into the same artery is then injected a salt solution containing in proper proportion the blood cells of another cat or dog. This is continued until examination shows that all the plasma, or liquid constituent of the blood, has been replaced by the salt solution. The rate at which the plasma and its proteins are regenerated is then determined.

Science News Letter, April 11, 1936

ARCHAEOLOGY

Religious Text Carved in Ice Found in Tibet

"HAIL Jewel in the Lotus"—"Om mani padme hum"—the most popular Tibetan religious formula, has been found many places in Tibet but, strangest of all, an American expedition has discovered it carved in ice.

Brooke Dolan II, who has just returned from Tibet and West China, where he led an expedition of the Academy of Natural Sciences of Philadelphia, found the words carved in an ice bridge on the Upper Yangtze River. (*Turn to next page*)

"OM MANI PADME HUM"

Carved in the icy wastes of the strange land of Tibet was found this devout religious inscription, "Hail Jewel in the Lotus."