EXPERIENCES IN A FIELD SURGICAL TEAM WORKING IN PAHANG STATE, MALAYA
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This article is addressed to young officers, and its object is to describe the activities of a Field Surgical Unit working in the Malayan jungle.

The Second World War firmly established the value of the Field Surgical Unit which, as Ogilvie remarks, was born “on the need to temper surgical idealism with military realism.” The first of these Units was established in North Africa in 1940 when it was realized that the C.C.S. was not mobile enough to keep up with the rapid advance of mechanized troops across the desert. Field Surgical Units were subsequently established under all conditions of warfare. Their primary object was to bring surgery to casualties who, because of the severity of their wounds, could not be moved more than a few miles.

Our Unit was attached to a Brigade operating in the State of Pahang and parts of several adjoining States; 95 per cent of the area is composed of jungle, most of it primary. It covers about 10,000 square miles, i.e. approximately one-third of the area of the Federated Malay States, or roughly that of Lancashire, Lincolnshire and Yorkshire combined, and like these counties it is traversed from north to south by a mountainous backbone reaching a maximum altitude of 6,000 feet. This vast area is served by a branch railway line which leaves the main line south of the State boundary and ends at a point near its centre. The only other line of communication is a single
main road from Kuala Lumpur to the centre of the State having a branch road at Bentong to Mentakab which also lies on the railway. Mentakab was chosen as the site of the Field Surgical Unit as we could evacuate casualties by road to Kuala Lumpur which lies on the main line to Singapore, or directly south by rail from Mentakab.

We encountered two major difficulties. The first was the state of the roads which are bordered right up to their edges by dense jungle, making it literally impossible to patrol them, and affording complete concealment for large numbers of ambushling parties a few yards from the road edge. The second was the problem of the casualty badly wounded deep in the jungle who is frequently carried long distances on a bamboo jungle stretcher, and reaches the road edge suffering from a combination of surgical shock, dehydration and a severe form of hypochloremia due to tropical heat and high humidity. It soon became obvious that all severely wounded men should in the first instance be evacuated no further than the nearest Regimental Medical Officer, who, after starting transfusion and resuscitation, was instructed to get in touch with our Field Surgical Unit. We then set off from Mentakab either by Auster aircraft to the nearest airstrip and then by road, in convoy, or occasionally by ambulance train. This decision necessitated the establishment of a permanent Field Surgical Unit base at Mentakab where our tentage, stores and equipment were kept and from which we moved out to incidents. There were four small hospitals in the area and at each of these there was a R.M.O. attached to a Headquarters Company of a Battalion. Blood banks with a register of local donors were established at each small hospital. The distances from these hospitals from our base varied from 50 to 100 miles by road but the state of some of the long stretches of road was such that the journeys occupied from four to twelve hours, and in any case there was the ever-present risk of ambush. By aircraft the time taken for the Field Surgical Team to reach the casualty was reduced to a maximum of two and a half, and a minimum of three-quarters of an hour. When travelling by road the surgeon, anaesthetist, a seaman, O.R.A. and four other ranks were taken in a 15 cwt. lorry. All members of the party were armed. The equipment included a specially devised anaesthetic apparatus, which we have described in this Journal, and surgical equipment suitable for the injury which the R.M.O. had described to us. After operation the unit stayed with the patient who was nursed until fit for evacuation. On occasions when other calls came to us whilst away from our Base, or when the casualty required a period of prolonged skilled nursing before evacuation, we were fortunate in being able to called on the valuable services of two nursing officers of the Q.A.R.A.N.C. who were flown to us from Kuala Lumpur. Casualties were evacuated by Auster aircraft or by road in a motor ambulance in convoy. The usual route was along the Gap road to Kinrara Hospital, Kuala Lumpur. In the early days all casualties evacuated by air sat by the pilot. Later on the passenger seat was taken out and the patient was transported lying on a Neil-Robertson

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Some Views of the Lay-out at our Permanent Base at Mentakab

Showing the main lay-out with the unit's lines on the left and the ambulance park on the right.

A view of the ward, borrowed from the Civilian Hospital, in the foreground, and a tented ward.

Operating theatre.

Operation in progress.

stretcher along the fuselage. When the journey from Mentakab to the casualty was made by Auster air-plane, two aircraft were used—one for the surgeon and the serjeant O.R.A., the other for the anaesthetist and the equipment.

Apart from casualties among Imperial troops, the Unit dealt with those occurring in Federation troops, Police, and auxiliaries such as the Kampong guards.
The fighting in Malaya is of two main varieties. First, hand-to-hand fighting between small parties in the jungle where the unbelievably subdued light and the high, dense undergrowth reduce visibility to a few feet; second, ambushes on made roads or on mud tracks through rubber estates.

The weapons used by the bandits vary within rather wide limits; their best formations are well armed with modern automatic weapons and rifles, in the use of which they are fairly well trained, in other formations a few only are so armed, the majority carrying shot guns and a long weighted knife, the parang. In order of frequency the wounds dealt with were inflicted by Bren gun, .303 rifle, shot gun firing L.G., Sten gun, hand grenade.

The number of shotguns in Malaya is uncertain but it must be large as these weapons are used in country districts in peacetime to defend crops from herds of wild pig, for shooting game for food, and destroying marauding wild animals. Each cartridge of these jungle shotguns contains 15 solid steel balls or "L.G.," each ball being about 3/8 in. in diameter. The cartridges are easy to obtain and when supplies are short can be made in the jungle as the material for making the charge can be obtained from the tin mines. This weapon at short range will stop a charging wild pig in less than a yard and as it discharges a cone of balls it does not need accurate sighting. It is the ideal weapon for the Chinese bandit who is a notoriously poor marksman. He usually carries a weapon whose barrel and stock are shortened. This makes it lighter, handy in the jungle, and it can be discharged from the hip. The Chinaman likes a short barrel as his arms are shorter than those of the European.

Although the effective range of this weapon is appreciably less than two
hundred yards, the wounds it inflicts at close quarters in jungle fighting are characteristic and almost always fatal except in the limbs. At any distance less than ten yards the victim is stopped “in his tracks” and as the close cluster of bullets is only just beginning to fan out, all the balls will probably penetrate. At this range the wound inflicted is a single, roughly circular one of 6 inches to a foot in diameter, and almost every vestige of skin and subcutaneous fat within the circle is destroyed. The edge of the wound is black, ragged and bleeding. The effect on the muscle below is characteristic. For a depth of 1 to 2 inches over the whole wound it is uniformly pulped, semi-fluid, and completely destroyed. In gunshot wounds of the front of the thigh, destruction of skin and muscle extends down to the femur shaft but, as the muzzle velocity is relatively low, large and deeply placed bones are rarely fractured. Gunshot abdominal wounds at close range are almost always fatal within a few minutes and post-mortem examinations of such cases revealed on the average 40 perforations of the bowel and abdominal viscera. Chest wounds at this range are characteristic in that the thoracic wall is “stove in” from multiple fractures of each of a series of ribs, and the entire lung is transformed into a large hæmatoma-like mass. In abdominal and chest wounds at ranges between 10 and 20 yards the number of immediately fatal cases declines. A Chinese policeman received a circular shotgun wound measuring 3 by 2 inches in the right side of the abdomen, involving the middle third of the rectus abdominis. A Field Surgical Team was despatched in an armoured ambulance train and the patient was transfused within an hour and the abdomen opened within four hours of wounding. Six closely-set perforations could be made out in the posterior wall of the sheath of the pulped rectus muscle, and 14 separate wounds involving about 6½ feet of the small intestine, and 8 tears in the mesentery were found at operation. All the gut wounds were closed and the abdominal wall repaired. After a complicated and stormy post-operative course this man eventually recovered. At ranges of 25 yards or more, the area of scatter being greatly increased, each ball produces its own separate wound, and the depth of penetration rapidly diminishes with the steeply falling velocity.

Our work in Pahang was very greatly facilitated by the willing co-operation of all branches of the Colonial Medical Services who, in return for the surgical treatment we rendered to civilians, the Malayan Police Force, and Federated troops, allowed us the full use of their hospitals for Imperial casualties.

The surgical diseases seen among Malayan, Chinese and Tamil civilians were of great interest. Common surgical conditions were seen at a remarkably advanced stage by British standards, and diseases peculiar to the equatorial Far East were common. Amongst these were vesical calculi of colossal proportions, leprosy needing amputation or peripheral nerve exposure, cancer of the penis, lymphogranuloma producing rectal stricture and lymphoepithelioma of the nasopharynx which was, of course, limited to the Chinese.
Syphilis was common but neurosyphilis non-existent, possibly because of the high incidence of endemic malaria.

Our experience in Malaya taught us the supreme importance of establishing and vigorously maintaining the highest possible standards of asepsis under highly unfavourable surgical conditions. We were most impressed by the value of transportation by air, the speed at which the surgical team was carried to the isolated casualty and the certainty that our patients would enjoy a comfortable and safe journey to the base hospital.

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