some pulsation was still detected in the epigastrium, this indicating that the heart had returned nearly to the normal position. Respiration was clearer, and the breath-sound was tolerably free. Slight crackle was audible just below the right nipple.

December 8th.—After the seventh bath, the patient suffered so much from headache, that the treatment was discontinued, and four days later the headache ceased. He was leaving the hospital improved in every respect, and had gained in weight. Measurements and spirometric observations gave the same result as after the last compressed air-bath.

REMARKS.—This was a well marked case of chronic bronchitis, in which acute symptoms had supervened; but the complication of the double hernia, and his great feebleness and extensive emphysema, rendered it doubtful if any benefit could be expected from the compressed air treatment. The return of his strength was, perhaps, as remarkable as his improvement in cough and breathing; and it was unfortunate that the headaches caused by the compressed air stopped the use of it. The increase in the spirometric measurements after the first bath was very great.

NOTES ON THE MEDICAL CORPS OF THE SWISS ARMY.

By G. J. H. EVATT, M.D., Surgeon-Major, Army Medical Staff.

I HAD an opportunity, some time ago, of being present at the mobilisation of a large body of medical officers of the Swiss Medical Service, and seeing something of their system of organisation; and it seems to me worthy of study by the medical officers of our regular army, as well as by the militia and volunteer surgeons.

1. *The Army generally.*—The Swiss army is really a compulsory national militia, in which all males must serve for a certain number of years, and it is called out annually for training by districts, as our militia is called out by battalions. It is, however, infinitely more complete than is our militia, which is in no sense an army, but simply consists of a number of battalions of infantry, some garrison-artillery, and two or three battalions of engineer-militia. Our militia has no cavalry, is entirely devoid of a transport-corps, has no commissariat units of any kind, and the medical service of the militia is practically non-existent.

From Switzerland, we may learn how, in some measure, to combine a completely localised and popular national army with many elements of military efficiency. Until our militia is the result of universal military service, and until it has a defined commissariat, transport, and medical service, it cannot compare to the Swiss national service.

2. *The Medical Officers.*—In common with all males in the country, all medical men practising in Switzerland are liable for service in the national army between certain ages.

If I had to-morrow to choose from amongst the various European armies, except England, a most workmanlike, well organised, and completely contented medical corps, I would choose the Swiss service. After seeing something of the medical services of several foreign armies, the Swiss medical men seem to me to be men of great self-reliance, full of confidence in themselves, full of belief in the dignity of their work, and have, from their army-rules, complete and absolute equality in the national service. With such men, and under such rules, success is always possible. Without these conditions, however great the substantive advantages may be, failure is inevitable, and initiative impossible.

I attribute the high morale of the Swiss Medical Service to the dignity of manhood produced by the free government under which they live, and to the importance attached to the soldier's life in a country where, for long years, a wide popular suffrage has obtained.

The Swiss Medical Corps officers are really civil physicians called in annually, at certain centres, for compulsory drill and training in hospital-administration by permanent instructors. Every autumn, such local mobilisations occur in the district, and one may see the medical officers and the non-commissioned officers of the medical corps, at the appointed town, on the parade-ground, practising the "goose-step," and brushing themselves up in their military drill, before the rank and file of the medical corps join a few days later.

When these men join, they are posted to the various units of field-hospitals which compose the companies of the mobilised medical regiment; they are drilled and lectured, and finally take part in the autumn manoeuvres with the mobilised army corps to which they may belong. The men were lodged in various houses in the town, and the officers lived at the hotels, all dining together at noon daily, in the

chief hotel of the town. The principal medical officer, Colonel Goldlein, presided, and I had the honour of dining with the sixty medical officers on one occasion.

The medical officers wear a special light blue uniform, and a shako like the remainder of the army, having on its plate a Geneva Cross. The men wear similar shakos similarly distinguished.

Only educated and completely trustworthy private men are allowed to serve in the medical corps, and I should think them the most reliable and trustworthy of any rank and file in Europe so employed, for there is still much to look for in the development of such men in every European army.

The quartermasters of the Medical Corps wear the dress of the quartermasters of the Army Quartermaster Corps, and are apparently attached for duty. There are also a small separate body of apothecaries belonging to the Medical Corps.

3. *Rank and Grading.*—The Swiss Medical Corps, like the medical services of the American, Italian, Turkish, Dutch, and other armies, is graded into military ranks with military titles, from colonel, the highest title in use in the army, downwards through lieutenant-colonel, major, and captain, to lieutenant. These titles are used on duty, and the officer commanding the medical mobilisation was always spoken to and of as Colonel Goldlein. This rank seemed equal to the average army-rank of the remainder of the national service, lieutenants of the Medical Corps being graded with average lieutenants, captains with captains, and so on.

In a medical corps working as a disciplined body, there must be defined ranks and gradings, and they must be more or less equal to the average of the army in which the medical officers serve. The drawback of relative rank is its want of definiteness, and its want of recognition, and, worse than all, its tendency to be showered in too great a quantity on its recipients. The result of such systems is that rank is cheapened, and discipline suffers. If we were to abolish the lieutenants' grade to-morrow, and make all our young men captains, their position would not be practically improved, for somebody must still be junior, and do the junior duties; but by abolishing the junior grade, discipline would be injured by abolishing a check over which men should pass either by selection or examination. The Swiss say that, as a rule, rank should be equal for all corps and classes in the army for length of service, and that social intercourse between corps is destroyed by confining high nominal rank on any special corps, and thereby throwing it out of gear with the remainder of the army. As to the military title, they say it produces a feeling of equality in an army, which is entirely absent in those which do not have it. They say it paralyses the attempts of any class in the army to degrade those who do not have it; and it brings into the fold of the national army those lost sheep who without it are, officially, mere camp-followers. They deem it a protection against personal rudeness; and they consider that it teaches to the whole army the fact that the central government of the State recognises in its service no depressed class. For them it is the true test between a national and a caste or class-army. But, say they, it acts in an entirely opposite direction, in being an agent of discipline in a corps of specialists, who, presuming on the supposed value of their specialism, would claim high nominal rank, and thereby derange from another side altogether the equisope of the military machine. Military organisation demands that, however high or important the specialism may be, the specialist shall enter the national service just on the same footing as any other officer, and rise in his corps by steps equal to the average ranks of the other classes in the army. It is practically equality by discipline and organisation; and in the end the officers of the special corps do not lose, for their reputation does not depend on their mere army-rank so much as on the good name and high morale of the corps. The mere fact of being a lieutenant is not important, for we all know that a lieutenant in a very special corps d'élite has ever more consideration shown him than the same rank in some unimportant regiment; but officially, and for discipline purposes, they are alike, and in the eyes of the national administration there should be no difference in treatment.

Officers of every branch of the Swiss army have military titles, and, on meeting or passing each other, salute as a matter of discipline, the junior taking the initiative. This salute may be regarded as a good outward test of internal discipline in any army, and it is thoroughly carried out in Switzerland.

4. *Technical Training of the Officers and Men of the Medical Corps.*—The officers and men are trained in infantry-drill; and on it is grafted the special technical ambulance-drill, including the pitching and administration of field-hospitals. If we could imagine that, for fifteen or twenty days every year, the whole of the medical officers of the regular army, militia, and volunteers, with the rank and file of the medical staff corps, militia medical reserve, and volunteer ambu-

if a battalion had five companies, so the Swiss field-hospital has five "sections," each called "ambulances," or, as we would call them, "field-hospitals." Each section has four medical officers, one quartermaster, one apothecary, and thirty-four non-commissioned officers and men of the medical corps.

This is a very neat unit; but as it is intended only for European warfare, it is not an accurate guide for us, who can find no assistance whatever in a New Zealand fern-thicket, on the plains of Egypt, on the Crimean steppes, or in the jungles of Ashantee. We must embark with the means of being efficient, or we shall never be efficient at all.

1. *The Column of Sick Transport Carriages.*—So far as I understand it, there are no definite units, called "bearer-companies," in the Swiss service. They separate all the sick transport-wagons into units by themselves, and call them "transport-columns," assigning to each two medical officers and ten rank and file, and thirty-two wagons. These act as convoys; and by adding a column of carriages to the *personnel* of an ambulance (field-hospital) a bearer-company is made *pro tempore*.

It seems to me that it will always be a drawback in our service to think that, however efficient the medical officers and men of a bearer-company may be at work, the declaration of peace extinguishes them as an unit, and their good or bad tradition perishes. The Swiss system abolishes this, for it separates the main body of the *personnel* into a field-hospital, and leaves but two officers and ten men with the thirty-two wagons. It is this small body alone which perishes as an unit. If we ever did this, we could once and for all break up the medical service into field-hospital units, permanent alike in war and in peace; and simply add on a transport-column to a field-hospital unit, and call it a bearer-company, and use it as a chief dressing-station on the field; just as the battery is the artillery unit, so the field-hospital would be the medical unit; three, four, or five such units forming hospitals for 300, 400, or 500 men. The permanency of the unit, in war and in peace, is the keystone of the arch of efficiency as far as the care of the sick is concerned.

K. *The Reserve of Medical Material for the Division.*—This is a very essential element of field efficiency. To ask an officer commanding a field-hospital to act also as medical storekeeper, and issue medicine for the division, is to handicap very much the working power of the hospital as a nursing agency. The Swiss avoid this by attaching to each division a reserve of medical material under the apothecary of the headquarters of the field-hospital, for divisional supply only. A couple of wagon-loads of such material, under an apothecary, with a sergeant and a couple of men, would be a great help in all our wars. The surgeon-general has, as I pointed out, an officer dealing specially with the army corps medicine-supply on his staff.

Limits as to space prevent me from dealing with other important points in the medical organisation of this interesting army—an army, I feel certain, we shall one day copy in many of its points of organisation. I may summarise the points of interest as follows:

1. The staff of the surgeon-general of the Army Corps, its number, and its adaptability for work.
2. The staff of the divisional principal medical officer, enabling that officer to be the teacher and real commander of his corps, and freeing him from unimportant detail.
3. The large battalion aid on mobilisation.
4. The bearers allowed to each artillery-battery.
5. The practical formation of a divisional medical regiment, by interpolating a chief surgeon between the divisional principal medical officer and the "sections" of the field-hospitals, thus co-ordinating their work, securing the all important daily and hourly inspection, while freeing the principal medical officer of the division from perpetual trivial detail matters connected with them.
6. The abolition of the bearer-company as a separate unit, and the utilisation of the *personnel* of unoccupied field-hospitals as such, aided by the "transport-columns."
7. Lying under all, yet towering over all, and permeating all, the absolute equality in rank, status, and consideration afforded to the Swiss Medical Corps by their army rules.

THE LATE MR. CHARLES C. ELLIS.—A very handsome tablet has been erected in the Baptist Chapel, Oswestry, to the memory of this gentleman, bearing the following inscription:—"In loving memory of Charles Cartwright Ellis, L.R.C.P., M.R.C.S., of Mount Oswald, Oswestry, who departed this life November 6th, 1884, at the early age of 22 years. This memorial was placed here by the staff, students, and nurses of St. George's Hospital, Hyde Park, London, in appreciation of his many sterling qualities, and as a tribute of the esteem and affection in which he was held. 'Thy will be done.'"

THE ETIOLOGY OF ENTERIC FEVER.

By ALEXANDER COLLIE, M.D. Aberd.,
Medical Officer of the Eastern Hospitals.

IV.

It is so long since my last paper on this subject appeared (January 1880), that a few words of recapitulation may not be out of place. The object of the papers was to show that enteric fever is contagious; and by contagious I mean communicable by direct personal intercourse—in most cases, probably, by means of the recent stools, although it is by no means affirmed that no other emanations from the sick person can produce it. In support of this view, the cases of Maria and Sarah Allen were narrated, two laundry-women, whose duty was to sort the dirty linen, and to wash what was soiled. In this work, Maria Allen had been engaged off and on for two years, and continuously for six months, and Sarah continuously for two years, without contracting enteric fever, although exposed for the periods mentioned—no disinfectants being used—to all the soiled enteric fever linen of the hospital. If decomposed enteric fever stools produce enteric fever, why was it not produced in the case of these two women? They were susceptible subjects, as was afterwards proved by the fact that, when exposed to direct personal intercourse with a person sick of it, they took the fever. At the end of the two years of service in the laundry, a young man was admitted into the hospital suffering from enteric fever. This patient was the brother of Maria Allen's sweetheart; and, when Maria learned this, she visited the patient on four different occasions after April 1st, 1878, remaining with him about ten minutes each time. On or about April 28th, she began to be ill, and passed through a well marked attack of enteric fever. She was visited daily by her sister Sarah, who fell ill on the 20th of the following July. Comment is almost needless.

I then related the history of nineteen other cases of enteric fever amongst the nurses, assistant-nurses, and ward-servants, all of whom, with one exception, had been nursing or working in the enteric fever wards.

Briefly, at the Homerton Fever Hospital, enteric fever has been found to attack susceptible subjects, as scarlet fever and typhus fever do; but, as it is, like the former, a disease of childhood and early youth, a large number of nurses are protected by reason of their age, which, even in the present day, nearly always exceeds 20, very often 25, and in many cases 30. This is the reason why enteric fever is rarely seen in hospital-nurses; and, for the same reason, scarlet fever is rarely seen. But it has never yet been argued that scarlet fever is not contagious. The importance of age in the etiology of enteric fever will be seen from the following table.

Percentage of Attacks of Scarlatina, Typhus, and Enteric Fever in the Different Quinquennial Periods.

Ages.	Scarlatina.	Typhus.	Enteric.
0 to 5 years	20.5	4.	2.75
5 " 9 "	34.0	10.6	11.6
10 " 14 "	17.75	17.75	22.6
15 " 19 "	13.	17.75	25
20 " 24 "	9.3	11.5	26.8
25 " 29 "	4.5	7.5	9.75
30 " 34 "	1.75	8.6	4.6
35 " 39 "	1.	6.75	3.5
40 " 44 "	0.75	8.75	2
45 " 49 "	0.4	4.75	1.75

NOTE.—The calculations are based on 9,830 cases of scarlatina, 1,923 of typhus, and 3,323 of enteric fever, admitted into the London, Stockwell, and Homerton Fever Hospitals during the ten years ending 1880.

In opposition to the view here maintained, it has been urged that, because the experience of the London Fever Hospital is different from the experience of the Homerton Fever Hospital in this matter, therefore the enteric fever amongst our nursing staff was probably due to drains. To this it was replied, first, that the experience of the two hospitals might be different, and yet that the difference need not be dependent upon a difference in the drainage systems; secondly, that an examination of drains by competent persons showed that the drains at Homerton, although not free from objection, were, for practical purposes, efficient; an opinion which was supported by an analysis of the persons exposed to the drains and the persons attacked with enteric fever.