Clinical and other Notes

## TABLE OF FINDINGS.

<table>
<thead>
<tr>
<th>Date</th>
<th>Type of stool</th>
<th>Entamoeba histolytica</th>
<th>Entamoeba histolytica cysts</th>
<th>E.B.I. commenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 25</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;  26</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;  27</td>
<td></td>
<td></td>
<td>No protozoa found</td>
<td></td>
</tr>
<tr>
<td>Oct. 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As is shown in the preceding protocols, five of the cases ceased to pass *E. histolytica* in the active or encysted form, forty-eight hours after the institution of treatment. The sixth case continued to pass cysts for six days, after which the microscopical findings were negative.

These observations have a greater significance when it is remembered that four of the cases had previously received a course of emetine hydrochloride, despite which they continued to pass the entamoeba in its active or encysted stage.

Our observations in these six cases confirm the results obtained by Dale 1 and subsequently by Low and Dobell.2

Note.—Through the kindness of Lieutenant-Colonel Dudgeon we were able to obtain the double salt.

## NOTES ON THE USE OF FLAVINE AS AN ANTISEPTIC IN COLONEL PILCHER'S WARDS IN THE QUEEN ALEXANDRA MILITARY HOSPITAL.

By Temporary Lieutenant V. C. JAMES. Royal Army Medical Corps.

Flavine compounds were brought to our notice about six months ago, and we had the opportunity of examining the experimental results which have subsequently been published by Browning, Kennaway, Gulbransen and Thornton, and which indicated that flavine was an antiseptic of remarkably high potency against the usual pyogenic organisms, while at the same time it did not suffer reduction in effectiveness in the presence of serum. Combined with those properties was the further excellent feature that a powerfully bactericidal solution (e.g., 1 in 1000 in normal saline) did not interfere with phagocytosis or damage the tissues in any way. Since then cases have been treated with flavine compounds in Queen Alexandra Military Hospital, the great majority of them being wounds acquired on service. They varied between slight and severe injuries, but in all cases a definite infection accompanied by suppuration

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was present. Owing to the small quantity available up to the present, we have as yet only employed the antiseptic on a modified scale, but our observations have been sufficiently promising to hold out hopes of great improvement in the results of wound treatment in the future. The treatment which we have carried out has lain along the following lines: the wound has been thoroughly cleansed with either normal saline or a mixture of equal parts of normal saline and hydrogen peroxide solution. After mechanical removal of as much exudate, pus and slough, as was possible by this way, the wound was swabbed out with 1 in 1000 flavine, a few cubic centimetres of the antiseptic were left in the wound to absorb, and the whole was finally covered with gauze soaked in flavine solution, the latter being then covered with a piece of waterproof protective to prevent evaporation. We have carried out this procedure twice a day. The results thus obtained have been highly satisfactory. It has been noticed in cases which had been discharging pus abundantly for weeks under other forms of treatment, that within forty-eight hours the discharge of pus was greatly diminished. In cases where no comparatively inaccessible focus of infection was present, such as dead bone or a foreign body, we have come to anticipate a clean wound in four or five days. By this time we expect to see the wound lined by granulations; these are small, pink in colour, firm and do not bleed readily on swabbing. We have noticed a very definite contrast between the granulations which appear in the presence of flavine and the flabby type of granulations of low vitality which we have seen following the use of other antiseptic solutions.

It has also been observed that in cases treated with flavine the epidermis tends to grow in over the granulating surface with remarkable rapidity, the rate of advance being much greater than was ever observed by us either after treatment with physiological saline alone or with other antiseptics. We consider that this affords a valuable demonstration of the non-irritative and non-toxic properties of flavine. This absence of harmful effect on the epidermis is paralleled in the case of other tissues. We have frequently left as much as ten cubic centimetres of 1 in 1000 solution of flavine in wound cavities, all of which has been absorbed, and we have observed nothing but good result locally from the procedure. Even if the treatment be continued over a number of weeks there is complete absence of any general toxic reaction on the part of the patient.

The following are some striking cases which, we believe, illustrate what is the rule in the treatment of infected wounds with flavine.

Lieutenant A.: Gunshot wound of leg, fractured femur; amputation. The stump was heavily infected. It had been dressed for six weeks principally with saline without improvement resulting. During this period eusol had been occasionally employed but without any good effect. The wound was then washed and packed with gauze soaked in flavine 1 in 1000. After three weeks' treatment the leg was sufficiently healthy
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for re-amputation to be performed; skin flaps were then made and sutured, flavine dressing being continued; they healed by first intention.

Lieutenant L.: Gunshot wound of arm, with fracture of radius, ulna and humerus amounting practically to ablation of the elbow. After treatment for a fortnight with saline dressings the wound remained very septic. Syringing with hydrogen peroxide solution twice daily for over a week caused no improvement. After six days' irrigation with flavine the infection showed very marked diminution, although complete healing was prevented by sequestra; the wound has since granulated and has been covered by epidermis with remarkable rapidity.

Lieutenant E.: Superficial wounds of arm and leg, both heavily infected. These had been treated for fourteen days with normal saline but had made little progress. Within two days after commencing flavine treatment the wounds were clean and granulating, and healing was uninterrupted.

Lieutenant T.: Large carbuncle on neck. It had been incised before admission, but was discharging pus very freely, and showed a large amount of slough at the base. After six days' treatment with flavine all discharge had ceased and the surface was rapidly covered by the ingrowing epidermis. The progress in this case was remarkable.

Lieutenant G.: Gunshot wound of leg, with fracture of tibia, and a large gaping defect of the soft tissue. The skin and tissues around were extremely damaged. An anaesthetic was given and necrosed bone and foreign bodies were cleared out. The wound was then washed out twice daily with hydrogen peroxide and saline, followed by flavine, about an ounce of the flavine solution being left in the cavity at each dressing, the wound then lightly covered with gauze soaked in flavine. After two days the temperature, which had been 101° F., became normal and remained so.

Lieutenant D.: Scalp wound received forty-eight hours before admission. The wound had previously been sutured. On admission an area three inches square was bulging. The stitches were removed and a quantity of pus evacuated. The cavity was washed out and packed with gauze soaked with flavine. In four days there was no more pus, and in ten days the wound had healed completely.

To sum up, the types of cases in which we have employed flavine have been the following: compound fracture (twenty-five cases), reamputation of infected amputation stumps (five), lacerated gunshot wounds of the soft tissues (twenty-five), and in numerous severe minor septic infections such as perineal and ischio-rectal abscesses, axillary abscesses, carbuncles, and infections, with extensive sloughing of soft tissues and tendons. The rapid progress of these minor septic infections, which although not serious in themselves are so wasteful in the time of personnel, has been most striking.

We are convinced that as compared with other forms of treatment,
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E.g., saline application, peroxide of hydrogen and eusol, flavine leads much more rapidly to the extinction of infection as evidenced by the disappearance of suppuration; at the same time the processes of repair in the form of granulation tissue growth and superficial extension of epidermis occur with a degree of rapidity which we have not seen equalled under any other circumstances. A further practical outcome which is of the greatest consequence is that the use of flavine shortens very naturally the stay of patients in hospital—a most important factor, when large numbers of cases have to be dealt with. In our opinion flavine constitutes an exceedingly valuable addition to the armamentarium of the surgeon in the treatment of septic wounds, and as a therapeutic agent is much superior to anything of which we have had experience.

ARMY DENTAL TREATMENT IN WAR TIME.

By Captain J. P. Helliswell.
Inspecting Dental Surgeon, London District.

In dealing with this subject it is not my intention to discuss Army dental treatment in its highest form as it could be practised when time was no great object, but to do so with the knowledge that just now it is essential to render all men fit in a dental respect with the least possible delay. A broad view has to be taken of the situation, for the average man of service age has not had the advantage of school dental clinics in his younger days, with the result that most of the men at present in the Army have been totally neglected in that respect. It is well known that if a list is required of men in almost any unit who have some kind or other of dental defect, practically all that would be necessary would be the preparation of a nominal roll of the unit. With such a state of affairs, and bearing in mind the fact that, in spite of dental defects, men go about their work and eat heartily in normal times, it would obviously be wrong to propose such a perfection of treatment as would not only cause a considerable delay in the training of each man but would also have a very serious effect in the timely production of drafts. At the same time sufficient should be done for the men to obviate as much as possible the risk of toothache and to eliminate such septic conditions of the mouth as are likely to be detrimental to health; and lastly, in those few cases where they are absolutely necessary for efficient mastication, to supply artificial dentures.

In carrying out treatment it would be well to remember that general disturbances due to or aggravated by dental conditions are those in which oral sepsis is prevalent and are not to any great extent dependent on deficiency of teeth. In the first place, the dental officer should thoroughly realize that his work is to ensure men being able to masticate efficiently, and to disregard the "beauty specialist" aspect of his profession. He