OUR PRIZE COMPETITION.

WHAT IS THE FUNCTION OF THE BLOOD? WHY MAY HÆMORRHAGE CAUSE DEATH?

We have pleasure in awarding the prize this week to Miss J. G. Gilchrist, Gillespie Crescent, Edinburgh.

PRIZE PAPER.

The function of the blood is of a twofold nature—*i.e.*, absorption and distribution: (*a*) the absorption of oxygen necessary to the life or vital power of the body; (*b*) the absorption of nourishment derived from food materials for the growth and repair of the tissues of the body. This process of absorption has also the dual capacity of conveying to the tissues the material necessary for repairing the waste engendered by the work done by them, and removing from them the waste products caused by their activity. This balance of absorption and distribution is brought about by the circulation of the blood throughout the body through the medium of the heart and blood vessels, the complete circuit being made by the action of the heart sending the blood through the arteries to all parts of the body, and returning it to the heart through the veins, the connecting link between the arteries and veins being the capillaries, extremely minute vessels linking the smallest arteries to the commencement of the veins, and enabling the exchange of waste and repair products to take place. This process of absorption, or "osmosis," as it is technically called, also furnishes the various glands with the special secretions necessary to their particular functions, the relative lymphatic system collecting and storing up the surplus nourishment, to be gradually re-introduced into the blood stream by way of the thoracic duct. By the circulation also fluid (water) and heat is distributed equally throughout the body. The blood, if in a healthy condition, contains immune bodies, and the white corpuscles, called leucocytes and phagocytes, have the power of protecting the body from disease, and, when such is present, of combining in large numbers to attack and overcome the morbid processes brought about by foreign elements. The natural power of the blood to coagulate, to form a clot at the end of an injured blood vessel on exposure to air, is another function which protects the body from the possibly fatal results of hæmorrhage. In exceptional cases, known as "bleeders"—*i.e.*, persons having the hæmorrhagic diathesis or suffering from hemophilia—this protective power of coagulation is not present to a sufficient degree to arrest hæmorrhage, so that they bleed easily, even a very small wound making a fatal result possible.

The importance of hygienic living if the blood is to perform its function satisfactorily cannot be over-estimated, especially in regard to the allied systems of respiration and digestion; the necessity of breathing continuously fresh air, in the former, and of choosing a mixed diet, containing the elements of food which can be converted into nourishment in a simple form capable of assimilation through the blood stream, in the latter.

Hæmorrhage may cause death by actual failure of blood pressure and exhaustion of the nervous system. Thus serious hæmorrhage is treated by infusion or transfusion of a fluid, such as saline solution, to keep up the rush of fluid through the blood vessels, and so keep the heart beating. There are three kinds of hæmorrhage, each having a peculiar danger. Such are (1) arterial, (2) venous, (3) capillary.

(1) Arterial hæmorrhage is usually the result of a wound; the blood spurts out in jerks, and is scarlet in colour. The danger lies in the rapidity and violent nature of the hæmorrhagic attack. The force of the blood from the heart hinders the formation of clotting, so that direct pressure of the artery concerned against a bone between the heart and the bleeding part, and treatment is essential. It should also be remembered that the natural process of arresting bleeding is in this case that the heart beats less strongly after a time, which produces fainting. Therefore it is unwise to give stimulants, as such will cause the blood to flow again with increased force; rather employ cold, pressure and raised position.

(2) Venous hæmorrhage flows in a steady stream, is dark purple in colour. It may result from ulcer in the leg or varicose veins, when it is difficult to control, owing to the damaged vessels. The quantity lost may bring about heart failure, especially as it is usually unaccompanied by pain.

(3) Capillary hæmorrhage may be dangerous on account of the prolonged time the oozing of blood may last and the amount of blood lost. It may occur in ulcerated surface, such as cancer in the late stages, when the tissues have become softened. Capillary or oozing hæmorrhage is best treated by the application of ice with pressure.

HONOURABLE MENTION.

The following competitors receive honourable mention:—Miss Alice M. Burns, Miss R. E. S. Cox, Miss Clive M. Balderstone, Mrs. J. Gotlob, Miss J. Robinson.

previous page next page