

## OUR PRIZE COMPETITION.

WHAT VARIETIES OF IMMUNITY HAVE YOU HEARD OF? IN WHAT WAYS CAN AN INDIVIDUAL BE PROTECTED AGAINST AN INFECTIOUS DISEASE?

We have pleasure in awarding the prize this week to Mrs. Frith Scott, Ladbrooke Grove, London, W.10.

### PRIZE PAPER.

Natural immunity, which may be *complete*, as, for example, in regard to tetanus in fowls; or *partial*, such as the comparative insusceptibility of certain natives to yellow fever and malaria.

Acquired immunity.—One finds this occurring, after an attack of scarlet fever or small-pox, say, in individuals who have suffered from an infective disease and thereafter are more or less immune.

Certain races appear to have acquired immunity to the diseases which invariably attack newcomers to the country. It is probable that the susceptible members of the race are weeded out, and only those with a high natural immunity survive to transmit their insusceptibility to their descendants.

Immunity, either natural or acquired, may be against toxins or against micro-organisms. Immunity against toxins seems largely to depend on the presence of certain groups of molecules which have an affinity for the toxin molecules of the particular disease. There may be a certain amount of natural immunity against a disease, but this natural immunity can be reinforced and increased by various inoculations. A case in point is the inoculation of anti-tetanic serum to increase the "antibodies" in the blood, which will assist in neutralising the otherwise fatal effects of an infection with the tetanus bacilli. Another example is that of anti-diphtheretic serum to protect against diphtheria infection.

Immunity against micro-organisms is greatly strengthened by the unbroken skin surfaces and mucous membrane of the body. When the skin or membrane is abraded it permits the entrance of the micro-organism into the system, as when a cut finger becomes septic—it is not the *cut* which makes the finger septic, but the micro-organisms which gain access to the wound.

An increase in the activity of the circulatory and excretory systems will help to rid the body of micro-organisms. Hence the "natural" defence of fever in such conditions, and the harm of immediately lowering the fever by

means of anti-pyretic drugs. Also the need for increasing the activity of the skin and kidneys, and keeping the bowels open, in all infective conditions.

Apart from the necessity of keeping as fit as possible, an individual exposed to danger of infection should remember certain hygienic rules:—

1. Breathe only through the nose, and from time to time flush both nose and throat out with a mild antiseptic lotion, e.g., boracic or glyco-thymoline.

2. Eat regularly, but only of easily digested foods.

3. Keep as warm as possible, but do not live in unaired, stuffy rooms and heavy clothes. Light, warm clothes, exercise, and fresh air are desirable.

4. Cultivate a calm, serene mind, capable of looking frankly at the danger of infection, estimating it at its true value, taking common-sense precautions, and leaving the result to the Guiding Hand of Destiny—secure in the knowledge that, whatever may be the immediate result, the ultimate outcome will be for our good.

### HONOURABLE MENTION.

The following competitors receive honourable mention:—Miss Henrietta Ballard, Miss M. Summers, Miss T. Morison.

We have awarded the prize to Mrs. Frith Scott, as we consider hers the best paper, though rather short of the minimum number of words. Another excellent paper, by Mrs. Everard Wyrall, was still shorter. Will competitors kindly note the rule that papers should be from 500 to 650 words long.

An interesting point raised in Mrs. Frith Scott's letter is "the comparative insusceptibility of certain natives to yellow fever and malaria."

Some authorities consider that this insusceptibility in malaria, and presumably also in yellow fever, is really acquired immunity. (1) The parents of children born of native races in malarious countries have themselves almost certainly suffered from mild attacks of malaria; and, (2) while still young, these children are bitten by the anopheles mosquito and injected with the malarial poison, actually a form of vaccination conferring relative immunity.

### QUESTION FOR NEXT WEEK.

What are the most common superficial injuries to the eye, and what is the usual treatment which a nurse may be required to apply in the various cases?

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