

OUR PRIZE COMPETITION.

STATE WHAT YOU KNOW OF DIPHTHERIA ANTI TOXIN, ITS PREPARATION, DOSES, AND THE METHODS ADOPTED IN ITS USE IN THE TREATMENT OF DIPHTHERIA; ALSO STATE WHAT IS MEANT BY SERUM SICKNESS, ITS MANIFESTATIONS, AND DIAGNOSIS FROM OTHER CONDITIONS HAVING SIMILARITY.

We have pleasure in awarding the prize this week to Miss Violet Ventris, S.R.N., North-Western Hospital, Lawn Road, Hampstead, N.W.3.

PRIZE PAPER.

Anti-toxin, used in the treatment of diphtheria, is the blood serum of horses that have been immunised by repeated injections of diphtheria toxin.

1. *Preparation.*—To produce this serum, a horse is taken, and during a period of some weeks gradually increasing doses of the toxin of diphtheria are injected into its body, so that at the end of that time its system contains a large quantity of the anti-toxin. It does not contract diphtheria, for horses are very insusceptible to this disease. Some of its blood is drawn off, and by allowing it to clot the fluid part, or serum, is separated. This serum, which is rich in the anti-toxin of diphtheria, is then injected under the skin of patients suffering from that disease. It is then absorbed into the circulation, where it helps the anti-toxin which has been made by the patient's tissues to overcome the influence of the toxin.

2. *The Dose* of anti-toxin depends upon the severity of the case, and upon the length of time that the patient has been ill.

On the first day 2,000 units will be sufficient unless the case is a very bad one. But the longer the patient has been ill, the worse he usually is, and the larger number of units up to 10,000, 12,000, 15,000 or 24,000 should be injected. Half the dose should be repeated next day, and again the day after should no improvement be observed.

3. *Methods adopted in its Use.*—The serum is injected subcutaneously into the lateral region of the abdomen by means of a syringe, which is so constructed that it can be sterilized by boiling. The needle should be connected to the barrel of the syringe by a piece of rubber tubing to prevent injury in case the patient moves. The syringe, needle and tubing should be boiled immediately before use, and the skin at the site of injection washed with some anti-septic solution. Everything must be prepared with strict surgical cleanliness, so that there may be no risk of an abscess forming at the

site of injection, nor of any septic trouble occurring.

In cases of extreme toxæmia intravenous injection is sometimes done.

4. *Serum Sickness* constitutes certain after-effects which frequently follow the injection of anti-toxin and which cause discomfort and inconvenience. They occur from one to three weeks after the injection, and the most common are *rashes*, *pyrexia* and *joint-pains*.

Joint-pains are less frequent than rashes, and the peri-articular structures are more involved than the joints themselves, although effusion into the latter may occur.

There is generally *pyrexia* accompanying joint-pains, and there are often considerable constitutional disturbances.

The chief *serum rash* that is produced is erythema multiforme and urticaria; but besides this there is a rash which is papular, blotchy and exceedingly like that of measles. Occasionally the rash is scarlatiniform. These rashes appear from five to twenty days after the injection of the serum.

The rash often begins to appear at or near the site of injection, but unfortunately this fact is of little value as an aid to diagnosis, as the eruptions of the acute specific fevers will sometimes start at this place if an injection has been recently given. There is often pyrexia, but no vomiting, coughing or sneezing. In the scarlatiniform variety there is no circum-oral pallor; and the rash often affects large areas of skin, these areas being bounded by a well-defined margin. In rare cases the anti-toxin rash may become hæmorrhagic; and it is very rare indeed to find the formation of vesicles.

The ordinary effects of serum are less severe than they used to be. There is one other type of serum sickness which should be mentioned, and this is the condition known as anaphylaxis, which occurs in patients who have had anti-toxin previously, and if given again may produce alarming symptoms. To avert this, usually a sensitised dose is given, followed six hours later by the full dose if the patient has exhibited no ill effects.

HONOURABLE MENTION.

The following competitors receive honourable mention:—Miss S. F. Rossiter, Miss Catherine, Miss R. S. Dodd, Miss Ramsey, S.R.N., Miss P. Thomson.

QUESTION FOR NEXT WEEK.

What first aid would you render to a child who is burnt or scalded, and what are the dangers to guard against? State what you know about the degrees of Burns.

[previous page](#)

[next page](#)