

## VACCINE AND SERUM THERAPY.

Vaccine and serum therapy, whether as prophylactic or therapeutic measures, are two distinct, though closely allied, methods of combating disease.

A vaccine is a chemical agent, which, when introduced into the body, elicits, by a sort of chemical reflex action, an elaboration of substances which have the property of fastening upon it, neutralising it and breaking it down.

Bacterial vaccines are sterilised and enumerated suspensions of dead or attenuated bacteria, which furnish, when dissolved in the body, agents which stimulate the healthy tissues to a production of specific bacterial substances, which fasten upon and contribute to the destruction of the corresponding bacteria.

Most vaccines are prepared by cultivating the bacteria, killing by heat, and counting and diluting them to the point of standardisation. Needless to say, the whole thing must be perfectly sterile, and is tested before use.

Vaccines may be "autogenous" or "stock," the latter, of necessity, being most common and most practicable. An autogenous vaccine is one prepared from cultures of the microbe, obtained directly from the patient's blood, and although, as the preparation takes some time, this method is often impracticable, it gives us the best guarantee that the bacteriotropic substances generated in response to it will be such as will enter into destructive combination with the cause of the malady.

A stock vaccine is one made from the same species of microbe, but not from cultures which are directly affiliated to it. Needless to say, these are always the only kind obtainable for prophylaxis.

The latter is performed with the object of producing "anti-bodies" which will confer immunity against a subsequent attack. When used to counteract disease fully developed, it is believed to stir up the resisting forces of the whole body instead of a limited section.

"Phylacogen" is a name applied to an extract of vaccine from which the bacteria have been filtered out, so that only their products remain.

An "antitoxin" serum is prepared from the serum of the blood of an animal which has been inoculated with gradually increasing and carefully regulated doses of the specific toxins.

The serum contains the antitoxic or bacteria-destroying properties, as the case may be. Their action is somewhat complex. They are said to assist the natural antitoxins, which are always found in the blood when dangerous

toxins are present; they are of an albuminous nature, and by a process of chemical reaction with the toxins, deprive the latter of their power by neutralising it completely. This process is largely assisted by the white corpuscles (phagocytes), and by the natural process of "waste and repair" the whole point at issue being the success or otherwise in producing sufficient antitoxin in the system to neutralise the poisons present.

The dosage of diphtheric antitoxin varies at the discretion of the physician, from 5,000 to 10,000 units, a larger dose usually being given when the disease is well advanced. The site for injection should be well washed, and painted with iodine; all surroundings, such as the operator's hands, syringe, &c., must be sterile. Where the skin will not stand iodine, the part should be well rubbed with methylated spirit, which renders it perfectly clean.

The puncture may then be treated with spirit, and sealed with collodion.

AMY PHIPPS.

## A "SOLDIER'S HEART."

The condition known as "soldier's heart" presents a puzzling character to medical authorities, although its symptoms are well marked.

Sir James Mackenzie believes that the condition is not heart disease, as the term is commonly understood. In its treatment, fresh air, exercise, and recreation play an important part.

A special hospital of a very special kind for its treatment has been opened at Hampstead. This hospital is fitted with every modern scientific apparatus. The electro cardiograph, for example, is a piece of apparatus whereby photographs of the electric waves set up by a beating heart can be obtained. The patient may sit in one room and be connected by wires with the instrument situated in another. The record is scientifically exact.

## A NEW ANTISEPTIC.

It is announced that a new antiseptic has been discovered, which is not only cheaper than carbolic acid, but much stronger.

The antiseptic referred to is eusol, of which the essential constituent is bleaching powder. Its discoverers were Professor Lorraine Smith and Dr. Dakin, and it is compounded in two forms. The new antiseptic, which has been discovered since the outbreak of war, is very largely used in hospitals, particularly in Scotland, and at Leeds. It is made in this country and it is cheap.

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