mitted me to refer to it. The wounds were large, and situated in the middle of the arm. The limb was much swollen and discoloured; widely-diffused pulsation was marked. Bullae had formed. The tension was so great that some present at the operation considered amputation the only rational mode of treatment. Dr. Campbell tied the third part of the axillary artery three days after the infliction of the injury. Recovery was rapid and all that could be desired. No portion of the extremity became gangrenous.

CASE IV. Diffused Traumatic Popliteal Aneurysm: Ligature of the Superficial Femoral in Scarpa's Triangle: Recovery.—A guardsman strained his left knee while going up Majuba Hill in June last. Pain and an aneurysmal swelling in his left ham shortly afterwards came on. Palliative measures were tried without benefit. On the day before he came under my care the tumour had suddenly become greatly enlarged. The aneurysm had evidently ruptured. The hollow behind the knee was obliterated by a diffused pulsating swelling extending down the leg and up the thigh. The skin was livid and thinned. The leg was oedematous. It seemed that gangrene could not be averted. The pain was intense. The femoral was tied at the apex of Scarpa's triangle. The oedema, pain, and tension were thereby immediately reduced. He was invalided to England with a whole limb, though with the movements of the knee-joint much curtailed by the thickening left by the consolidation of the large extravasation.

CASE V. Gunshot Wound: Diffused Traumatic Popliteal Aneurysm: Ligature of Upper Third of Popliteal: Recovery.—A yeomanry officer received a bullet wound behind the bones of his left leg, injuring the lower part of the popliteal artery. Five days later the limb was much swollen and ecchymosed. The skin was stretched to such a degree that sloughing seemed inevitable. Expansile pulsation was to be felt over the upper part of the calf and in the popliteal space. The pain had become so severe that he besought that amputation might be performed. There was every indication that this contingency would probably arise. The first part of the popliteal was tied as a tentative measure. This proved amply sufficient to check the symptoms. The aneurysm consolidated and the circulation was re-established in every part of the leg. He was quickly regaining power in the limb when he embarked for England.

CASE VI.—Gunshot Wound: Circumscribed Traumatic Radial Aneurysm: Ligature of Upper Third Radial Artery: Recovery.—A yeoman's forearm was perforated by a Mauser bullet which broke both bones. Sixteen days afterwards, although the wounds were healed, he suddenly experienced severe throbbing pain near the entrance wound, which lay over the middle of the radial artery. A circumscribed aneurysm was found, which increased in size to the dimensions of a large walnut in forty-eight hours. The radial artery was accordingly tied in its upper third. Recovery was complete.

In all the cases the wounds ran an afebrile and aseptic course. Kangaroo tendons were used. The limbs were sterilized with 1 in 500 potassium-mercuric-iodide in 50 per cent. alcohol.

Major S. Westcott, C.M.G., in charge of 19, Stationary Hospital, has kindly allowed me to publish the above cases, the success of which was largely due to the assistance given me by him and by Major H. B. Mathias, D.S.O.

CASE OF ACUTE EXOPHTHALMIC GOITRE.

By ALEXANDER JOHN CAMPBELL, M.D.,
Duns.

On September 26th, 1901, a young woman, aged 27, came to my house to have an upper bicuspid stump extracted. I extracted it, using cocaine hydrochloride $\frac{1}{2}$ -gr. A few hours afterwards I met her in the country walking homewards. She stopped me, and said that she had forgotten to tell me about a swelling on her neck to which her mother had drawn her attention a few days before. She undid the collar of her jacket and I saw that she had goitre. She complained of no symptoms. I sent her some syrup of hydriodic acid, and bade her take a teaspoonful three times a day.

I did not see her again till October 14th, when I called on her to draw some more bad teeth. She was "busy cleaning" at the house where she was housemaid. I injected cocaine hydrochloride $\frac{1}{2}$ -gr. into the gums and drew three teeth. There was no faintness, and very little pain was felt. The goitre was unaltered in appearance; the patient was somewhat bloodless. She was not at all excited. I prescribed a mixture of syrup of the iodide of iron and syrup of hydriodic acid, which, owing to her subsequent condition, was never taken. After I left the house the patient returned to her cleaning, and worked with great energy all the rest of that day and the next.

On October 17th her master called on me. He told me that she had been ill during the previous day, feverish, and complaining of pain in the left side. She had been given some grey powder, but the bowels had not moved. Her pulse had been beating at the rate of 112 per minute, but had sunk to 90. Her temperature had not been taken, but she had been "feverish, hot, and perspiring." I could not see her that day, but I sent a drachm of compound liquorice powder to be taken at once, and ordered powders, each containing 4 grs. of citrate of caffeine and 10 grains of phenacetin, to be taken every four hours.

On October 18th I saw the patient. She had been much excited during the night, and complained of pain in the precordial region. The heart was beating 144 times per minute, the pulsation of the heart and of the abdominal aorta were very violent, and the pain complained of was said by the patient to be due to the thumping of the heart. There was no cardiac murmur, and I could hear no morbid lung sounds. The temperature was normal, and the tongue moist and clean. I was told that the morning pulse had been 100 per minute. I applied a mustard plaster to the precordial region for half an hour. The voice was tremulous, and the patient was trembling slightly all over.

On October 19th, after a very restless night, her temperature was 99° F.; her pulse-rate was 140 per minute. Her eyes were wide open, and a margin of sclerotic showed between the iris and the edge of the upper eyelid. Again I failed to find the sign of any morbid condition of the lungs. There was von Graefe's sign, but the reactions of the pupil to light and accommodation were normal. I ordered potassium bromide gr. x and tinct. digitalis $\text{m} \times$ to be given twice during the night, and a diet of milk and milk puddings.

On October 20th I continued the bromide and digitalis mixture, giving it every three hours, and painted the precordial region with glycerine of belladonna. Temperature 99°, pulse 140.

On October 21st the patient had been very restless, and the arteries were thumping violently. The temperature was normal and the pulse-rate 128. A suppository of morphine hydrochloride ($\frac{1}{2}$ -gr.) was given at night, and the patient rested well.

During October 22nd the patient took a greater quantity of food. The pulse-rate was 120 per minute. In the evening she complained that the thumping of the abdominal vessels was severely painful. Hot fomentations were applied and another morphine suppository given, after which the patient rested fairly well.

On October 23rd the patient was removed to her mother's house, a distance of about half a mile. She stood the journey well. The thumping of the heart was not now so much complained of as the thumping of the abdominal aorta, although precordial discomfort was still felt. The bowels had not moved for two days, so I ordered a tablespoonful of castor oil to be given; temperature 99°, pulse 120. She slept pretty well that night.

On October 24th the tongue was coated with white fur; the bowels had not moved. I gave 3 gr. of calomel and a motion followed.

On October 26th the white rim above the iris had disappeared, and the staring expression was less marked. The lagging of the eyelid (Graefe's symptom) could still be observed. I think that the power to make the eyes converge to fix a near object was lessened, but I could not make myself sure. I continued the use of potassium bromide and digitalis; the pulse varied in rate between 108 and 120 beats per minute.

On October 28th the abdominal pain was less violent, the

pulse was 102 per minute. The bowels had moved freely. Exophthalmos was slight, but the upper lids still lagged.

On October 29th vomiting set in, and there was frequent hiccough. The bromide and digitalis mixture was stopped. Mental excitement was increased. During the last few days the patient was fed tentatively: she was given as much food as she could be induced to swallow, mainly milk puddings, but much was vomited immediately and pain, which was described as an aggravation of the throbbing in the abdomen, preceded the vomiting. The temperature remained normal.

On November 3rd the pulse was beating at the rate of 120. I prescribed bis. carb. gr. x, acid hydrocyan. dil. ℥iij, to be taken in water ever four hours. I also ordered Benger's food, which though not relished was quite well tolerated. Nothing else stayed on the stomach but a little boiled milk. The quantity taken was very small. Day by day the patient grew thinner and the pulse quicker, but all this time the temperature kept normal.

On November 12th I gave by the rectum two raw eggs and two teaspoonfuls of whisky. This was ejected in about half an hour, and repeated when two hours had elapsed.

Early on the morning of November 13th I was called to see the patient. I found that she could not make water. I ordered hot fomentations to be applied at once. When I returned at 10 A.M. I had to pass a catheter and drew off about ten ounces of dark coloured urine. This had to be done again at 6 P.M., and afterwards I gave a suppository of morphine gr. 4. Next day micturition was naturally performed, and I heard that the patient had taken a little more food.

On November 15th I noticed that the patient was slightly jaundiced. The bowels were moving daily, the motions were small, but natural in colour and consistency. During sleep the eyes did not quite close and there was slight conjunctivitis. I gave an enema of tepid water. Vomiting followed almost continually on feeding; small quantities of arrowroot, of Benger's food, of poached egg, and of boiled milk were tried at intervals but very little was retained. The urine was dark in colour, and gave the bile ring with nitric acid. The temperature kept normal, and the pulse varied from 130 to 140.

On November 19th, Dr. Mackintosh (Duns) saw the patient with me. He corroborated my diagnosis of exophthalmic goitre, but thought that the treatment should for the present be directed chiefly against the jaundice. Small doses of grey powder were given but had no apparent effect. Emaciation continued, and I tried in vain to allay the violent pulsation of the blood vessels by painting the epigastrium and precordial region with glycerine of belladonna. No further medicine was given by the mouth. The patient died on November 27th. No necropsy was made.

THE DIFFICULTIES OF PREVENTING ENTERIC FEVER IN WARFARE.

By CHRISTOPHER CHILDS, M.A., M.D. Oxon., D.P.H.,
London.

THE question whether epidemics of enteric fever may be prevented in campaigns was discussed in a letter published in the BRITISH MEDICAL JOURNAL on January 25th. In that letter it was contended that "the prevalence of enteric fever may be reduced in proportion to the completeness and effectiveness of the precautionary and preventive measures which are taken to exclude the possibility of infection"; that "in war the agencies at work for the production and propagation of enteric fever are greatly intensified and increased as compared with the conditions obtaining in civil life, whilst the means of prevention are far more difficult"; that "something more than the ordinary precautions and preventive measures will be required for the prevention of such epidemics"; and that "the difficulties which obstruct the accomplishment of the extraordinary preventive measures required are great and numerous but not insuperable."

Detection of "First Cases."

Even the civilian can realize the great difficulty of detecting first cases amongst soldiers in the field. In addition to the

ordinary difficulty of diagnosing this subtle and protean disease at its onset, the actual specific infection must constantly be masked by the numerous cases of diarrhoea resulting from exposure, fatigue, and diet, etc.

From the outset the medical officer will require all his energy and skill to watch for and detect the invasion of camp, barracks, or moving column by the first cases of specific infection. In some instances the immediate detection may be of the highest importance, and may be the means of saving a battalion or a whole army from epidemic.

Under all circumstances each individual infected by enteric must be regarded as a source from which an incalculable amount of disease will spread unless effective measures are taken to prevent it. Even where the disease is endemic, therefore, it will obviously be something more than a wise economy to give the medical officer a free hand and every facility for detecting these first cases. Obviously, this cannot be done if the Army Medical Service is undermanned.

Direct Infection.

From this difficulty of detecting first cases another difficulty must constantly arise, namely, that of preventing direct infection from man to man, especially in crowded tents, etc.

Very little is heard of direct infection of enteric fever. It is probably far more common than is generally supposed, where sufficient precautions are not taken, or where there is overcrowding. Investigation has shown that, even amongst the medical nurses of the chief London hospitals the incidence of enteric is far greater than the average.

The Commission of Inquiry into the origin of typhoid fever, which created such havoc in the military camps in the United States in 1898 found that out of 1,608 cases, investigated with special care, 563—that is, more than one-third—were "directly connectable," that is, were communicated directly from man to man in the tents. "Certain tents were badly infected, and the majority of all their inmates developed the disease, while other tents wholly escaped."

When it is remembered that a soldier, even in the early stages of the disease, may contaminate his body and his clothing with excretions swarming with the germs of enteric fever, and that he is sleeping night after night in close contact with other highly-susceptible individuals within the crowded tent, it is more difficult to explain how any of his comrades escape infection than to account for the occurrence of one or two cases in the same tent.

The only means by which such direct infection can be prevented is through the prompt detection of the specific disease by the skilled medical officer and the removal of the patient from the crowded tent.

Owing to the difficulties of diagnosis and the prevalence of diarrhoea mentioned above it may be impossible for many days to decide whether the man is suffering from enteric or not. Surely it would not be impossible to set aside certain tents—say one for each company—in which suspicious cases could be quartered until the medical officer can decide whether the man under observation should be allowed to return to his tent or be sent to the hospital. At the same time special care could be given to the removal, and where possible to the disinfection, of the excreta of those men separated for observation.

If every case suffering from diarrhoea—or other symptoms indicating possible typhoid infection—be at once reported and brought under the notice of the medical officer, there is at least some chance of checking the diarrhoea by treatment. Detection of the specific disease would thus be facilitated, whilst many of those invalidated through simple diarrhoea would soon be rendered fit for service. The commanding officer would by these means be relieved to a great extent of the embarrassment caused by the accumulation of men incapacitated by diarrhoea, whilst the best chance would be given for the prompt removal to hospital of the foci of enteric infection.

These measures for the prevention of direct infection, if carried out thoroughly and persistently, would no doubt prevent much death and disablement. It would be a true economy in every way to employ additional medical officers and trained orderlies for this purpose.