a section of the C.A.I. in the night or their departure in the early hours of the following morning.

And then we left this delightful district. Notwithstanding all our trials, we hope to return some day. I hope also I have persuaded some of you that it is well worth visiting, especially by young British rock experts.

MOUNTAIN RESCUE IN WAR AND PEACE[1]

The following three papers were read before the Alpine Club, February 6, 1945

I. DR. RAYMOND GREENE'S PAPER

Part I. General Considerations

The general principles of mountain rescue in war and peace are similar. In both circumstances, there are certain necessary requirements to be fulfilled by any stretcher. It must be :

(*a*) Light in weight. This is important both in war and peace, but especially in the former. Whereas in time of peace it is often possible to collect a large team of stretcher bearers, in action this is always impossible. Men are required for fighting and cannot be spared in large numbers for rescue work. On the other hand, it must be remembered that lightness must not be achieved by sacrifice of strength.

(*b*) Capable of convenient transport over rough country. This is partly a matter of weight but largely a matter of design.

(*c*) Strong and capable of withstanding rough treatment. One has only to watch the treatment meted out by the British soldier to all his equipment to realise the importance of this. The Eustace Thomas stretcher, for instance, is a good stretcher in the hands of careful people. Commando medical officers who examined it felt quite certain that in the hands of the soldier in a very short time the light alloy tubing would become bent and the handles would become fixed. A similar criticism was brought against the Airborne stretcher as *a mountain stretcher* by the committee referred to later.

(*d*) Simple in design with no gadgets to break or get clogged with snow. This is the only point in favour of Mark II, but simplicity has been attained at too great a cost.

(*e*) Capable of being used over the roughest ground, lowered over cliffs or dragged up them, or dragged over smooth or icy ground.

[1] Further material dealing with this subject, together with illustrations, will be published in our issue of November 1945.—Editor.

(*f*) For this reason, either fitted with skids or capable of being fixed rapidly and easily on to skids.

(*g*) So arranged that the casualty can be securely fixed but comfortable, warm and easily accessible for medical treatment.

(*h*) In wartime, easy to decontaminate.

(*i*) In wartime at any rate, of a size to fit the standard ambulance.

(*j*) Capable of being temporarily fitted with wheels.

Part II. Discussion of Methods Available

A. *Pack Animals*.—There is no method so far devised by which severe casualties can be carried on pack animals without discomfort or further injury. The simple Swiss method by which the patient is roped on to the pony may be used for those very lightly wounded in the legs. In Switzerland, too, the injured are sometimes carried on sledges, gates or similar rigid structures secured to a pony's back. Such methods are primitive and dangerous. Far better is the Cacolet, in which one casualty is carried on each side of the pony. The best adaptation of this idea is the Johnson Carrier, which is lighter and with which Neil Robertson stretchers and Thomas splints can be used.

B. *One-man Carriers*.—Of these several have been devised. They fall into two groups: (i) those derived from the Bergan rucksack, such as the Everest Carrier, the Arcioni frame, and the Greene Carrier; (ii) those derived from the Yukon pack.

The Bergan rucksack is an improvement on the ordinary model. It interferes less with normal breathing, it is less liable to cause uncomfortable sweating on the back, it is in general more comfortable to wear, and it makes possible the carriage of heavier loads. It has been calculated that in a Bergan rucksack 70 kilograms can be carried with the same effort as 30 kilograms in an ordinary rucksack. A man can be carried easily in a Bergan rucksack if holes are cut for his legs. He rides ' pick-a-back,' his thighs embracing the waist of his rescuer and suspended from the latter's neck by a strap or rope. An improvement on this method is the Arcioni frame, a seat of light metal attached to the base of the Bergan frame, with no actual sack. It is much better than the simple rucksack for the purpose, because the passenger is carried higher and closer to his rescuer's back and because extension appliances for fractured limbs can be attached to it. This apparatus is a Swiss Army issue and has proved its value in practice.

The Everest Carrier is likewise an adaptation of the Bergan principle. I mention it only to condemn it, and because the army has been so ill advised as to issue it in very large numbers for the carriage of loads. It cannot be used for the carriage of casualties because the seat is too small, and the frame was clearly designed by someone with no knowledge of anatomy or practical experience in load carrying. If a load of any great weight is carried, the discomfort is extreme. I have been unable to discover who wished it on to either the Everest expedition of which I was a member or on to the forces in the present war.

The so-called Greene Carrier, used by the Commandos and some other special troops, is an adaptation and, I hope, a slight improvement on the Arcioni frame. It is made of cane and weighs with all its straps only 4 lb. It is conveniently designed for the carriage of loads or of casualties. By its aid, it is possible for a man single-handed to lift a wounded soldier on to his back and to carry him over very rough country for considerable distances. I have seen Commando troops on an exercise, coming downhill at the double with ' wounded ' on their backs, climbing stone walls, and negotiating the most awkward rocks. Its use does require, however, considerable training in the art of load carrying, and knowledge of a special drill.

The carriers designed on the principle of the Yukon frame are apparently more comfortable than the Bergan type. So far as my observations go, they are more suitable for loads but less suitable for casualties, and perhaps therefore less efficient as all-purpose carriers with the accent on rescue. This is a question which I hope to hear mentioned in the ensuing discussion.

C. *Stretchers.*—It is impossible in a short paper to review all the stretchers which have been designed for mountain work. I propose to consider here only those which were tried, after careful considerations of a much larger number, by a War Office committee of which I was a member. It may well be that our selection was incomplete and I hope that other members will bring forward the claims of other stretchers if they feel that they deserve mention.

1. *The Mark II Stretcher.*—This is the standard army stretcher. It weighs 32 lb. and folds horizontally into a shape which can conveniently be carried by men or pack animals. It requires two men to carry it over difficult ground, even when folded. Four men at least are required to carry a single casualty for any great distance over flat and easy ground. Over difficult ground 8 to 12 men may be needed if reasonable speed is to be maintained. Over very difficult ground, as I found during Commando training in Scotland, it is almost unusable, and it cannot be used for lowering casualties over cliffs. It is strong, but not as strong as is often believed, for a long carriage over rough ground will often distort it. It is cheap and simple to produce and is quite a good stretcher for street work, but it is utterly unsuitable for mountain warfare or difficult circumstances of any kind owing to its weight, clumsiness and unsuitability for cliff work. It should have ceased to be an army issue many years ago.

2. *The Thomas Stretcher.*—This is in general principle like the Mark II, but it is made of light alloy and is designed with an eye to lightness, ease of carriage and rapidity of assembling. It has telescopic handles and detachable slids. Unfortunately comparative lightness has been achieved at the expense of strength. It is unlikely that it would for long survive the rough usage to which it would be submitted in time of war. In peace it has proved its worth.

3. *The Neil Robertson Naval Stretcher.*—This stretcher has proved

its value for the special purposes for which it was designed. In mountain work it has shown itself much less suitable. It can be used for lowering men over steep cliffs by the Bren Gun Tripod method, but in the far more common event of the cliff being made up of a number of short pitches, it catches on the rocks, because it has no skids. It needs a lot of modification before it can be recommended for mountain use.[1]

4. *The Airborne Stretcher*.—This weighs only 16 lb. and its extreme lightness is greatly in its favour. It is also extremely portable and can be carried folded by one man. Unfortunately strength has been sacrificed so much to lightness that the sample I tried failed to stand up to one afternoon's work. It has no skids and therefore cannot be used for lowering men down cliffs ; its feet catch in the rocks. It has many other important though corrigible disadvantages.

5. *The Duff Stretcher*.—This, as originally designed, weighed 35 lb. and for this reason alone was condemned both for mountain use and short coastal raids. It folded longitudinally, like the Mark II, making an unwieldy bundle requiring two men to carry it. For the actual carriage of a casualty it was found to need as many men as Mark II. Minor disadvantages were that the joints were not strong enough, so that it lost its rectangular shape after a little rough usage ; the sliding handles stuck (like those of the Thomas) if only very slightly bent ; and the joint of the cross struts folded up in use. On the other hand, it was fitted with skids and slid well over the ground (though not over snow) and it was excellent for lowering a casualty down a cliff. It was, we concluded, a good stretcher for peace time use, when weight is of less importance and many rescuers are available. I have written in the past tense of the Duff stretcher, because Colonel Duff informs me that he has greatly improved the model we tested.

6. *The Koller Stretcher*.—This excellent stretcher is a Swiss Army issue. It is derived from the Markwalder stretcher and will fulfil all the functions of that excellent device but is simpler and lighter. The Koller weighs 24 lb.[2] It folds into a comfortable load which can easily be carried by one man in addition to a rucksack or Greene Carrier. A casualty can be carried at a pinch by two men though four are in most circumstances desirable. Four men are ample on the roughest ground provided that no lowering over cliffs is required. It fulfils all the criteria laid down in the preliminary general discussion except that a slight change in its width is required to make it fit into the standard ambulance. It should also be 6 inches longer. It is made of tubular steel and is very strong. The handles are of wood and comfortably shaped. The stretcher can be bent in the middle to form a sort of deck chair, a very great advantage on steep hill sides, in gullies, and on staircases. The handles can be turned under to form

[1] These modifications have been made.

[2] Major Odell tells me that there is a model which weighs only 18 lb. without the wheels.

skids or set upright to lift the stretcher from the ground, converting it into a low operating table. Wheels can be fitted for roads and ski for snow. It can be used with a stretcher bag and with any fixation contrivance. The War Office committee reported that in the Koller they considered that they had found the ideal stretcher not only for mountain use but for all conditions. The recommendation of the expert committee was not accepted for reasons unstated.

I have attempted in this opening paper to summarise the general considerations which should direct the minds of those who design or adopt mountain stretchers in either peace or war. It is a subject in which I have been especially interested for many years both as climber and, in the past, as an officer in the R.A.M.C., and my conclusions have been based on many discussions and many trials with mountain doctors of several nationalities, including German. The coming of peace and the almost certain increase in the numbers of uninstructed people who will swarm over our mountains makes it imperative that this Club should give its active support to the First Aid Committee of Mountaineering Clubs, on which it is represented by a surgeon of great experience in mountain rescue work.

II. F/LT. J. C. LLOYD'S PAPER

R.A.F. Mountain Rescue Service

The Mountain Rescue Service originated at Llandwrog, a Satellite Station in North Wales. In January 1943, it became clear to F/Lt. Graham, who was then the Station Medical Officer, that the equipment and staff at his disposal were quite inadequate to deal with the number of aircraft crashes occurring in his area. An account of one of these crashes in January 1943 will give some idea of the difficulties he was experiencing at that time.

An aircraft crashed in a gully on the N.E. slopes of Foel Grach at approximately 8.45 P.M. on the night of January 14. At about 2 o'clock the following afternoon the pilot, despite concussion and lacerations of the face and scalp, managed to find his way down to Rowlyn Farm near Tal y Bont. F/Lt. Graham was summoned to the crash and he reached the farm with two orderlies at 4.30 P.M. By that time the pilot was irrational and could not give the direction in which the aircraft lay, beyond saying that he had climbed a ridge and seen two lakes. Graham and the two orderlies therefore proceeded to search the slopes of Foel Grach far into the night, only abandoning the search at 2 A.M., when a heavy snowstorm made the situation hopeless.

Soon after dawn they were at it again, helped by an R.A.F. party summoned from the station and by some civilians. Graham now split the party into two, sending one group up Foel Grach over the area searched the previous night, while he himself led the rest up Foel Fras. The weather had improved and the Foel Grach party

soon found the aircraft with one member of the crew still alive. The other two were dead, having succumbed to the effects of exposure and their injuries. As the medical officer was in the other party, contact had to be made with it before the injured man could receive medical attention. Communications between the parties were so bad that it was another hour and a half before Graham eventually reached the scene of the crash.

This crash and the records of several others all presenting the same difficulties set Graham thinking. His chief troubles were:

1. The absence of communication between members of the search party.
2. The length of time required to raise a search party from the station.
3. The difficulty of getting big ambulances up narrow mountain tracks.
4. The arduous task of carrying the General Service stretchers several miles down to the main road.
5. The difficulty of carrying out a search at night or in misty weather with poor visibility.

The suggestions he made to cope with these difficulties were taken up, and the result is the Mountain Rescue Service as it is operating today. I will take each one in turn and will try to show to what extent they have been overcome.

1. Communications

The obvious solution to this problem was wireless. Portable wireless sets have been used by the Army for some time, but no one before Graham had thought of making use of this apparatus in mountain rescue work. The idea of an ambulance fitted with wireless which could contact both the portable sets and the wireless set at the parent station followed closely, and this proved to be the essential part of the whole scheme.

The wireless set in the ambulance has a long range and a short range transmission. The long range is used for messages between the parent station and the ambulance at Mountain Headquarters; the short range for messages between Mountain Headquarters and members of the search party carrying the portable wireless sets. The short range can also be used for messages between a reconnaissance aircraft and either the ambulance or the portable sets.

Each search party is composed of two men and they carry, in addition to the portable wireless set, a Verey pistol, cartridges, prismatic compass, one-inch grid reference map, whistle and electric head lamp. The Verey pistol is used when a crash is found, to direct the other parties to the scene of the crash. The number of search parties varies according to the man power available, but as many as six are employed at some units. At least one man in each party must have enough experience to be able to find a route across a mountain in mist

and to give an exact grid reference of the position of the crash when he has found it.

2. Search Party

So much for communications. The second difficulty was the length of time required to raise a search party. The methods employed to overcome this vary at different units, and I will therefore describe the one employed at my own unit, which is the only one of which I have first hand information. The men are divided into two parties, the advanced search party and the carrying party. The latter are untrained personnel who are detailed to stand by on the station so that a nucleus of man power is always available. The advanced search party consists of a medical officer, three nursing orderlies, a wireless operator, a driver and three other men. These three have considerable experience of mountaineering and we are fortunate in having them on the station. None of the three nursing orderlies had had any previous experience, but after two years of this work they can be relied upon to be safe on any mountain in North Wales. Training of men who show some aptitude in fell walking is done whenever their normal duties permit in order to increase the numbers of the crew. This training is usually done by sending an inexperienced man with an experienced one, but an occasional large scale practice can be carried out. On one occasion we sent the driver to act as a casualty somewhere on Mynydd Mawr. The ambulance established Mountain [illegible]uarters at a farm on the main road near the E. end of Nantlle lake, and four parties, each with a pack set, were sent on various routes up Mynydd Mawr. It was a fine day and the ' casualty ' was quickly discovered.

3. Ambulances

The third difficulty was that of getting big ambulances up narrow mountain tracks.

There are two vehicles at present used in mountain rescue work. The ambulance, the wireless equipment of which I have just described, is a powerful four wheel driver Humber. The other is a Jeep. These two can negotiate tracks in North Wales which go right up into the cwms. For instance, they can easily be driven as far as the gate overlooking the two lakes in Cwm Silin, and at the other end of the range they can reach the derelict building close to Llyn Melyn under Foel Grach.

In addition to wireless the ambulance carries a full first aid kit sufficient to perform minor surgical operations, a Thomas splint and an oxygen cylinder. The latter has saved at least one life. On November 20 last year the unit received the news that an aircraft had crashed near Trawsfynydd. The ambulance reached the scene of the crash in an hour and forty minutes. Two of the crew were alive though seriously injured, and one had a fractured spine. First aid was given and the Humber started towards the nearest hospital about

twenty-five miles away. On the way the patient's condition began to give rise to serious anxiety. Oxygen was administered and with its aid he arrived at the hospital in sufficiently good condition to undergo immediate surgical treatment.

The ambulance also carries sufficient food to last the advanced search party for twenty-four hours. A recent addition to the rations has been some tins of self-heating soup, an ingenious invention which has been of the greatest value in cold weather.

4. Evacuation of Casualties

This is still the greatest problem of mountain rescue work, although some effort has been made to meet it by the introduction of the sledge stretcher. This came to our unit only recently, and we had plenty of trouble before it came.

I have a horrid memory of being one of a party of eight carrying two heavily laden General Service stretchers from the top of Aran Fawddwy to the farm at Esgair Gawr, a distance of three miles involving a descent of 2400 ft. There was one man to each corner of the stretcher and nobody to relieve us when we were tired. The evacuation of those casualties took seventeen hours.

The sledge stretcher is the best answer to this problem, particularly on mountains like Aran where the slope is a gentle incline for several miles. In September this year with a sledge stretcher we completed an evacuation over exactly the same ground in little over four hours. There are several types of sledge stretcher. The one in use at this unit has been made with an eye to simplicity. The runners are composed of right-angled iron, and the source is usually some unwanted bed frames. These go the whole length of the General Service stretcher from handle tip to handle tip, and are welded on to them. A simple locking device is fitted on the cross-pieces at either end of the stretcher to keep the runners firmly apart. The only other difference from the ordinary General Service stretcher is that the legs are 10 ins. long instead of 3 ins., and they are welded on to the runners. The extra 7 ins. gives the necessary clearance to prevent the patient's back scraping on the ground.

The man power necessary for the evacuation of casualties is provided by the carrying party. When one of the advanced search party finds a crash he informs the medical officer waiting in the ambulance of the position of the crash, the number of casualties and the condition they are in. With this information the medical officer can judge the number of men required for the carrying party, and he then contacts the parent station and requests this number of men. While they are on the way he can proceed to the scene of the crash and render any first aid which may be necessary. All members of the advanced search party carry small first aid kits and know how to use them. These contain two tubunic ampoules of morphia each containing $\frac{1}{4}$ grain, shell dressings, first field dressings and a tube of Gentian Violet jelly. This is sufficient to tide a patient over until he can

reach the comparative comfort of the ambulance. A tent has been constructed from old drogue material, and when this has been fixed on to the back of the ambulance there is enough space to perform slightly more elaborate treatment. Water can be boiled on a primus, and hot water bottles and blankets can then be used to combat shock.

5. Search Procedure

If the weather is fine three parties are usually sufficient to search one mountain. A piece of aircraft frame, particularly if still on fire, can be seen from a distance of two or three miles on a reasonably clear day. The weather is rarely as kind as that and the most frequent conditions on an actual search are thick mist and rain. The ideal number for the advanced search party in these conditions is twelve. Any more tends to be unwieldy and to get out of control. Every alternative man carries a portable wireless set, a prismatic compass and a map. The area to be searched is marked out on the map by the medical officer who directs the search from the ambulance. The men are then posted at 50-yard intervals on a straight line to one side of the area to be searched. Those with the compasses are told the bearing which will take them to the other side of this area and the time which they will have to walk in order to get there. If they stick to the correct bearing the line is kept straight, and the intervening men who are without compasses keep in touch by whistles. In this way an extensive area of mountain can be thoroughly searched. The average search is not as blind as this. There is nearly always something to help. A farmer may have seen the actual position of the crash and be able to guide the party straight to it ; if any of the crew are conscious they can fire off the Verey pistols which are part of the emergency equipment of all aircraft ; sometimes even the smell of a burnt-out aircraft is of considerable help on a dark night.

Graham's initial difficulties have therefore been met to a large extent, but problems continue to arise, and it is to be hoped that further improvements will be made.

The essential problem of communications has, however, become vastly easier since the introduction of wireless to this work, and it is certain that much unnecessary loss of time and energy has been saved. The whole service is now on a sound working basis, and since its origin in July of last year it has saved no fewer than twenty-six lives.

III. MR. A. S. PIGOTT'S PAPER

First Aid Committee of Mountaineering Clubs

The problem of all those engaged in mountain rescue is the same : that of moving the injured from the mountain to the hospital with the minimum of discomfort and the least aggravation of his injury. In many ways ours is the easier task : our enemies are confined to time, weather and the mountain. We rarely have to search for our

patients, though a search party is by no means unknown. In some ways our work is more difficult : we are amateurs, we have no trained personnel, we are dependent on the goodwill of local people to look after our kit and often to organise the rescue party, and on the responsibility of the last users to report deficiencies or damage so that they can be made good. Every rescue is, to a greater or less extent, an improvisation, and our work so far has been to devise and supply equipment, to gather useful information, and to attempt some degree of organisation that both may be used to advantage.

Origins

It was in 1932 that the Rucksack Club, concerned at the inadequacy of the first aid measures at our British climbing centres, appointed a sub-committee to examine the arrangements then in force and to suggest improvements. We found that a similar body had been set up by the Fell and Rock Club at much the same date, and in a happy moment we joined forces and Dr. C. Paget Lapage guided us through our early difficulties. Writing of that period the *Rucksack Club Journal* says : 'The joint committee prolonged its deliberations so far beyond the normal period of gestation that ribald spirits declared it to be barren.' But we refused to be hurried. The climbers aired their views, the medicals made their plans and the engineers produced their stretcher.

Medical

We were fortunate from the first in having a strong medical side, which laid down certain principles for our guidance. The main ones were :

1. The injured must be freed from pain.
2. He must be made and kept warm.
3. Broken limbs must be immobilised.
4. If the patient is, or can be made, fit to travel, he should be sent to a large general hospital, even a distant one, where he can receive the benefit of specialised attention and equipment.

The first meant the provision of morphia, which we use in the form of Omnopon in $\frac{1}{3}$-gr. tubunic ampoules. This is supplied by our present chairman, Mr. Wilson H. Hey, F.R.C.S., and it would be difficult to overestimate the value of that drug. For the second we provide an eiderdown, or blankets, or both, waterproof cover, primus stove, kettle, hot water bottles. At some posts chemical hot water bottles are used.

A Thomas iron leg splint is supplied.

The warmth and medical kit is kept in two large rucksacks, and the contents include M. & B. tablets and shell dressings. We are trying to keep pace with modern practice in antiseptics.

Stretchers

The ordinary stretcher is not an efficient instrument for use in the mountains. We examined many types and the descriptions of others,

but could not find one that quite suited our special purpose. We wanted ours to be rigid, strong yet light and easy to handle, non-collapsible in action though not difficult to dismantle, to have handles that would allow the bearers to see the ground at their feet and some provision to enable extra helpers to lend a hand ; to be equipped with runners so that it could be raised, lowered, or dragged on snow, rock, grass or scree, have some device to support the patient and, moreover, to be a stretcher the use of which was self-evident to untrained people.

Mr. Eustace Thomas solved our problems. He chose duralumin for his material and produced a stretcher weighing about 28 lb., which in spite of its lightness has stood up well to a lot of hard work. The original model is still in service at Idwal. At first the runners were made from light metal but were found to be apt to break or buckle, and are now being replaced by wooden ones, made of ash of about ski width. The handles slide back into the side tubes and are held there by a spring catch when not in use. There are four long side straps for additional helpers. It is often better to carry a stretcher sideways down a slope, and the straps for the bearer at each end have been designed in the form of a yoke which allows him to turn without the restriction imposed by the usual kind. The double splint can be used on the Hugh Owen Thomas principle and as a support. It is not often that *both* legs are broken ; I can recall one case, that of a man who fell whilst walking down the Heather Terrace. He sent us a charming letter and a donation of £5—a model patient. There has been a fairly regular crop of accidents in the neighbourhood of the Holly Tree Wall, after each of which the stretcher has had to be lowered down the Slabs, a friendly slope for the purpose. Apart from these instances the necessity for much steep lowering has so far not often arisen, but it is felt that our equipment should be suitable for such emergencies.

Another mountain stretcher, of the sledge type, is one made of steel tubing by Mr. D. G. Duff, F.R.C.S. It is laterally collapsible and has the unusual feature of a single, bicycle wheel undercarriage. Support for the patient is provided by a body belt and perineal straps and by a single Thomas iron leg splint, which can be clipped on to the crossbar. One of these stretchers has been installed at the Outward Bound Sea School, Aberdovey, and another at Buttermere. Mr. Duff has also designed sledge runners that can be fixed on to a General Service stretcher and to which his wheel undercarriage can be attached.

The advantages of an efficient stretcher are shown not only in the increased comfort of the patient and the easier work of the rescue party, but also in the much greater speed with which the injured can be evacuated. An accident on Carn Dearg (Ben Nevis) at Easter 1939 may serve as an illustration. It had occurred about 5.30 P.M. on the upper slopes, and the message for help was first received by a doctor having tea at Achintee. He set off immediately with a first aid box from his car, but unfortunately the patient's head injuries were so severe that nothing much could be done. We received the

call for help at 8 P.M. in Fort William and sent a carrying party. In the meantime some rugs and a stretcher belonging to the police had been sent up and we found the advance party struggling with this stretcher on difficult ground, boulders covered with snow, where every foot of progress had to be fought for. The Thomas stretcher then arrived : both the patient and police stretcher were placed on it and lowered easily down the snow and finally carried down the Pony Track to the waiting ambulance. Hospital was reached at 1.45 A.M.

We have been experimenting lately with a simple form of stretcher that can be made in about five minutes from a climbing rope. The illustration shows the construction. Though four or five men can move another for a short distance, we found that seven bearers were needed for a journey of about two miles over rough country, when two men were carried down from Kinder Scout recently. It was found that rope was a better material than Alpine line, that the knots securing the loops to one of the side ropes tended to slip ; two others have since been designed. This stretcher will rarely be comfortable and always difficult to carry, but it does provide one means of moving a man to some form of shelter or of carrying him down to meet better equipment. In spite of its many imperfections it might be useful in a district remote from help or in conditions of bad weather. Severe exposure can kill quickly.

DEVELOPMENT

The joint committee made its recommendations and retired. The clubs bought stretchers and rucksacks, others have been presented by well-wishers ; altogether there are now sixteen points equipped in the United Kingdom. The committee did not rest for long. In 1936 it was revived, this time strengthened by representatives from the older clubs, and given the task of maintaining, financing and developing the first aid scheme. One of our early requests was for reports on accidents, not from any spirit of inquisitiveness, nor a desire to apportion blame (we are more humble critics now), but that we might learn. One lesson was that most people involved in accidents are not members of the clubs, though the latter are by no means immune, and the original conception of our duties had to be widened ; another, that some of our posts were not rightly placed ; hence the removal of the Rucksack Club's equipment from Tal y Braich, where it was not used, to Idwal, where it has since been in action very many times. We are still learning.

Part of our work has been to collect information that will be useful to the rescuers : to tell them, first, where the kit is kept, then, where to find doctor, ambulance, where helpers may be sought and where the hospitals are. We have planned communications to use for summoning assistance to be sent by car to points near such awkward places as Craig yr Ysfa, Clogwyn du'r Arddu and Cader Idris. Facts of this nature, preceded by simple directives, were issued in the form of a booklet in 1938, and particulars relevant to the area concerned

were included in the climbing guide books ; it was thought that they were the books most likely to be taken on the mountain. This information has been revised and it is hoped to publish it in the proposed B.M.C. pamphlet.

One of our most important needs is the adequate care of the equipment. Our aim has been to place it where it will be looked after and where the supervisor will act as friend in need and organise the rescue arrangements. At some centres the supervision is excellent and many people have had cause to be grateful for the qualities of devoted service and initiative often shown. At others it has sometimes been less successful ; rescue parties have then had to rely more on their own resources.

Finance

We receive financial support from the clubs. Donations from patients and other friends have proved a useful source of income. The patient is expected to pay medical fees, ambulance charges, cost of replacements and other expenses incurred in his rescue. The costs of rescue are not usually high : the work is voluntary, but on the occasions when shepherds or other local workers are called upon to help it is felt that they should be paid for their services and the committee will, in fact, make reasonable payment, though it will seek reimbursement.

Accidents

Since 1937 we have been informed by reports, and other means, of about seventy accidents in England and Wales, but there is still an understandable shyness on the part of some people to report mishaps, particularly minor ones, and the equipment has been in action more often than this figure might suggest.

TRAINING IN THE CANADIAN ROCKIES

By T. A. H. PEACOCKE

When I was informed in the autumn of 1943 that the War Office proposed to send me to the Rockies for the winter I could scarcely believe it. Were such things possible? Now we were going to train some real mountain troops, the task above all others for which I had been praying for years. That such luck could come my way in the middle of the most terrible and destructive war in history left me in a state of sheer bewilderment.

I was not the only lucky man. Included in the party were Edmund Wigram, whose experience on Everest, apart from his general