and it is as natural as possible. The growth is very profuse, even after eighteen hours, and the emulsion obtained is white.

When counting a vaccine, a culture not more than one day old should be used, since after this time many of the gonococci begin to autolyse, and the count would be too low. After making up standard emulsions of, say, 1,000 and 500 million gonococci per c.cm., the strength of other emulsions can be estimated directly by diluting and matching them with the standard.

I hope to publish later results showing the antigenic power of vaccine prepared on this medium.

A NOTE ON THE VALUE OF BRILLIANT GREEN AS AN ANTISEPTIC.

BY

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THE comparative novelty of the use of brilliant green as an antiseptic for the dressing of wounds is the excuse I submit for the following notes. Since May, 1916, I have been using and observing the effects of a solution of brilliant green in the treatment of wounds that have passed through my hands at a casualty clearing station. On the whole, I am favourably impressed with the good results obtained from its use.

The brilliant green is dissolved in normal saline solution in the strength of 1 in 1,000. At this strength it can be used as a lotion, and gauze soaked in it can be applied to the wound as a dressing. It is non-irritant to the tissues, and I have applied it to the peritoneum, the meninges, the synovial membranes, and practically all other varieties of tissue without harmful effects. The less vascular tissues are stained green by its use—for instance, the cuticle of the skin, the edges of fascia or aponeurosis, and sometimes bone. But where it has been in contact with the more vascular muscle or subcutaneous tissue no staining occurs. Dead and necrosed portions of muscle are stained green, and this fact is sometimes of use in distinguishing such necrotic tissue.

After being in contact with the tissue, the dye gradually becomes transformed into a leuco-derivative, and the hitherto green-dyed gauze in contact with the wound becomes white to the depth of several layers. Granulation tissue rapidly forms in the wound, and to emphasize this statement I believe that the formation of granulation tissue is more rapid and more "virile" in character under the influence of a dressing of brilliant green than with other antiseptics—for example, eusol.

The most striking results are seen in the cut surfaces of muscle. The muscle rapidly becomes bright red, and the formation of a highly vascular granulation tissue takes place. In thirty-six to forty-eight hours the muscle may be covered with firm, "dry," bright red granulation points, which present none of the shreddy, sodden look of the granulations under a eusol dressing. The surface of the wound is drier, and the pus formation is smaller in amount and thicker in consistency, than in a similar wound dressed with eusol.

At a casualty clearing station it is almost impossible to formulate other than approximate conclusions concerning the merits or demerits of any antiseptic. The obstacles against obtaining any exact judgement are as follows:

1. The cases have been handled before, and other antiseptics have been applied—that is, at the field ambulance.
2. The cases do not stay long enough for any extended observation, before being transferred to the base.
3. Those cases that do stay and on which more lengthy

* The potent antiseptic properties of brilliant green were drawn attention to by Browning and Gilmour (*Journ. Path. and Bact.*, vol. xviii, 1913, p. 144), and this substance was first employed as an antiseptic in the treatment of wounds by Leitch (*BRITISH MEDICAL JOURNAL*, February 12th, 1916); its action under clinical conditions has also been very favourably reported on by Ligat (*BRITISH MEDICAL JOURNAL*, January 20th, 1917), and Hodgson-Jones (*BRITISH MEDICAL JOURNAL*, 1917, i, p. 455) has recorded excellent results in the rapid healing of indolent ulcers under the use of an ointment of 1 to 2 per cent. brilliant green in paraffin. Further investigations by Browning, Gulbrandsen, Kennaway, and Thornton (*BRITISH MEDICAL JOURNAL*, January 20th, 1917) have shown that concentrations of brilliant green which are highly bactericidal for organisms, such as staphylococci, in the presence of serum, do not interfere with the process of phagocytosis; in this respect brilliant green is much superior to mercury perchloride.

observations can be carried out, are of the more severe type, many having mortal wounds.

4. The difficulty of obtaining news of the subsequent history of the case after it has left the casualty clearing station.

However, by a method of comparison of selected cases, as nearly as possible similar in nature and extent of injury, it is possible to estimate the relative merits of two or more antiseptics, as judged by clinical standards. By such means I have tried to compare brilliant green with eusol, and I believe that the green is the better antiseptic of the two.

Latterly I have been using the green in conjunction with "salt" tablets. It has been my experience that the usefulness of the "saline pack" is enhanced by the inclusion of some antiseptic in the dressing. The combination of the "saline pack" with the green solution during the first few days of the wound has, I think, given better results than the use of one or other alone. It can also be used after the method of Carrel— $\frac{1}{2}$ oz. to 1 oz. of a 1 in 1,000 solution being syringed down a tube or series of tubes leading into the depths of the wound. It is not so irritant to the skin edges as the hypochlorite solution.

SUMMARY.

1. Brilliant green is undoubtedly an active and efficient antiseptic.
2. It is non-irritant.
3. It acts well in the presence of serum.
4. It possesses very definite "auxetic" properties.
5. It stains dead tissue green, and in this way may aid the surgeon in determining what to excise.
6. As it is soluble in "saline" it can be used in conjunction with the "salt pack."
7. It can be used after the method of Carrel.

FLIES AND BACILLARY ENTERITIS.

BY

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IN view of the rapidly approaching summer campaign, it seems advisable to draw attention again to the ever-present dangers from flies during the "season." So much has been written on the subject that it might seem almost invidious to direct attention again to our commonest and most familiar domestic pest.

The matter has received thorough treatment by the Local Government Board, and has been taken up to some extent by independent observers. By far the most comprehensive series of observations is that by Graham Smith,¹ extending over a number of years. In his *Flies and Disease* we have the nucleus around which to group further incidental observations and theories.

The limit of the house-fly's potentialities as a disease carrier has not yet been ascertained, and it might with some degree of safety be affirmed that the spread of almost every disease with which is associated an infectious discharge or exudation of one sort or another may be furthered and accelerated by house-flies. Such diseases are common, and not a few of them are well known to reach their maximum incidence at or about the height of the fly season. On the other hand, in no case has the house-fly been definitely proved to be the exclusively specific carrier of any particular disease. In the majority of cases it is merely the most assiduous and most effective. So far as I am aware, the house-fly is not in any case the actual "intermediate host" of any disease-producing organism occurring in man. It appears, however, to be a true intermediate host of at least one parasite of the horse (*Habronema muscae*).

During the course of my tenure of the Ernest Hart Fellowship, I was able to show² that flies had considerable potentialities as disseminators of parasitic worms, and I was led to make investigations on the bacterial flora associated with flies, and in particular on the occurrence of certain organisms pathogenic to man.

In a recent paper (1917) I published the results of a series of experimental investigations on the relation of