the others lived chiefly at home or in small groups.

Hence it is evident that the important factors which change the number of carriers from as low as 1 to 2% among civilians to as high as 20 to 35% among recruits are: contact with known cases of cerebrospinal fever; unhygienic conditions such as come from crowded barracks; severe physical labor, coupled with exposure to extremes of heat and cold; and, finally, contact with carriers of meningococci.

When this work was being organized, Surgeon Milton J. Rosenau, U.S.N.R.F., during a visit to four or five laboratories, received personal information which has been freely used in the meningococcus carrier work done here. Hence, through him I am indebted chiefly to Dr. P. K. Olitsky, of the Rockefeller Institute, for suggestions as to methods and media, but also to Dr. Anna W. Williams and Dr. Charles Krumwiede, Jr., of the Research Laboratory, New York City Department of Health; Dr. G. W. McCoy, Director of the Hygienic Laboratory, U. S. Public Health Service, Washington, D. C.; and Admiral F. R. Stitt, Director of the Naval Medical School, Washington, D. C.

Anti-meningococcus serum and stock meningococcus strains were furnished by Dr. R. Kohn, of the Antitoxin and Vaccine Laboratory, Massachusetts State Department of Health, and Dr. Olitsky, of the Rockefeller Institute.

The laboratory work was done at the Harvard Medical School, in the Department of Preventive Medicine and Hygiene, at Dr. Rosenau's invitation, since the new laboratories at the U. S. Naval Hospital, Chelsea, were not available at the time.

WITH THE R.A.M.C. IN FRANCE.

BY M. A. HARRINGTON, M.B., NEW YORK CITY,

Psychiatric Institute, Ward's Island.

FOR one year I served with the Royal Army Medical Corps, and my purpose in writing what follows is merely to tell something of the life of the medical officer with the British armies in France, as I found it. I pass from the preliminary stages,—the signing up at the War Office, the time spent in camps in England, the trip from England to Havre, and from Havre up to the line,—and proceed at once to tell of

my first job in France, which was with a field ambulance.

A field ambulance is a sort of movable hospital, situated, as a rule, some distance back of the lines, but within reach of the enemy's long-range guns. I found the ambulance at which I was ordered to report, located in an orchard. It consisted of a collection of portable huts, tents and improvised structures of one kind or another, which overflowed from the orchard into an open field across the road. Narrow walks had been laid down, making it possible to get from one building or tent to another, but if a man had the misfortune while passing along one of these walks, to step off the edge, he at once sank into unplumbed depths of mud; that is, unless the weather happened to be quite cold and the ground frozen hard.

The officers' quarters consisted of two Nissen huts—contrivances named after their inventor, and supposed to be portable. One of these huts was used for sleeping quarters, and although the weather was at times very cold, it was not heated in any way. We should not have minded this so much if it had not been extremely damp. On returning at night we would find beads of moisture glistening on our blankets, except in cold weather, when they were replaced by crystals of frost. My pajamas were always wet and clammy when I put them on at night, and my shirt had gotten into the same condition by the time I came to put it on in the morning. After a short time I grew weary of changing into wet garments twice a day, and adopted the practice of sleeping in my shirt, taking it off only on the rare occasions when I indulged in the luxury of a bath and change of underwear.

Our other Nissen hut served as a mess and was comparatively comfortable, being heated by means of a stove improvised from an old oil drum. Aside from the stove, the only furniture the mess contained was a rough board table which our carpenter had made and a couple of long benches upon which we sat at meals, and which we drew up before the stove as we gathered around it for warmth in the evenings.

For the accommodation of our patients, we had two large huts, one of which served as a surgical and the other as a medical ward. I had charge of the medical ward. It contained about thirty or forty beds row along each side of the hut, with an aisle down the middle. The beds were merely frames of rough scantling

covered with "chicken netting," on which blankets were spread, there being no mattresses or sheets. The patients in these wards were all men likely to be fit for duty in a week or ten days, more serious cases not remaining with us but being sent on as quickly as they came in to the casualty clearing station, which was at rail head. We had no nurses; all the work was done by medical orderlies. Also, no facilities were provided for anything beyond the simplest kind of operative work. For anything more elaborate cases had to wait until they reached the C. C. S., where there were trained nurses and a well-equipped operating room.

My first work in the morning was, usually, to make rounds on my ward. After this there would be various odd jobs to do, and all day patients were coming in from the line who had to be examined and admitted, or else sent on by motor car to the C.C.S. In the evening, after dinner had been cleared away, the day's outgoing mail was dumped upon the table and everybody took part in the work of censoring it. The pile was always a large one, for we not only handled the letters of the men belonging to our unit, but those of our patients as well. They, not being very ill, spent most of the day writing letters, which the unfortunate medical officers had to read in the evening. There was one amorous youth who had five girls in England to whom he wrote regularly. I will say this for him, however,—he played no favorites, for, barring only the difference in names, the five letters which he sent out each day were exactly alike.

After a short time in the ambulance I was sent forward to an advance dressing station. An A.D.S. is a post close up behind the lines, to which the sick and wounded are brought in order that they may receive first aid and then be sent back by motor car to a field ambulance or casualty clearing station. I found our dressing station in a pretty little village which nestled in a valley. Along the crest of a hill overlooking this valley were the German trenches. Old Fritz, sitting up there and looking down upon us, could have wiped us off the map at any time. He did not do it because he had better use for his ammunition, and because, moreover, we could have retaliated by wiping out one or more of his villages, which lay similarly exposed to our guns.

In charge of this dressing station were an-

other doctor and myself; we occupied part of a rather fine old house, a French family occupying the rest of it. The Germans had a nasty habit of raking the road in front of us with their machine guns at odd intervals during the night, in the hope of catching any traffic which might be going up under cover of the darkness. Sometimes their bullets pattered on the walls of our house, and as the room we used for our mess faced toward their trenches, it was necessary to wall up the windows with sandbags. This left the room in almost complete darkness, and so we had to keep a candle burning whenever we occupied it. The shells from the German batteries roared overhead both day and night, but as they were usually aimed at targets far in our rear, they gave us less annoyance than one of our own six-inch howitzer batteries which was hidden in a wood just behind us and fired directly over our heads. We had no glass in our windows; in fact, I doubt if there was a whole pane of glass left anywhere in the village. Instead, we had pieces of cloth tacked onto the window frames. Every time the battery behind the house fired, the force of the blast would blow in our flimsy cotton window coverings and we would have to go around and nail them all up again.

As in nearly all the billets in France, we suffered a good deal here from the cold. For our personal use, we received daily one scuttle full of black dust, euphemistically referred to as coal. Whenever we tried to build a fire of this stuff most of it would fall at once through the grate and be lost in the ashes. Because we had such a limited supply, we seldom lit a fire in the morning. We escaped the cold at breakfast time by having our breakfast brought to us in bed and at lunch we wore our greatcoats. Then in the evening we were able to have our fire lit and dine in comparative comfort.

In addition to attending the sick and wounded who came to the dressing station, it was part of my duty to visit daily several aid posts, small advanced stations manned only by orderlies. This meant a walk of several miles, part of it over open roads that were sometimes shelled, and part of it through the trenches. Of course, I always wore a helmet and carried my gas mask. When in a forward position no sensible man ever permits himself to be separated from his mask. We made it a practice not to go even from one room of the house to another without taking our masks along and placing them in a

convenient position where they could be slipped on at a moment's notice.

I shall spare the reader all account of my experiences while serving as a regimental M. O. with a brigade of field artillery, and after that with a battalion of infantry, positions which I held only for a very short time, and shall pass on to my last job, which was that of M. O. to a group of heavy artillery. This is regarded in the army as a "cushy job." The duties are light and the living conditions comparatively comfortable. Moreover, it allows of a great deal of personal independence and freedom from red tape.

When I first joined the heavy artillery we were billeted in a village around about which our batteries were stationed. It was my business to visit these batteries daily in order to attend the sick and to see that the sanitary and living conditions generally of the troops under my care were kept up to the highest possible level. To enable me to do this, I was provided with a motorcycle. When the roads were too muddy for the motorcycle, I used a horse, and where a horse couldn't go, I walked.

I had never ridden either a motorcycle or a horse before entering the army. The first week or so that I attempted to use the motorcycle I fell off, at least once every time I went out with it, returning home plastered with mud. After a while, however, I began to gain control over my machine, and by the time I left France, I considered myself quite a skilful rider. With my horse, the story was very different. I had allotted to me an old gray mare which had no respect whatever for my wishes or opinions. She always wanted to travel in an opposite direction to that in which I had planned to go and she usually wanted to travel at a lively pace. Now painful experience has demonstrated the fact that for me a very gentle trot is best; when the speed is increased my style tends to deteriorate, and I do not present a dignified appearance to the troops which are continually passing on the road. In going my daily rounds I had to pass along a road, on one side of which were a number of batteries. As I rode past these guns they would frequently begin to fire, and when that happened my mare would at once begin to get up speed. When this happened, the first thing I did was invariably to lose my stirrups, and as I strove frantically to recover them, I would be bounced mercilessly about, and every time I came down in

the saddle I seemed to hit it in a new place; at the same time my steel helmet would rattle and pound on the top of my head, being prevented from flying off altogether only by the strap, which I always took good care to fasten securely under my chin before mounting; then my reins would become entangled, and as I instinctively humped forward in my saddle, the gas mask, which I carried slung over my shoulder, would swing around in front of me, and get mixed up with the reins or pound me in the stomach. In this plight I would pass groups of Tommies in the road who would line up and salute as I went by, concealing derisive grins behind their upraised hands.

The cases which I had to see in the course of my rounds were seldom of a serious nature. There were teeth to pull and boils to lance; there were coughs and colds and chilblains, and also German measles. During one period I used to spend about half my day inspecting billets and contacts quarantined because of this childish ailment.

For some time after I joined the heavy artillery we were billeted in villages close behind the lines, but following the big battle on Easter Sunday of last year, the enemy fell back and we moved up into a country where there were no villages, only shapeless heaps of brick and rubbish. Here we lived out in the open. At first I occupied a Nissen hut, but later constructed for myself a tiny dugout in an old German trench. Then, as the weather grew warmer, I built outside the door of my dugout a sort of veranda with a roof of corrugated iron and walls of canvas, which ordinarily were kept rolled up out of the way, but could be left down when it rained. As things grew quieter in that part of the line, having very little to do, I amused myself by digging up wild flowers in the neighboring fields and planting them around my veranda. As the season advanced, these flowers grew large and formed a pretty screen about it. Here, during the summer afternoons, I used to lie on an improvised couch, and write letters or read. Behind me was an observation balloon and frequently, as I lay reading, the Germans would begin to fire at it, their shrapnel bursting directly over my head. However, as it was very high up and the bullets carried a long distance before they reached the ground, I was in no danger from it, and so it did not interfere with either my reading or my peace of mind.

I also slept on the veranda. During that time the Canadians were attacking Lens, which was some distance to the north of us, and after I had turned in at night, I could lie and watch the continuous flashing of their guns as they boomed away in the distance until, becoming drowsy, I would roll over and drop off to sleep.

I remained with the heavy artillery until autumn, when I received my discharge, and after a short stay in England, returned to America. As I look back upon my period of service with the British Army I feel that it was, on the whole, a pleasant one. I did not gain much in the way of professional knowledge,—the medical officer in the line never does. The conditions he has to treat are, for the most part, simple ailments. When he has a serious case he never treats it himself, but sends it back at once to the hospital. As a rule, he is not very busy. During a big attack he may be worked very hard, but big attacks are few and far between, and in the long intervals which intervene, his life is rather leisurely and humdrum. On the other hand, he has an excellent opportunity to observe the great game of war as it is being played in Northern France today. He lives, as a rule, a wholesome outdoor existence, and along with this there is a zest, a freedom about the life which makes a return to the narrow round of duties and petty restrictions of civilian life extremely irksome. After all, the human race has been almost constantly engaged in warfare from the beginning of history. Man has evolved under conditions where it has been necessary always to fight. The soft-sheltered conditions of our present civilization date only from yesterday, and it is not surprising that men readjust themselves very readily to the old primitive life and that, notwithstanding the dangers and discomforts, come, after a short time, really to enjoy it. When the longed-for peace comes, and the men, returning from overseas, take up again their former occupations, many a one will long for the old days of active service with all their hardship and danger.

AMERICAN PROCTOLOGIC SOCIETY.—Owing to conditions brought about by the war, the American Proctologic Society has decided not to hold its meeting in Chicago on June 10 and 11. The Society will probably not meet again until after the war is over.

HOSPITALS AND VOCATIONAL TRAINING.*

BY RICHARD P. BORDEN, FALL RIVER, MASS.,

Secretary, War Service Committee, American Hospital Association.

THE problem of vocational training for the disabled is one which directly concerns hospitals and is largely dependent upon their co-operation. While the immediate need is for soldiers and sailors, its value is equally great for those incapacitated in civilian pursuits. Preparation should, therefore, be for permanent installation of vocational training for therapeutic and rehabilitation purposes. Civilian hospitals should be considered as the centers of vocational training and properly equipped therefor as in this way only may permanency be assured.

"The average program for a man incapacitated for further military service overseas may be described as follows:

First, a period of acute illness or surgical care; second, a period of convalescence, frequently of long duration; third, vocational re-education. These stages may merge imperceptibly into one another or they may be separate or distinct. In many instances one or two of the stages may be altogether omitted." (Report, p. 11.)*

As will be seen later, vocational therapy should begin as soon as the patient's condition will permit, and both therapeutic and rehabilitating teaching should be done in consultation with the physician. All stages of the patient's progress, therefore, should be provided for in his initial location after his return to this country.

"While many of the patients will have the opportunity to complete the training begun in the curative workshop in the vocational school, many others will be able to go directly into wage-earning occupations. The period of occupational therapy must, therefore, be used to prepare and adjust many patients to civilian life." (Page 13.)

Therefore the hospital should be located in the neighborhood of industrial facilities and, as the desired result is permanent occupation, in the place where the patient, his family, and friends reside—in other words, in the patient's home town. This is emphasized by the following:

"Canadian figures show that 80% of the disabled men are able to return to their former in-

* An Analysis of the Report of the Federal Board for Vocational Training entitled: "Rehabilitation of Disabled Soldiers and Sailors—Teachers' Training for Occupational Therapy" (Senate Document 167) in its relation to hospitals.