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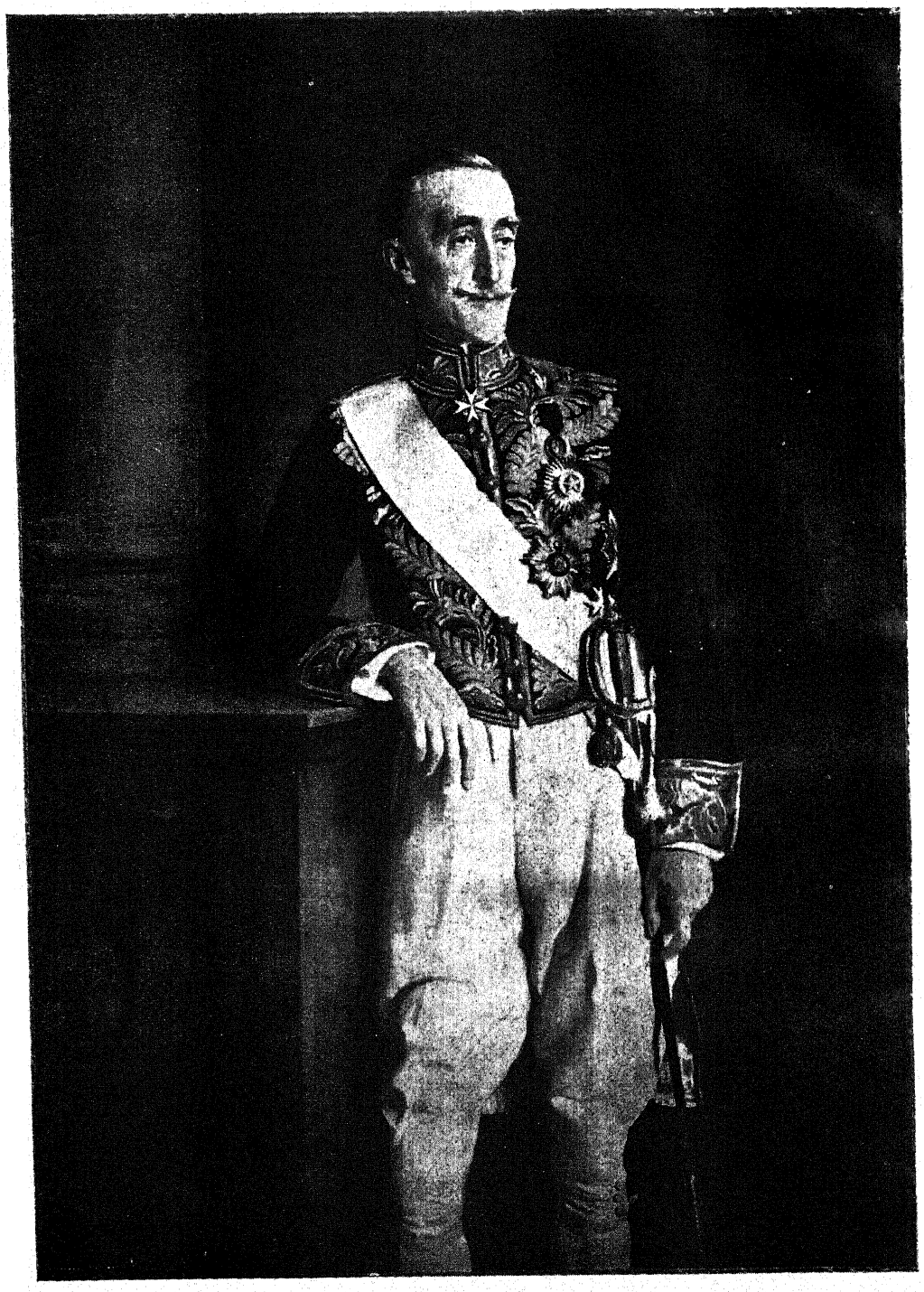

HIS EXCELLENCY THE EARL OF WILLINGDON, G.M.S.I., G.C.M.G., G.M.I.E., G.B.E.,
Viceroy and Governor-General of India.
Patron of the U. S. Institution, India.

The Journal

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United Service Institution of India.

Vol. LXIV. JANUARY, 1934. No. 274.

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EDITORIAL.

Pensions.

Our readers in India are familiar with the slip-shod producer of amateur theatricals who, at the conclusion of a bad rehearsal, tries to reassure his *dramatis personae* with the optimistic phrase:—"It will be all right on the night." In six cases out of ten the optimism proves to be justified; in the other four cases the opening night is a complete flop. To our mind the British Government's attitude towards the question of pensions is analogous to that of an optimistic, but rather reckless, producer.

At a recent meeting of the India Defence League, a body for whose methods we have no particular regards nor towards which we can extend blind sympathy, there was an interesting and very important debate regarding the security of pensions in India. Many of the speakers, distinguished pensioned civil and military officers of the Government of India, gave voice to their apprehensions regarding the vulnerability of the safeguards as at present designed by the White Paper to secure the payment of pensions earned in India.

The Secretary of State for India has, in a letter to the press, stated the case for the British Government, and it is, in its appreciation of the problem and sympathy with the services, characteristic of the thought and sincerity which Sir Samuel Hoare has brought to bear on all the mass of Indian problems during the last two years. Briefly, the British Government's attitude is as follows:—

1. The question is still under consideration until the Joint Select Committee's Report is submitted to Parliament, and it is

"inconceivable" that "Parliament subsequently will pass a Bill embodying a new Constitution for India, without satisfying themselves as to the security of pensions earned by service under the Crown in India."

2. "Under the White Paper proposals the money necessary for the payment of pensions.....will not require to be voted by the Indian Legislature; the authority of the Governor-General alone will be necessary for disbursement..... It will be clear, therefore, that the White Paper proposals place ample powers in the hands of the Governor-General, who will in this regard act in responsibility to Parliament to prevent repudiation."

3. "Moreover, the White Paper includes a scheme of financial safeguards which are designed to secure the financial stability of India."

4. *Fund Pensions.* "The case of Fund Pensions calls for special comment. They are of two kinds. First, there are pensions granted under the rules of funds established in the days of the East India Company, which were taken over by the Government under Acts which conferred on the pensioners *a legal right to receive payment from the revenues of India* at the rates laid down in the rules. These pensions are in the same position, in the matter of security, as pensions granted to officers on retirement and, like them, will receive the benefit of the safeguards mentioned above.

Secondly, there are pensions payable under the pension schemes to which serving officers now subscribe. These schemes are mutual insurance institutions, the pensions being provided, with minor exception, entirely from the contributions. The constitutions of the several funds provide for the payment of contributions into the general revenues of the Government of India, and the balances from which the pensions must ultimately be met, *are therefore represented merely by an obligation on the part of the Government of India.* His Majesty's Government have, in the preamble to the White Paper, recognized the fact that these balances have been built up of contributions by the Services themselves and that the wishes of the subscribers are therefore entitled to special consideration. A scheme for the gradual investment of the balances in sterling securities has been submitted to subscribers. Their replies have recently been received and proposals, giving effect so far as possible to their wishes, are being submitted to the Joint Select Committee. Should these

proposals be adopted, the pensions will at the end of a period be drawn entirely from sources outside the control of the Government of India; during this period they will, to the extent to which they are dependent on balances remaining in the hands of the Government, be protected by the safeguards which have been described." (Our italics.)

On their face value these proposals are sufficiently comprehensive to show that the question has received, and is receiving, close attention, and that its authors are satisfied with its integrity. But when examined from the viewpoint of the present generation which has witnessed during the last few years the fragility and elasticity of solemn treaties both abroad and within the British Empire, there are grounds for regarding these paper devices with a sceptical, if not jaundiced, eye. The cases of the Irish Free State and Ceylon are remarkable instances of the British Parliament's impotence to deal with situations arising from the peculiar and artificial virginity imposed upon our latest self-governing colonies. As regards the pensions of Indian Army Officers, it has been stated in Parliament that these "are not guaranteed by the British Government. They are a charge on Indian revenues and the responsibility of ensuring that the necessary funds are forthcoming rests with the Secretary of State for India." Under the White Paper proposals this means that the Governor-General will be empowered, if ever the evil necessity arises, to authorise the necessary money personally over the heads of his Chancellor of the Exchequer and the Indian Legislatures. We have had experience already in India—and more strikingly in Ceylon—of the unpopularity of this power of veto, and we can visualise many occasions when this over-riding authority of the Governor-General will have to be used as a weapon for compromise on more important issues. The British Government and the Indian delegates to the J. P. C. asseverate that the necessity will probably never arise; but we feel that it is too late in the day to ask people to pin their faith on the word, written or spoken, of transient politicians, unbacked by definite measures to protect its sanctity.

We believe in their sincerity but we beg leave to doubt their judgment. A perusal of the Congress papers and the statements of Indian "Nationalist" politicians show clearly that once the Congress gains constitutional power in India—a certainty within the next ten years—one of their first amiable tasks will be to repudiate

this 5 per cent. claim on India's revenues. Their leaders have said so with admirable candour and we are inclined to believe them. A weak Viceroy in power and a Secretary of State with political ambitions plus an accommodating conscience could easily, between them, drive a state carriage through the present "safeguard" proposals. For these reasons we share General Sir George Barrow's apprehensions and would feel more contented with our future prospects if the British Government would give a definite, unequivocal assurance that pensions would be paid, together with a statement of the practical measures designed to implement this assurance. Their present unwillingness to give such an assurance raises the doubt that perhaps they dare not say even that "it will be all right on the night." If this is so, it would be fairer to the principal actors in the cast to tell them.

Disarmament.

Every great nation in the world is adding to its armaments and the word "Disarmament," so stressed at Versailles and other European and American Conferences is now regarded by all the civilised powers to be as unreal as the word "Prohibition" has been understood in the U. S. A. for the last twelve years. At the end of the last great war there was a genuine desire by all the peoples who suffered in it to abolish this expensive and painful method of settling differences between nations. The fact that all the countries engaged had to mobilise all their civilian man and woman power brought home to civilians that an international struggle of this modern type brings more death than wealth, and gradually crystallised the idea among men that all wars are futile. For this reason the League of Nations and its innumerable pacifist (in its best sense) offspring tried hard to maintain peace.

Why the League of Nations has so egregiously failed is difficult to define, but when its published deliberations are surveyed, the truth can hardly be avoided that no great or strong policy can be produced, enunciated or enforced by a collection of temporarily chosen spokesmen of temporarily selected governments placed in power by wobbling democracies, suffused dictators and bankrupt republics. The League has never had solid foundations and it is now propped up only by England, France and Italy. To support these three important powers there are China, Czechoslovakia, Guatemala, the Irish Free State, Mexico, Norway, Panama, Poland and Spain: these countries form the Council Membership for 1932-1933. The United States of America, Russia, Japan and Germany are not

members, nor are Afghanistan, Danzig and Egypt. When one compares the ideals upon which the League was founded with its present shadow existence, there are reasons for both laughter and sorrow.

If the statesmen who signed the Treaty of Versailles did so in the belief that the treaty was an insurance for peace, we can laugh at them and their childish pretensions; but the other aspect of the seeds sown since Versailles which may produce war are not a subject for derision but a matter which we have all got to face. We have no desire to make mountains out of molehills in any military sense nor do we wish to raise any military bogeys, but there are definite and unmistakable tendencies in all countries which are boiling up to one point only—War.

Let us survey them briefly. Firstly this table, compiled by the League of Nations, showing the military budgets of the seven great powers at three distinct periods, the pre-war, the disarmament years, and in 1930-31 will bear scrutiny, especially when it is remembered that the 1931 figures are now considerably greater:—

	1913-14.	1920-27.	1930-31.
	(In millions of Dollars)		
Great Britain ..	375·1	564	535
France ..	348·7	210·5	455·3
Italy ..	179·1	207·8	258·9
Japan ..	95·5	212	232·1
Russia ..	447·7	362·9	579·4
U. S. A. ..	244·6	591·5	727·7
Germany ..	463·3	156·6	170·4

In Europe Germany has kicked over the traces and resigned the membership of the League. Under Article VIII of the Treaty of Versailles she promised to reduce her armaments "to the lowest point consistent with national safety and the enforcement by common action of international obligations," and the League ensured her security. Now, half a dozen states contiguous to her Nazi frontiers are re-arming. France, who has consistently maintained a stubborn attitude regarding her own ideas of personal security, remains justified in keeping up the largest standing force in the world. Italy has no pacific illusions either; a peace establishment of just under 250,000 troops with an airforce of 2,500 machines (*c.f.* Englands 75½ squadrons scattered over the Empire). It is idle to speculate about Russia who

has her own internal troubles but it is interesting to note her recent rapproch ment with the U. S. A.

The reason for this new trade alliance may be found in the growing power of Japan in the East as well as America's immediate financial difficulties. After the successful defiance of the League regarding Manchuria, Japan has been able to control her own destiny, a comfortable but perhaps an intoxicating feeling. She is now spending sixty million on new warship construction—and her naval man-power is almost equal to that of Great Britain despite the London Treaty of the 5—5—3 ratio. Japanese underselling of Eastern markets is an ordinary "bazaar" phenomenon and merely adds resentment to her growing unpopularity. In the Middle East there are few signs of stability. In Iraq and Afghanistan two young Kings have succeeded to their respective thrones before either country has settled down or recognised the benefits of gradual constitutional development. We may hope that their experienced ministers will give sane counsel and ride them with a skilful snaffle.

In this present international turmoil it is impossible for the ordinary man to look ahead. We believe that in England there is a pessimistic tone abroad that another world war is coming within the next four years. The country is dividing itself into two camps; one to practise non-violence in its most pacifist form and the other to re-arm to the limit regardless of expenditure. Obviously the middle course, so appropriate for English minds and, incidentally, instructed in Field Service Regulations is the right one:—an army firstly to police the Empire. This is the sensible mean between hysteria and Imperial militarism, the present forms of sensational emotionalism produced and suckled by our daily tabloid press.

In the lull between the storms we feel that the League of Nations could do something of real practical value, and play a supreme part in the insurance of peace. It has been suggested that instead of holding abortive disarmament conferences there might be convened a small panel of distinguished intellectual statesmen collected from the chancellories of the world, men trained by history and experience to observe all the straws which are blown, all the words that are said, all the fires that are lit and all the commercial jealousies which tariffs enflame, all these men—say twelve disciples—*to prevent the causes of war.* It would be their responsibility to observe, note and

report all the belligerent tendencies of the nations without fear or favour and it would be their almost impossible duty to force governments to publish unpalatable truths in " League Subsidised " newspapers. Such a body, if it could ever be brought to function, would command respect, it would undermine the mass propaganda war stunts of modern newspapers and it would play a far greater part for peace than any fantastic idea of an International League Force.

The Prize Essay, 1933.—In this issue we publish the best essay **Frontier Mobility.** received in 1933 on Subject II :—

" *With the tendency of modern Organization towards Mechanisation, the increasing complexity of modern weapons and the dependency of troops on their maintenance services, it is asserted by many that regular troops are losing the degree of mobility necessary for the successful performance of their role on the North-West Frontier.*

Discuss how this difficulty can be overcome so that freedom of action and tactical mobility are assured in the Army in India."

The essayist, " Borderer ", bringing a pen as ready in criticism as it is tempered with historical and modern experience, argues most plausibly for the creation of another " Piffer " Force with its role the defence of the North-West Frontier. He proposes that the existing force of covering troops should be converted into a " Professional Frontier Force ", and in support of his scheme brings a vast array of contention and a mass of ingenious *argumenta ad hominem ;* unfortunately these contain also *argumenta ad ignorantiam.*

The creation of a dual army in India, one a Field Force for war and the other a professional N.-W. F. P. garrison is no new one. It existed to all intents and purposes during the days of the " Piffer " Force and it broke down before the onslaught of a large-scale war. Borderer dresses up the scheme ably and consistently, and clothes the idea with an attractiveness and practicability which are dangerously seductive. Indeed the best part of the essay, showing the sincerity as well as the constructive ability of the author, is the detailed scheme proposed for the conversion of the existing covering troops into a mobile self-contained force for permanent frontier service. We commend this to your notice, but we doubt if this proposal would work. We doubt if such a split in the Army in India would lead to efficiency. We doubt if it is practicable from the political, command

and administrative points of view. Further we feel that such a partition of service in India is opposed to all our training principles. It would lead to specialisation with all its narrow-mindedness and prejudice. There are other aspects also—Indianisation, recruitment, relations with political, army and governmental authorities, apart from the obvious inter-service jealousies which would arise,—which on study might persuade our readers that Borderer's ' best ' scheme might yet be the enemy of the present ' good ' policy.

Other means of increasing our mobility on the frontier are now commanding our attention and interest, and in this respect we have seen in recent years that the tribesmen are noticing it also. Road, motor transport and troops maintained for a short while on a ' blanket and bun ' provide disconcerting acceleration in our tactical movements, and are bringing home gradually to the trans-border Pathan that his days will soon be numbered. Experiments in these directions are going on continually, troops are being accustomed to ' hard scale ' operations which will enable them to compete with the excellent Scout traditions of movement, the maintenance services (mechanised) are becoming less mentally mechanised in their attitude towards mobility. The Air arm remains always ready on tap to remind the most inaccessible tribesmen of air potentialities.

Only the road policy remains sticky. The problem bristles with difficulties, some real and others artificial. Financial stringency cannot be blamed entirely for the slowness with which the road-making policy is being implemented. The Government of India has expressed its willingness to find money for capital projects of this nature provided the work is ' productive '. Communications are in the ordinary sense productive works, but in the peculiar circumstances which exist across the border roads become an annual liability because of the vicious Khasadari system. Until we harden our hearts and substitute for the system of bribery and blackmail known as Khasadari the old and well tried system of tribal responsibility any ordered plan of road construction is going to be difficult, if not impossible. When the roads are built, and despite present tendencies we feel that their construction sooner or later is inevitable, there will be no need of a ' professional frontier force ' as visualised by the essayist.

ESSAY.

By "Borderer."

"With the tendency of modern Military Organisation towards Mechanisation, the increasing complexity of modern weapons and the dependency of troops on their maintenance services, it is asserted by many that Regular troops are losing the degree of mobility necessary for the successful performance of their role on the North-West Frontier.

Discuss how this difficulty can be overcome so that freedom of action and tactical mobility are assured in the Army of India."

(Note.—Neither the Council of the U. S Institution nor the Judges of the Essay Competition, 1933, agree necessarily with the opinions of the author).

In considering the subject of this essay, certain questions must first be answered if any constructive result is to be obtained. Firstly:—

"It is asserted by many....." In this case is "Vox populi"—"Vox Dei" which is as though one said "Vox Veritatis"? I think we may concede that this is the golden exception; the "many" in this instance are right; for once "Vox Populi" speaks truth. A simple comparison of the North-West Frontier campaigns prior to 1917 with those of that year and of the succeeding decade and a half bear out the popular contention. A comparison of Neville Chamberlain's marches, or of Robert's movements, to take only two instances, with the progress of Derajat column in 1920 or of the Razmak force in 1930, force us, unwilling as we may be to admit deterioration, to the conclusion that the contention of the many is borne out by hard facts. Regular troops are losing, nay, have indeed already lost in great measure, the degree of mobility necessary for the successful performance of their *role* on the North-West Frontier. I say "on" meaning thereby in the tribal country between the administrative border and the Afghan frontier. Beyond that again in many places of Middle Asia, their present degree of mobility might be sufficient: their super armament and mechanised aids an advantage instead of an encumbrance. Which opinion bring us to a second consideration in the proposed thesis.

"....the degree of mobility.....". Mobility is a purely relative term. At 20,000 feet altitude five hundred feet per hour is mobility. At sea level on a similar slope it is senile decay. Five miles an hour means highly mobile infantry but extraordinary snail

like mounted troops. The only measure of mobility that serves as standard of comparison is that of the enemy, in this case of the frontier tribes. . . . Are we right in seeking against them the type of mobility required of a modern force operating in the road strewn areas of the west of Europe ?

A third and last consideration refers again to " the voice of the many " who, claiming with considerable degree of supporting evidence that Regular troops on the North-West Frontier lack the necessary degree of mobility, attribute the default to the following cause :— " .....the tendency of modern Military Organisation towards Mechanisation, the increasing complexity of modern weapons, and the dependence of troops on their maintenance services....."

Is this popular and perhaps facile contention correct or is it, merely another instance—by the soldier this time—of what Lothrop Stoddart calls the modern man's revolt against civilization ?

Troops may lack or lose mobility from the following causes :—

(*a*) Lack of the will to risk and the will to fight on their own part or of their leaders. In the case under consideration we may dismiss this cause. The present generation of young soldiers is showing reactionary tendencies, becoming almost militaristic in fact, anxious to find an enemy to close with : modern youth is apparently developing what the doctors call a " resistance " to Pacifist propaganda.

(*b*) Physical deterioration and softness from any cause. Any one who saw the troops of 1919-20 and then looks at those of to-day will dismiss this potential cause at once. Modern youth properly trained is capable of as great physical exertions as its grandfathers. I would go further and say it is capable of greater : each new mountain expedition proves it : the reason is simple,—increased knowledge, hard bought experience, greater willingness of modern youth to profit by its elders' mistakes and improve on their experience.

But there is the loophole " properly trained ". Are the Regular troops of India to-day properly trained ? We will examine this later meanwhile bearing it in mind as a possible cause not mentioned in the thesis which deals only with material facts of weapons and maintenance.

(c) A third cause which may destroy mobility is unsuitable organisation for the task ahead. There is no perfe t all-round organisation. The study of history shows that. There is only one guiding principle which cannot be broken with impunity. It is that an organisation must be suited to the people and the country from which the army is drawn. It must thereafter be adapted reasonably to the task that army has to carry out which in practice means the *rôle* most likely to fall to it. Are we perfect in this respect? Do we envisage our most likely rôle correctly?

Running with organisation goes equipment to which visible and tangible fact "the many" point as the cause of all the trouble. The tendency to mechanisation, the complexity of weapons, the consequent dependence of troops on large and complicated maintenance services are all self-evident facts about which we need not dispute. Before seeking some solution which may rectify things therefore, should we or not add to the materialistic cause mentioned any further cause?

Lack of the will to risk and fight, physical weakness or softness, may definitely be ruled out. Remain therefore only organisation, training, and the already indicated equipment including of course primarily, armament.

To see whether these require overhauling, we must firstly fairly envisage the task. What is the *rôle* of the regular soldier on the North-West Frontier? It is to impose the will of Government upon the Frontier tribes whenever political suasion and the power of Scouts and Constabulary prove insufficient. The more cheaply in cost of life this can be achieved, the more excellently does the soldier fulfil his task. If it can be achieved by men in tanks, invulnerable to the tribal armament, then let it be so done forthwith. Has man however yet invented the tracked armoured vehicle which can negotiate the frontier hills? Is he likely to do so in our lifetime? One is compelled in honesty to answer "no" to both questions, attractive as the idea of invulnerable irresistible small forces must be to any thinking soldier who dislikes needless waste of life.

In western Europe the possibilities are far greater. The country is utterly different, the tracked vehicle already seems able to move practically wherever its driver wills. At Koeniggraatz the Germans hammered the Austrians and the historian wrote at every thud the

echo shouted " the man who can load lying down will destroy the man who must load standing up." In western Europe to-day an equally far-reaching change is taking place ; mechanically driven steel plate must destroy unarmoured flesh and blood.

Therefore the British Army including British units in India must conform or perish. But is it a corollary that the whole Indian Army must do so ? Its most likely *rôle* is on the North-West Frontier and there the armoured vehicle can, owing to its own nature and the unchanging hills, play only a small auxiliary part. If the corollary does not exist, then both our present training and our equipment and armament are at fault since they are based, in tendency at least, upon the needs of western European warfare.

If the armoured fighting vehicle can be only, like the air arm, an auxiliary, we are then back at something older, the struggle of unarmoured men *versus* unarmoured men, and must train for that more primitive type of conflict. In such a form of warfare, assuming courage on both sides to be equal, victory will go to the men who have,—

" the better discipline,
the greater relative mobility,
the better leadership, and
the better weapons."

Regarding discipline we need not talk. The tribes have little or none. Regarding mobility, being in their own country, at all times and inevitably they will be slightly more mobile than we are. At present they are vastly more mobile, although the disparity need not be so lamentably great ; there is no reason why it should not be reduced to what it was in the pre-war days of the Punjab Irregular Frontier Force, or as it is to-day with the Scouts. So long however as our training and our equipment tendencies continue as at present so long will that disparity continue to increase. Remain leadership and weapons. The leadership of frontier campaigns is the leadership of small forces ; small mixed columns, the battalion with some mounted and artillery auxiliaries, the isolated company, and above all the platoon. Does our present system of training inculcate this leadership of small units or does it not rather visualise mass warfare on mass production pattern ? Doubtless it is almost heresy to suggest this in the face of the many pamphlets and memoranda from A. H. Q.

and lower formations. But pamphlets and memoranda are only guides—human nature is the dominant factor. With the owls of Athene peering from Camberley and Quetta towards the flats of Flanders, the army in the mass inevitably does likewise. Some of them may think sometimes regretfully of the halcyon days when battalion and even company commanders fought battles on their own, organised unsupported and lonely attacks, marched thirty, forty, fifty, sixty, miles on their own to independent conflict. But sooner or later the inevitable daily pressure, the thought of promotion examinations, the talk of men from home, the necessity of satisfying Brigade and District Commanders, force them to turn their gaze to the operations of Allenby in Palestine or Haig in Flanders and they try once more to disentangle the choked movements of a division a welter of army corps. I submit our training tendency is wrong both for the leader and the men he leads. Wrong for the men he leads since they have inevitably become infected with what one can but call " communism." No longer is it their habit to follow man's most primitive instinct and " make do ", extemporise, " help themselves." Over organisation makes them sit and wait open mouthed for what the Gods may drop into their laps. In the case of the Army they wait for mechanical aids, irresistible land iron-clads, shattering giant howitzers, anything and everything except their own small bore weapons. From all they hear these apparently are really, despite the A. H. Q. pamphlets, merely annoyances which have to be cleaned and handled in certain ways lest the General's guard bring discredit upon its unit.

And weapons ? If victory be to the better weapon, what must be the degree of superiority ? " All the resources of modern civilization" preach the Fuller school, basing their appeal on the ordinary human being's dislike to being killed if a better weapon will ensure the enemy being killed first. Why then have we no. 17 inch howitzers operating against the tribes ? Why do we use toys of six inch to enable us to advance slowly against an enemy whose best weapon is a stolen Government 303 rifle, whose average is a Kohat pass made imitation, and whose less well-armed " units " still fight with the single loading Martini action ?

Because of course, superiority in weapons, like superiority in mobility is only relative. And since the two qualities dovetail inevitably, it must be compromise. Better armament yes ; but how much better in view of the dominant necessity for being able to strike

the enemy swiftly, or upon occasion to run from him so that we may strike him better another day ; in other words for mobility.

The Scout whose brothers and cousins serve in their thousands in the Indian Army, banks on mobility, discipline and leadership alone. Mobility not much more than 10% less than the inimitable enemy, discipline and leadership 100% better. " Then " says he " with the self same rifle as the tribesman I'll knock hell out of him ." But after the third drink late at night, if you be a friend, he will add parenthetically and " without prejudice," " Of course if they call our bluff and it comes to a really hot show we shall want you regulars with your heavier armament."

We may take it therefore from the Scout, who of all men in India really does know what he is talking about, that the reason and justification of the regular is that—he is more heavily armed. Therefore inevitably he must retain the Lewis Gun and the Machine Gun which the Scout will only accept as post defence weapons. He must bring also the 3·7 How., the best compromise of a killing tool which the mind of man has yet devised. If with those three refinements of scientific killing the regular soldier cannot impose Government's will on rifle armed men, then it is time he gave place to the Air Force, as a minority contend he should have done long since.

But if this be so what about all the more modern weapons, what about the complicated fireplans, the barrages and smoke screens, the massed machine guns, the Armoured Fighting vehicles and the huge mechanicalised train demanded by these cumbrous luxuries which in the West seem to have become necessities ? Surely the answer is that for operations on the North-West Frontier, for the most likely *rôle* of a large minority of the Indian Army year in year out, they are unnecessary and worse than unnecessary, damaging. Damaging because they destroy mobility, damaging because they sap *morale* and initiative, damaging because they lead to an inevitable downpeering contempt among friend and foe alike, politely veiled sometimes on the part of the Scout, jeeringly open on the countenance of the more ribald tribesman ; damaging because the necessity for their study prevents officers from studying their more likely *rôle* and training fully their men in that *rôle* which two matters are in themselves a fully whole time task.

Let us then therefore change things to the benefits of our fighting powers and incidentally to the benefit of the far from bottomless and

often terribly strained purse of that unfairly vilified abstraction the Government of India. Let us teach the man in the ranks and the Platoon Commander to rely first on his own rifle with the addition of the grenade if necessary, backing it up with the light automatic which he must render more mobile than it is at present. In graver trouble let them call upon their bigger brother with the Vickers Gun, and when things are really sticky let them ask for the final arbiter of frontier battle, the 3·7 How.

In peace time let us train men to be really killing shots with all these weapons, let us cut down the soldiers unnecessary kit so that the normal marching pace of infantry be four steady miles an hour and then emergency rush pace for an hour or two, five over hill and dale. Let the cavalry train their horses and the infantry and the gunners their mules so that they can at all times fulfil the proven boast of a certain Indian cavalry regiment, "our animals go wherever a man can go without using his hands for climbing." Can our average cavalry of to-day, can our Lewis and Vickers and mountain battery mules do that now.

Really hard training for man and animal alike is required. But the modern generation thrives on work; gone never to return are the restful days of the Army. It would be hard training but feasible, though they will have to work hard five and a half days out of seven to achieve it.

Then what about all the other side of war, the methods and weapons devised in Western Europe? They must inevitably go by the board, for there will not be time to study them. Men who are to have the eye for ground of the Afridi, the pace over hills of the Mahsud, the resourcefulness of skilful Wazir raiders, cannot in addition be masters or even amateurs of the changed methods of war of an irrevocably mechanicalised western world. But suppose the Indian Army is called upon to operate elsewhere than on the North-West Frontier?

That is the crux of the problem. The ideal army would be able to operate anywhere. But then it must be fully equipped and trained for any warfare. The infantry battalion must contain mortars and anti-tank weapons, its transport must be mechanicalised for the Flanders plains or the more open stretches of Asia, its leaders must understand the latest methods of massed artillery. Equally it must be equipped with and trained to use pack animals. Is this even remotely

possible of achievement to-day ? And possessing all modern luxuries and necessities it must shelve them for most of its time in order to get on with its daily *rôle* nearer at hand. It must break its organisation every day of its life. It must do, as India has been tending to do ever since the Great War ended ; " Organise for the abnormal and ex temporise for the normal." Is that a sound principle ?

It is a pretty problem. I do not envy the authorities who to-day are definitely faced with it. I will ask a question. Is this *rôle* of the army on the North-West Frontier of India which is necessary in peace time required also in what we may call " War Time," by which I mean in time of Empire war ? Has it been in the past and will it be in future as necessary in " war time " as it is in normal peace time when we are merely operating against tribes North and East, against red shirts or Moplahs or joyous tattoed Burmese rebels ? A. H. Q. being honest will answer ' Yes.' History and the old Army lists will support A. H.Q. Some forty battalions with a proportion of mounted troops and light guns are required in peace or war alike to fulfil the army's *rôle* upon the North-West Frontier.

Taking then as proven fact the contention that no man or unit however industrious, self-sacrificing, and well willed can render himself perfectly efficient for both types of war since there are only 168 hours in the week and only 52 weeks in the year. Mussoliniwise I will trench the knot. I will permanently set aside my proportion of troops for the N.-W. F. *rôle,* and my Field Army (interchangeable with Internal Security units) will be practically the same size as before, and ready to operate in Flanders or the Caucasus, at Archangeal or Shanghai. And just as the portion on the N.-W. F., shall become highly efficient at its rôle, so shall the Field Army become highly efficient at the other rôle, racing round the plains of India in Carden Lloyds moving 15 miles per hour over the Indian ' put ' in tracked vehicles, sleeping at Lahore to-night and at Delhi to-morrow. Its leaders shall be accustomed continually to the issuing of fireplans for massed brigades of heavy guns and serried phalanxes of tanks as easily and as efficiently as the leaders of the other portion echelonned along the N.-W. F., shall issue sound experienced orders, for the four miles an hour operations of small mobile columns chastising naughty tribes. Efficiency in both places : Money saved on the N.-W. F. head diverted to the pressing needs of the Field Army.

Just as the spirits of resentful Cardwell and the aura of the C. I. G. S. stand between the C.-in-C., and the decision which sooner or later he must set down upon the file, so now rise before me other spirits; honest Lord Kitchener flanked and supported by long gone Colonels of Bombay, Bengal and Madras units. I hear their protests, 'two types of armies' 'Specialists' .....troops rotting in down country station.

Safe in their incorporeality I reply. Civilisation demands specialisation; it is the hall mark of progress. Do units rot in Aldershot? Are the Guards mere painted shells because they never serve on the Indian frontier? That the long ago soldier in Central or South India might so rot was indisputable. But the reason was simple. War all over the world was much of one pattern. The soldier in India looked upon the N.-W. F. as the land of warlike hope where he might be tested and proved and perhaps gain his chance, and the great mass of the Bombay and Madras armies were denied service thereon. Only when necessity forced us over the hills to the more open reaches beyond and still more troops were required did they come up.

Not so to-day. Much of the Army in India looks to wider fields, fixes its eyes upon Aldershot, studies great scale war, laments sometimes at having to waste its time over the N.-W. F. which after all—say they—is only play. Not so long ago I attended a "Backward Boy" course where a distinguished Brigadier gave us a directive for our future.

"Regarding mountain warfare" said he in his valedictory oration "The last word on this was said by the author of the Chinese book of war written many hundreds of years B. C." He picked up an English reprint of the classics and read. "If the enemy be in the mountains—let him remain there—he is of no account." Yet would any one dare to say that such a high placed one has rotted? What was true of Kitchener's India is not true of India to-day. A Field Army in India trained and re-organised and inspirited as is the Field Army in England should in no way be a less reputable force in its own legitimate sphere, overseas or beyond the N.-W. F., as would be an equally specialised force organised and trained for operations in the tribal country.

The Army in India has reached, has indeed already more than entered the stage which with the advance of knowledge and material progress comes sooner or later to every art and trade and sets up

the insistent demand for specialisation since no longer can the human brain compete with all the fast growing branches of even one trade.

There is a broad Pathan proverb telling of the fate of the man who tried to maintain a foot in each of two boats. Its apposite quoting by a frontier political officer once stopped a war. The Army in India is like the victim of that proverb, the boats are diverging fast, and there is a limit to the stretching powers of the human anatomy.

The only possible way of salvation lies in a division of the Army in India, and I propose forthwith the reconstruction of a Frontier Force, a much increased, more highly organised frontier force than the original one, but nevertheless in principle the same. Like all solutions to all problems there are difficulties ; the second part of this essay will examine some of them and see whether or not they are surmountable and whether the proposal is a practical one.

PART II.

Under our present organisation the Army in India is divided into three parts, Covering Force, Field Army, and Internal Security. The component units are for the most part interchangeable and interchanged. Two of the reasons for the change are :

(*a*) the desire to make everybody equally efficient at every branch of the fast growing trade of soldiering ;

(*b*) the necessity to give troops certain periods of greater amenities than can be obtained on the frontier outposts.

It is this covering force that we are concerned with as the portion of the army charged with the *rôle* on the N.-W. F. both in peace and war. If the last war is to be taken as a precedent, then during the next one, the covering troops units will during its progress be gradually replaced by newly raised semi-trained units. That seems to spell a repetition of 1919-20, an unpleasant chapter in Indian History. The security of the frontier must be an even greater need in war than in peace. For the Field Army to be able to operate wherever wanted to its maximum efficiency, the well trained troops on the frontier must remain there lest the tribes, seeing less dangerous troops appear, raise hell, and upset everything. If this is conceded, one of the main arguments against specialisation immediately disappears.

The proposal for a Frontier Force therefore can be stated quite simply. The existing force of covering troops (I speak of strength, not of units on any given date) shall be re-organised as a professional Frontier Force.

Ideally this would cover the frontier from West to East. This however would involve incorporating the two Quetta Infantry Brigades in the Frontier Force since actually in that corner they really perform the rôle of covering troops. The Field Army already exiguous would thus be still further depleted.

Moreover, the Quetta plain and the country towards Chaman is the one point in the whole of the wide frontier where, possibly, troops organised and trained on European models might find scope. For this reason and for economy therefore let the western limit of the Frontier Force be set to include the Zhob Valley only. The two covering force units in the Quetta area should be withdrawn and added to the Frontier Force.

I postulated that the British Army must conform to Western Europe practice or cease to function. British troops in India are an integral and important part of the British Army. It is self evident therefore, that they can form no part of the proposed Frontier Force. Of their possible uses on the frontier I will speak later.

The covering force of to-day (including Baluchistan but excluding Zhob) is composed of the following units :—

Br. Inf. Bns. ..	4	(Landi Kotal, Peshawar, Nowshera, Razmak.)
Ind. Inf. and Gurkha Bns.	36	
Mountain Bties ..	9	
Br. Light Bties. ..	2	(Nowshera, Razmak).
Ind. Cav. Regts. ..	4	

The attached table " A " shows the composition of the proposed Frontier Force. The totals are five cavalry regiments, 13 mountain batteries, and 38 Indian infantry or Gurkha battalions.

The field army is thereby deprived of one cavalry regiment, two Indian battalions and four mountain batteries. I contend that this amount is a small price to pay for the greatly increased efficiency in both covering troops and field armies which would follow. With the greater mobility conferred by mechanisation it

should be easy to make a small re-arrangement in Internal Security dispositions and transfer this number of Internal Security units to the Field Army.

The reason for the suggested organisation and location is as follows :—

(*i*) On many parts of the frontier, units are more or less on field service conditions and deprived of their wives and families. The average man cannot be expected to endure this all through his service. Therefore for every unit in "Outpost" stations there must be a unit in a "peace station," *i.e.*, a station where greater amenities and family life may be enjoyed.

Assuming that with the provision of family quarters Sandeman might well be ranked as a "peace station," it will be seen that there remain 19 outpost stations. The only change made from the present location of covering troops is that Manzai is assumed to be handed over to the Scouts or the Frontier Constabulary. Whether or not further reduction in outpost stations could be made is too big a question of policy to be included in this essay. But with the increased efficiency that would inevitably result from specialisation it might well become possible to reduce the numbers of units required in "outpost" stations.

All the cavalry being located in peace stations (less any detachments, *e.g.*, Wana Squadron) there is no necessity to double their numbers. One cavalry regiment has however been added so as to give the Nowshera, Mardan, Malakand area a mounted Frontier Force unit. Otherwise they would have to rely on the unsuitably equipped and trained 1st Cavalry Brigade whenever, and it is often, that some mounted troops are required.

Both for historical and sentimental reasons, and to complete the number of 'peace stations' Abbottabad is included in the Frontier Force. It forms part of the N.-W. F. P., from the point of view of the Civil administration.

The three battalions and the mountain batteries in Abbottabad thus disappear from the Rawalpindi war division necessitating a reformation of one Infantry and one artillery brigade for which are available the British battalion and light battery in Pindi and the one Indian battalion saved on the sum total. This appears to be the only change effected in India's present war organisation by the

proposal. The replacement of the cavalry regiment taken from the 1st Cavalry Brigade should present no difficulty. Internal security duties elsewhere in India now allotted to cavalry could well be performed by semi-mechanised units.

Granted that it is accepted that the Frontier Force must be as specialised an organisation as a modernised field army or Expeditionary Force, then it is clear that its training must be kept separate. This is a further reason for ensuring that no Frontier Force units should serve in the Baluchistan area. That area would be essentially a 'westernised area' and its commander and staff should not be asked to undertake the responsibility of training and commanding the Zhob Frontier Force Brigade. Zhob should form part of Waziristan district, to which it more properly belongs and to which it is actually nearer.

It will be observed that the proposal suggests twelve Frontier Force Infantry Brigades each of three Indian battalions. In view of the actual location of the covering force units, three battalion brigades would be definitely a more convenient size. It would, moreover, enable complete Brigade reliefs to beintro duced. H. Q. and units moving together, a most desirable change from the present system where the Brigadier finds his units changing year by year, which gives little chance of building up a true brigade spirit. Similarly the composition of the Frontier Force Mountain Artillery Brigade has been altered from four to three batteries, thus giving four brigades instead of three in the Frontier Force together with one unbrigaded battery.

The Brigade locations proposed and shown in Table " A " are as follows :—

Six outpost areas :—Khyber ; Peshawar outposts ; Kohat outposts ; Razmak East ; Razmak West ; Wana.

Six peace areas :—Peshawar ; Nowshera ; Kohat ; Bannu ; Abbottabad ; Zhob.

The three unbrigaded units required (Chitral, Malakand and Loralai) and an occasional inter-brigade transfer for any special reason would provide a small turn over. As will be seen from the sample reliefs (Table B-1 and B-2) a unit's turn 'unbrigaded' would

only come round about once in twelve years while change in the composition of a brigade would only take place about once in six years and then only a change of one battalion. For the purpose of these tables imaginary units are used.

The brigades stationed in the six peace areas would give the extra strength required in the event of operations of larger scale than the brigades in outpost could compete with.

The natural criticism will be raised that this necessitates the provision of four brigadiers, four brigade majors, four staff captains, one Lieut.-Colonel R. A. and one adjutant R. A. as well as additional clerical and other personnel, extra to the number already found in the covering force. The following steps would go some way to reducing the cost of the extra appointments :—

(*a*) Make the command of a Frontier Force Brigade rank as a first grade staff appointment instead of a ' brigadier.'

(*b*) Make Brigade Major of a Frontier Force Brigade a 3rd grade appointment.

Besides Infantry and Cavalry who would inevitably have to be units specially organised, equipped, and trained for their rôle, we require artillery, engineers and signals. Would it be desirable or necessary to have separate Frontier Force units of these arms ?

The actual work of technical corps does not vary so much in different theatres of war. But in the special case of the N.-W. F. the equipment and transport would inevitably be quite different from that of a modernised field army. If the units are made interchangeable then at each relief a big transfer of equipment and even armament must take place and consequently the unit will be more or less useless for many months to come from that cause alone quite apart from the training aspect.

On the other hand it is eminently desirable that such specialised units should remain in close touch with the rest of their corps so that they may gain advantage from experimental work carried out elsewhere. The Royal Artillery, the Royal Engineers (through the Sappers and Miners) the Royal Signals, should therefore maintain the required numbers of Frontier Force units, which however are not interchangeable with their other units. On the other hand officers, and possibly a proportion of N. C. Os. and men might be interchanged at intervals.

As regards the four British Infantry Battalions and the two British Light Batteries now on the frontier as Covering troops. For sentimental reasons as well as the very cogent one of utilizing existing accommodation, it would probably be desirable to retain these units in their present localities, despite their growing unsuitability if, as British units in India must inevitably do, they organise themselves on Western European models.

I suggest they should be attached to Frontier Force brigades as shown in Table "A." With only three battalions or batteries in the Infantry or Artillery brigade respectively, the administration and command of a fourth attached unit should present no difficulty to commander or staff.

Since the introduction of a Frontier Force will very greatly reduce the amount now spent annually on long relief moves and leave concession of Indian units, some of this saving might well be put to reducing the tour of these six British units on the Frontier area to say one year.

This would ensure their not losing too much in the way of training while serving in an area devoted to a r le entirely different from the one for which all their normal training and equipment are directed.

Then arises the question of command of the whole Frontier Force. To place it under the G. O. C. in Northern Command would be to adopt the course already remarked on as unsuitable in Baluchistan. To make the G. O. C.-in-C., Northern Command commander of the Frontier Force would deprive us of the commander and staff of one of our biggest field army formations.

To leave the existing frontier districts as independent districts under Army H. Q. is one solution but not the most desirable one.

A specialist force of the size proposed requires its own commander and staff for both administration and training. If by any form of command and staff reorganisation elsewhere funds could be found, a commander and staff for the Frontier Force as a whole should be appointed and located either at Peshawar, at Dera Ismail Khan or at Abbottabad. The second named is central but not otherwise very suitable, the first and third are on one flank. But does this really matter nowadays with wireless and aircraft? Distance means so little when there are only two or three days in the whole year when

passenger flying is not possible. At Peshawar or Abbottabad the commander would be in close touch with the Governor of the N.-W. F. P. I think this advantage outweighs the fact of his not being centrally placed.

Lastly comes the question of the actual composition of the Frontier Force Infantry (including Gurkha Rifle) units.

There are two methods :—

(*a*) Taking six or seven Indian Infantry regiments (according to whether the selected regiments have five or four or three battalions) and some Gurkha regiments complete.

(*b*) Taking two or three battalions from every Indian Infantry regiment together with the required proportion of Gurkha battalions and thus maintaining a sentimental link with the rest of the Indian Army.

The great disadvantages of (*b*) are firstly, that it means that the training battalion would be trying to serve two masters, the Frontier Force and the modernised field army. It would inevitably fall between two stools in its training and fail also to satisfy the commanders and staff of its own area who in most cases would be commanders and staffs of field army formations.

Secondly, since officers in a regiment are interchangeable, we should once again be expecting the officer to be a master of all trades. To fit himself for promotion he would still have to study all forms of war.

For these two important reasons and for the fact that whenever possible one should preserve existing organisation, method (*a*) (selecting complete regiments) is the better one to follow. It, moreover, would make it easier to ensure recruiting the right type of man for the work. Most definitely there are right and wrong types. To maintain for instance that the Pathan is more suitable for all round use on the Frontier than the Mahratta, casts no reflection on the well proven fighting powers and high courage of the latter. It is merely a restatement of the old fact of round and square pegs. Nobody in their senses would take a waler to Tibet if hill ponies could be found.

The last objection to this scheme is that of the existing personnel of regiments and battalions selected for the Frontier Force. Many men might contend that they wanted a wider field and would be dissatisfied if restricted to what they would call a narrower rôle. That could be solved by giving serving officers and N. C. Os. the

choice of transfer into other units. This should present no difficulty, since equally in other units selected for the modernised field army, there would be many who would prefer the frontier *rôle*. For the men no such choice would be necessary—with the present short service system, they would hardly be affected.

Conclusion :—

In the first part of this essay it was suggested that the Army in India and more particularly the Indian Army had reached the parting of the ways which progress inevitably forces upon any art or trade. When that parting is reached, the only resource is a division of the art or trade into branches, *i.e.*, specialisation. It was suggested that for the Army in India this might take the form of a specialised Frontier Force whose existence would leave the rest of the Army free to organise and train for the civilised or semi-civilised theatres of war where mechanisation has already or may soon become a necessity. It remained to be seen whether such a specialised force was a practical proposition and the second part of the essay puts forward a concrete scheme to that end.

It is naturally not a perfect scheme—no scheme ever is—all schemes require many brains and some time to approach even the most relative perfection. But I claim for the proposal that it is a workable scheme with certain definite merits :—

(*a*) It hardly depletes at all our already depleted resources available for Field Army and Internal Security duties.

(*b*) It utilises existing formations and organisations. In some eyes this may be a defect. But it is never possible and generally undesirable to make a clean sweep of all that has gone before.

(*c*) It could be brought into being almost at once with the minimum of expense and dislocation of our present organisation.

I have not suggested any alterations in our present system of training for our rôle on the North-West Frontier. In itself this is sound enough but vitiated by the fact of our trying simultaneously to train for Flanders, and we are not Joshua to make the sun stand still. Nor have I touched on the details of unit organisation and equipment. These would inevitably change to some extent ; they would change for the better very quickly in a force that no longer had to try to fit itself simultaneously for two incompatible *rôles*.

Remains the governing factor. Would such a change as is here proposed give us really mobile forces and enable us to carry out the military rôle in the North-West Frontier better than does our present system? The old school 'Piffer' would answer 'Yes' emphatically. We others who are not 'Piffers,' might for the sake of our own units, who also have 'done their bit' on the frontier, feel bound to argue with him. Is there any analogous question whose answer might give us an indication to the correct solution of this problem. I suggest one. The human appendix is often quiet; sometimes however it blows up and the owner is thereupon prevented from attending to his business and interests. The North-West Frontier is not unlike an appendix. It is liable to blow up as it did in 1919 and 1930. When it does so the Army in India is generally extremely hindered in its wider business and aims.

Regarding your own appendix would you rather have it operated on by a surgical specialist or by a general practitioner? I suggest that a consideration of the reasonable answer to that question is the clue to the answer to this problem.

Is soldiering less of an art than medicine? Has it stood still while medicine has progressed? It would be ideal for every doctor to be both surgical and medical specialist. It would be ideal for every army to be fully efficient for every type and theatre of war. But are either practical ideals? If not, then our present policy is breaking the sensible maxim which I have chosen for my motto? '*The best is often the enemy of the good.*' We should surely do far better to cease to pursue an unattainable "Best" and concentrate on an entirely practicable and attainable "Good", on a specialisation of *rôles* that should render the Covering Force and the Field Army of India each a really efficient force for the work it has, or may have, to do.

TABLE "A."

(Omitting Baluchistan as suitable training ground for a modernised field army. Zhob to be connected to
to provide required peace station accommodation and also for historical and sentimental
Abbottabad (3 Gurkha Bns.) to be given to Frontier Force.)

District.	Frontier Brigade Area.	Indian and Gurkha Bns. in 'peace' stations.	Indian and Gurkha battalions in outposts.	Attached British Infantry.	Frontier Force Cavalry.	Mountain Brigades Indian F. F. 3·7 Hows.		Attd. Br Light I
Peshawar Area.	Nowshera ..	2 (Nowshera) 1 (Mardan)	..	Br. Inf. Bn. (Nowshera)	1 Regt. (Mardan)	Bde.		
	Khyber ..	..	2 (Landi Kotal) 1 (Shagai)	Br. Inf. Bn. (Landi Kotal)	..	1st	H. Q. Bde. 1 Bty. (Nowshera) 1 Bty. (Landi Kotal).	1 Bty. (N shera).
	Peshawar Outposts.	1 (Peshawar) ..	1 (Khajuri Plain) 1 (Jamrud)	Br. Inf. Bn. (Peshawar)	1 Regt. (Peshawar).		1 Bty. (Peshawar)	..
	Peshawar ..	3 (Peshawar)	..	..	..		..	..
	Abbottabad	3 (Abbottabad)	..	..	..	2nd	Bde H. Q. 3 Bties. (Abbottabad).	
			1 unbrigaded Bn. in Malakand under Nowshera. 1 unbrigaded Bn. in Chitral under D. H. Q.					
	5 Bdes. ..	Total 10 Bns.	Total 7 Bns.	Total 3 Bns.	2 Regts.		6 Bties. ..	1 Bty.
Kohat Area.	Kohat Outposts.	1 (Kohat)	1 (Hangu) 1 (Thall)	..	1 Regt. (Kohat)	3rd	Bde. H. Q. 2 Bties. (Kohat) 1 Bty. (Thall)	..
	Kohat ..	3 (Kohat)	..	..	..		..	..
	Total 2 Bdes.	Total 4 Bns.	Total 2 Bns.	..	1 Regt.		..	..
Waziristan-Zhob Area.	Bannu ..	2 (Bannu)	1 (Mir Ali)	..	1 Regt. (Bannu)			
	Razmak West	..	3 (Razmak)	..	..	4th	Bde H. Q. 2 Bties (Razmak)	1 Bty (Ra
	Razmak East	..	2 (Razmak)	Br. Inf. Bn. (Razmak).				
	Wana ..	..	3 (Wana)	..	..		1 Bty. (Wana)	..
	Zhob ..	3 (Sandeman)	..	..	1 Regt. (Loralai or Sandeman).	un-brigad ed.	1 Bty. (Sandeman).	..
			1 unbrigaded Bn. Loralai attd. 11th Bde.					
	Total 5 Bdes.	Total 5 Bns.	Total 10 Bns.		2 Regts.			
Grand Total	12 Bdes. ..	19 Bns.	19 Bns. (incl. 3 unbrigaded).	4 Br. Inf. Bns.	5 Regts.	Peace Stn. 8 Outposts 5		2 Br. Ligh Bties.
		38 Bns.				13 Bties. (incl. 1 unbrigaded).		
					Note.— One Cav. Regt. added from F. A. to existing covering force.	*Note.*— One Mtn. Bty. added to existing covering forces to complete brigade in Kohat. Field and Post Artillery omitted.		

TABLE B. I.

Frontier Force Biennial Reliefs, 1935-6.

Infantry.

Bde. H.Q.	From	To	Units.	From	To	Remarks.
1st	Nowshera.	Khyber	1st Sind R. 1st Punjabis 4th L. I.	Nowshera. Mardan. Nowshera.	Landi Kotal Landi Kotal Shagai	
2nd	Khyber	Nowshera	4th Multan 4th Punjab R. 2nd Sind R.	Shagai Landi Kotal Landi Kotal	Nowshera Mardan Nowshera	
3rd	Peshawar Outposts	Bannu	4th Punjabis 5th Jhelum 2nd Punjabis	Peshawar Khajuri Jamrud	Mir Ali Bannu Bannu	
4th	Peshawar	Razmak West	5th Sind R. 2nd Multan 3rd Jhelum	Peshawar Peshawar Peshawar	Razmak Razmak Razmak	
5th	Abbottabad	Razmak East	1/12 Gurkhas 1/14 Gurkhas 2/11 Gurkhas	Abbottabad Abbottabad Abbottabad	Razmak Razmak Chitral	2/11 become unbrigaded.
6th	Kohat Outposts	Kohat	2nd Jhelum 3rd Punjab R. 5th L. I. 1st L. Inf.	Kohat Thall Loralai Hangu	Loralai Kohat Kohat Kohat	2nd Jhelum becomes unbrigaded. To join 6th Brigade.
7th	Kohat	Peshawar Outposts	5th Punjabis 5th Multan 4th Jhelum 1st Punjab R.	Kohat Malakand Kohat Kohat	Jamrud Peshawar Khajuri Malakand	To join 7th Brigade 1st Punjab R. becomes unbrigaded
8th	Bannu	Kohat Outposts	1st Jhelum 3rd L. I. 2nd Punjab R.	Mir Ali Bannu Bannu	Kohat Hangu Thall	
9th	Razmak West	Peshawar	5th Punjab R. 2nd L. I. 4th Sind R.	Razmak Razmak Razmak	Peshawar Peshawar Peshawar	
10th	Razmak East	Abbottabad	2/12 Gurkhas 2/14 Gurkhas 1/11 Gurkhas	Razmak Razmak Chitral	Abbottabad Abbottabad Abbottabad	To join 10th Brigade
11th	Wana	Zhob	1/13 Gurkhas 3rd Punjabis 1st Multan	Wana Wana Wana	Sandeman Sandeman Sandewan	
12th	Zhob	Wana	2/13 Gurkhas 3rd Multan 3rd Sind R.	Sandeman Sandeman Sandeman	Wana Wana Wana	

Note.—Hypothetical composition of Frontier Force for purposes of above table only.

Regiment.	Battalions.
Jhelum Infantry ..	1st, 2nd, 3rd, 4th, 5th.
Punjabis ..	1st, 2nd, 3rd, 4th, 5th.
Light Infantry ..	1st, 2nd, 3rd, 4th, 5th.
Punjab Rifles ..	1st, 2nd, 3rd, 4th, 5th.
Sind Rifles ..	1st, 2nd, 3rd, 4th, 5th.
Multan Infantry ..	1st, 2nd, 3rd, 4th, 5th.
Gurkha Rifles ..	1/11 2/11 1/12 2/12 1/13 2/13 1/14 2/14

TAB
Frontier Force Bie
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Bde. H.Q.	From	To	Un
1st	Khyber	Kohat	1st Sin 1st Pu 4th L.
2nd	Nowshera	Razmak East	4th Mu 4th Pu 2nd Sin
3rd	Bannu	Kohat Outposts	4th Pu 5th Jh 2nd Pu
4th	Razmak West	Bannu	5th Sin 3rd Jh 2nd M 5th Mu
5th	Razmak East	Abbottabad	1/12 Gu 1/14 Gu 2/11 Gu
6th	Kohat	Khyber	3rd Pu 1st L. 5th L.
7th	Peshawar Outposts	Peshawar	5th Pu 4th Jhe 2nd M 5th Mu
8th	Kohat Outposts	Zhob	1st Jhe 2nd Jh 3rd L. 2nd Pu Rifle
9th	Peshawar	Wana	5th Pu 2nd L. 4th Sin
10th	Abbottabad	Razmak West	2/12 G 2/14 G 1/11 G
11th	Zhob	Peshawar Outposts	1/13 G 3rd Pu 1st Mu 1st Pu
12th	Wana	Nowshera	2/13 G 3rd M 3rd Sin

EVEREST, 1933.

By Lieut. E. C. Thompson, Royal Signals.

I apologise for this article. There are others, I am sure, who are more fitted to write about last year's Mount Everest Expedition; climbers who went high and saw the things that I can only describe from hearsay. But the places and people I did see, and the little things Smijth-Windham and myself were able to do, these I shall describe, and something of what went on higher up on the mountain, which I myself did not see.

Climbing Everest is not a mountaineering expedition in the ordinary sense of the word, as it is understood in, say, the Alps. There, these things are decently conducted. You have your base—a comfortable hotel (perhaps!)—you select your peak, spend a day possibly in going up to a hut, a day on the climb, and a day or two back to your base. Everest is different. It is war, as is fitting, perhaps, where the world's highest mountain is concerned. And it entails an amount of forethought and organisation, together with a performance, which is comparable in scope and intensity, if not in magnitude of numbers, to war.

Of the preliminaries to this year's Expedition I know little. Smijth-Windham and myself only came on the scenes in March, when the party was already assembled at Darjeeling. Permission from the Tibetan Government for an expedition to enter Tibet for the purpose of visiting Mount Everest, was obtained in August 1932, and the Everest Committee—an organisation which has been in existence since the first Expedition in 1921—promptly set about the business of getting together a climbing party. As everyone knows, Mr. Hugh Ruttledge (retired I. C. S.), who recently did some very fine work in the Kumaon Hills and the region of Nanda Devi, was chosen as leader. That the Committee was not mistaken in its choice the results of the Expedition show clearly enough. The leader's is not an easy job. Apart from matters of organisation, in which he is helped only to a small extent by the other members of the party—for the sole reason that the majority of them are employed in thier normal walks of life until the last moment—the methods used to approach

and assault the mountain are his responsibility entirely, and some little detail forgotten early on may mean, for example, the arrival of the party at Base Camp in an unfit condition, and the failure of the attempt. Let me hasten to say that this year's failure was in no way due to any fault of the leader, but to execrable weather, as I hope to show later. The party was bursting fit, not only at Base Camp, but at Camps III and IV, a hitherto unheard and undreamt—of occurrence. In the matter of tactics, the leader has the advice of men who have been to Everest before, and of the members of the party itself. But when two men of equal and extensive mountaineering experience propound with equal reason almost diametrically opposite views, the problem is not simplified.

I shall not dwell here on the other climbers, for their names will appear as I proceed. Suffice it to say that the Medical Officers were Dr. Raymond Greene and Dr. W. McLean, and that transport was under Mr. E. O. Shebbeare, the head of the Forest Department of Bengal—who went with the 1924 Everest Expedition in the same capacity—with Mr. G. W. Wood Johnson as his second-in-command. Wood Johnson was also Transport Officer to the 1930 International Himalayan Expedition to Kanchenjunga, under Professor G. Dyrenfurth.

As I said above, Smijth-Windham and I came into the picture at the beginning of March last. That we did so at all was due to the activities of Mr. D. S. Richards at Army Headquarters, Delhi, which resulted in a request to the Signal Officer-in-Chief in India, for four wireless operators. This was commuted, fortunately for us, into two officers and two Non-Commissioned Officer operators, the first named to accompany the Expedition to Base Camp, the Non-Commissioned Officers to remain in Darjeeling and work the W/T. Station to be erected there. The Non-Commissioned Officers were L./Sgt. N. Watt, "B" Corps Signals, Rawalpindi, and Cpl. W. J. Frawley of 2nd. Cavalry Brigade Signal Troop, Sialkot. These two we met at Siliguri station, at the foot of the Darjeeling hills, on the morning of March 6th.

To anyone going that way for the first time, I would recommend at least one journey in the Darjeeling Himalayan Railway. Not more, for it takes a long time, and is more expensive than going by car. The tiny little engine plugs its way up through the forest, turning and

twisting into each of the many small gullies that seam the hillside, dashes (at a sedate 15 m. p. h.) across incredible slopes, performs a complete circle five times and thereby nearly succeeds in catching the last carriage, and is shunted four times to get helped over a bit of cliff, which despite its other activities, the little fellow is unable to climb. A stout piece of work and a great engineering feat.

Mr. Richards met us at Darjeeling station, and from that moment we never stopped for three days. The Expedition, which we thought was due to leave Darjeeling on March 15th, was actually going on March 8th, and the advance party of climbers had already left. In the meantinme, the wirelss gear had to be unpacked from the crates in which it left England, and the apparatus for Base Camp had to be sorted out and repacked for animal transport. Accumulators had to be given their initial charge. (Shades of the School of Signals! This was done by filling them up and charging for 48 hours, the full time at our disposal, after which we took them away without further attention!) Details of transport had to be gone into, and in this we were very grateful to Shebbeare, who collected the necessary animals for us. Arrangements had to be made for opening up communication, wave-lengths fixed, and times of working. Last, but not least, food and our own personal kits had to be thought out. Had it not been for Mr. C. Wrangham Hardy, the Secretary of the Planter's Club, we would have been days late in starting. From the Club stores, at 24 hours notice, he produced enough food to last us for five months, all packed, listed, and ready to take away. In the matter of kit, we would have fared badly had it not been for Ruttledge who, with advice and actual issue of Expedition material, which he could ill afford to give away (since we were, so to speak, surplus to establishment), enabled us to rush together a sufficient supply at least to cover bare necessity.

On March 9th we moved off on the first stage, to Kalimpong, 25 miles distant. We had with us 24 mule loads of gear, including 11 loads of wireless equipment, all of which was unseen and untested. Smijth-Windham took the heavy stores by lorry *via* Silliguri and the Teesta Valley, I went on foot with the more fragile wireless apparatus, for which mule and pony transport had been arranged. Of the few days halt we made at Kalimpong I shall say little, except that we received abundant hospitality from the residents there. We were held up while transport arrangements were being made with Pangda Tsang, the Government Contractor on the Kalimpong—Lhasa Trade

Route. Owing to the tremendous drain on local transport made by the Expeditions stores—which required some 400 animals—we perforce had to wait a day or two after Ruttledge and his party had gone, but on March 15th we started off, making for the Jelap La, a pass into Tibet which, though only two miles from the Natu La, crossed by the Expedition, was approached by a shorter route, enabling us to drop down into Yatung, the first halt in Tibet, on the same day as the main party.

A word or two about those first few marches might be of interest. Jubbulpore, at the time we left, was beginning to get warm, just nicely so. The lower valleys of Sikkim were hot and close. The Jelap La was over 14,000 feet and bitterly cold. The change was sudden. In two consecutive half-marches the road climbs some 11,000 feet, leaving thick tropical forests and emerging onto bare, windswept, snow-covered uplands. From Pedong—the first halt after Kalimpong—the road lies through the south-east corner of Sikkim, crossing the Jelap La into that narrow strip of Tibet which runs south, sandwiched between Sikkim and Bhutan. From Sedonchen, about 8,000 feet we climbed on up past Lingtu, 12,613 feet, to Gnatung, and on to Kapup rest-house below the Jelap La. It was on this march that we passed out of the tropical forests, through the pine belt, and out onto the very bare windy highland that lies under the pass. In one place, where the track was sheltered, snow lay heaped across it, necessitating a little careful walking, but otherwise we had no difficulties.

It may be interesting to note that this—the Kalimpong-Lhasa Trade Route as it is now—was the route used by the main body of the Younghusband Mission to Lhasa in 1904. The road was engineered by the Sappers and Miners, but, judging by its present condition, has not been touched since. Indeed, one must watch one's every step, or risk a fall or a twisted ankle on the boulders that form the foundation—and now, the only remains—of the track. The descent to Yatung, from the Jelap, is very steep going for the first 2,000 feet, after which it eases off somewhat. In the immediate vicinity of the pass, the country is very reminiscent of the north side of the Lowarai La, on the road to Chitral from Nowshera. There are the same steep hillsides, covered with pine forests, though lacking the luxuriance of Kashmir. For this is a harder country than Kashmir, apart from being twice the height, and the winter is far more

rigorous. On the day we crossed, in the middle of March, the string of prayer flags marking the highest point of the Jelap was covered in ice, and, blowing about in the wind, gave out a tinkling sound. Not a place at which to linger, particularly as the low clouds cut off all the view.

As mentioned earlier, Smijth-Windham and I caught up Ruttledge's party at Yatung. We spent a day there looking over and re-organising our stores, which, despite the rough passage over the pass, had suffered little damage. The point is perhaps worth bringing out that our transport, owing to the nature of things, was not run on the same smooth lines as the pack transport of the I.A.S.C., where every third animal is personally conducted by a drabi. With us, one man might be in charge of as many as twenty animals, which he would propel along the road by means of clicking noises, shouts, and well directed stones. It will be seen, then, that an idle beast in front may cause a considerable amount of bumping and boring behind. Not that this would do any harm to the bales of wool which these animals normally carry, but with our wireless apparatus, the majority of it done up in three-ply cases (!), the situation was slightly different, a thing which we found great difficulty in impressing upon the minds of the muleteers, who, when unloading, would drop a wireless set on to the ground from three feet or so with the same carefree air as they would a bale of wool! In fact, every unloading required close personal supervision.

On the afternoon of our rest day at Yatung, a three-a-side polo match was organised. Ruttledge, Birnie, Boustead, Wood Johnson, Smijth-Wandham and myself being the players. Our mounts were Bhutia ponies, weapons—two cut down polo sticks and four hockey sticks. The polo sticks had the advantage, more especially when wielded by one like Birnie, of Sam Browne's Cavalry, or by Ruttledge. Constant shuffling of the sides produced a fairly even game, which was completely innocent of anything like organised chukkers. Boustead's pony most determinedly bucked him off early on in the game, otherwise no one came to any harm, which was really quite remarkable.

During our stay at Yatung, the party was most hospitably entertained by the British Trade Agent, Captain A. A. Russell, M.C., who resides partly at Yatung, partly at Gyantse, during the year. Later, at Phari, he overtook us on one of his periodical visits to Gyantse.

At Gautsa, the next halt from Yatung, we met the advanced party, consisting of Crawford, Brocklebank, McLean, Wager, Longland, Shipton and Wyn-Harris. For some reason or other, they thought fit to greet Ruttledge and his party with a very spirited rendering of " The Red Flag ", possibly a result of Crawford's recent travels in Russia; while he himself, when I first saw him, strongly resembled one of Bolshevik tendencies, being clad in a red shirt, with straggling hair, a cheroot, and an already very respectable growth of red stubble.

By the end of the next march, Phari, we had left civilisation, trees, and a green countryside behind. I have dwelt rather on these early marches because they were the beginning of it all, while we were settling down to the routine of daily marches, and because in those early days we passed through a variety of country which naturally impressed itself on one's mind. Halfway between Gautsa and Phari we came out onto the Tibetan plateau, a land largely devoid of cultivation, and for eight months in the year swept by a merciless wind, and it was through this type of country that the rest of the march lay. A land of stones and grit and flying dust, which to the casual observer has not sufficient grazing to support even one animal. Grass—at that time of the year—is practically non-existent. Six marches from Phari we saw a few trees, stunted willows, and at isolated villages later on, a few here and there. I believe Gyantse and Lhasa are in comparatively fertile regions, but the part we traversed was incredibly barren. And yet, on most marches, we would come across large flocks of sheep and goats, all apparently consuming grit in large quantities and with great zest, and looking extremely fat and well-to-do. Of animal life, we saw little. Some members of the party, on the march to Kampadzong, reported having seen gazelle and kyiang (wild ass), and one day Wood Johnson and I thought we saw some Ovis Ammon, but they were rather too far away for certain identification. Tibetan hare we saw, and all along the march pika holes were seen—and avoided, if possible, for a pony would come down, or stumble badly, on dropping a foot into one. At Dotag, about six miles from Gautsa, we saw a herd of burrhel in the snow, above a very beautiful frozen waterfall. We were told to look out for these, for every Expedition passing that way has seen them in the same place.

I have mentioned the wind in several places, also because it impressed itself on our minds. This north-west wind is characteristic

of Tibet. It blows all the year round, with great force, except during the monsoon, and, as will be seen later, has a very marked effect on Everest and on parties trying to climb the mountain. I cannot remember a single day on which we did not have to endure the wind, and more often than not, we were caught on the march. I don't think I exaggerate when I say that its normal velocity was about 40—50 m. p. h., and, carrying, as it does, clouds of dust along with it, it makes marching most unpleasant, particularly as one's breath is always rather short during the early stages of acclimatisation. This wind always got up about 10 or 11 o'clock in the morning, sometimes earlier, and blew without intermission until after dark. Without it, life was very pleasant, for there was always a warm sun, but once in camp a sleeping bag was the only means of escape from it.

On March 29th we arrived at Kampa, roughly half of the 300 miles march completed. Unlike previous Expeditions, every member of the party was fit, despite weather conditions which, according to Shebbeare, who was on the 1924 Expedition, and Crawford, who went in 1922, were harder than any met with before. Temperatures were lower—at Shebra Shubra, eight miles from Phari, the minimum temperature recorded was minus four degrees Fahrenheit—for we were marching roughly a fortnight earlier than previous parties have done. The dust, which should have given us sore throats, for some reason failed to do so this year, probably owing to Raymond Greene, who issued fearsome gargles and nasal douches all round.

It was at Kampa, from the hill behind the camp, that we got our first view of Everest, 100 miles or more away. The whole southern horizon was a continuous line of immense snow and ice mountains, separated by big glaciers, including five of the world's highest peaks—Everest, 29,142 feet; Kanchenjunga, 28,146 feet; Lhotse, the south peak of Everest, 27,890 feet; Makalu, 27,790 feet; and Cho Oyu 26,750 feet. Round Kanchenjunga could be seen a wealth of peaks mentioned by Smythe in his account of the 1930 Expedition to Kanchenjunga. To the south-east, the three big peaks at the head of the Teesta Valley, Pauhunri, Chomiomo and Kanchenjau, all over 22,000 feet, which Dr. A. M. Kellas was the first to climb. Westwards, Everest, with its surrounding giants. Looking at Everest through the telescope, we saw that what to the naked eye resembled nothing so much as a huge white handkerchief suspended in the sky, was in reality a snow and ice face seamed with avalanche tracks. Some

4,000—5,000 feet of the upper part of the mountain could be seen and, behind, a fleck of sunlight touched the ridge leading down to North Col. A magnificent sight, and one to be remembered.

Before leaving Kampa, some members of the party visited Kellas' grave. It may perhaps be recollected that he was the doctor to the first Expedition in 1921, but died of heart failure while being carried on a stretcher over the pass above Kampa. Just prior to the start of that Expedition, he had been doing a great deal of climbing in Sikkim, in addition to spending the winter high up the Teesta and in the Kanchenjunga group, and had not had time to recuperate before starting out again, this time for Everest. The grave was found, but the stone, on which Kellas' name and an inscription in Tibetan had been carved, was smashed. A fresh stone having been placed in position, Shebbeare, the oldest member of the party, read Psalm 121, arrangements were made to have a new inscription cut, and we left the grave, alone on that bare hillside in view of those distant peaks.

Kampa to Tengkye, Tengkye to Shekar—I will not dwell on those eight marches, but pass on to our arrival at Shekar. We saw the place first from some five miles away, a sharp pointed hill appearing over a low intervening ridge. Even then it was sufficient to attract attention, but a mile or two on and we saw it fully, in all its beauty. It has been said that those who founded and built monasteries in England selected their sites with a view to the natural beauty of the place. Fountains Abbey, for example is placed in a perfect setting. Tibet is a different country, ruder and rougher, but no less can it be said of those who first settled at Shekar that they appreciated their surroundings, and the grandeur of them. Dzong, gompa and town combine in their setting to make one of the most beautiful places we saw on the whole march. Picture the town, a little group of whitewashed houses, the roofs black brushwood, the walls relieved of their dazzling white by splashes of red paint here and there—these, and the twisted yak tails that flutter over the houses, both anti-devil devices—set on a level piece of ground, the edge of a wide, flat valley. Immediately behind the town rises a steep, pointed, hill, for about 1,000 feet. The angle of this hill is about 50 degrees, and the summit is to all intents and purposes a point. Half way up is situated the gompa, and from a distance it is difficult to see how the buildings manage to stick into the hillside. Right on the summit are the remains of the dzong, long since disused, and literally falling to pieces.

and dropping down the hill. That night, the night of our arrival, we saw it under a full moon. All was still, save for the occasional bark of a village dog, and far above there showed the lights of the gompa, and there floated down to us the soft sounds of the lamas chanting the evening service. We stood outside, silent, listening, and drinking it in, until some fool started the gramophone in the Mess tent, and broke the spell.

I think this year's Expedition will remember Shekar for other reasons also. Shortly after our arrival the discovery was made that some of the stores and equipment had been rifled. An immediate check of everything was made, with the result that about £200/- worth was found to be missing, a lot of it indispensable, such as porters high altitude equipment. The local Tibetan muleteers were fastened on as guilty, and two of these, in whose charge the stolen articles had been, were handed over to the Dzongpen for treatment. The penalty for theft in Tibet is amputation of the right hand, but the man is first given a chance to confess. This " chance " takes the form of inquisition by flogging, the flogging being continued until the man does confess. As far as I could discover, there seems to be no legal limit to this flogging. In practice, I presume that, if the man continues to maintain his innocence, the Dzongpen orders the flogging to be stopped, but I fancy that in some cases he does not exercise his perogative of mercy for days or even weeks. If one assumes the party to be guilty, and is suitable enraged at such guilt, it would be a long time before aural and ocular evidence persuaded one to change one's views. Of trial by jury, such as we know it, there is not the faintest sign.

At Shekar, as at most places on the march, we were surrounded by a very large and representative gathering of the great unwashed. Even the efforts of Policie, a Tibetan mastiff and the Expedition mascot, failed to keep them away, and Policie considered a chunk of Tibetan a great delicacy, and a staple portion of her day's food. The Tibetan washes perhaps once a year. I hope I am not libelling, him, but although we did see some of them washing, the great majority of them looked as if they knew not the use of water, even as a drink. I must confess that I was not the only one of our party who joined their ranks—in the spirit. The climate of Tibet is such that, apart from the unpleasantness of the deed, washing becomes a positive risk. With temperatures like those we experienced, and the wind, one washed as little as possible, and as quickly as possible. Some members of the

Expedition went as long as seven weeks without so much as washing their hands—and enjoyed it. I use to choose my day with care and have a bath once in three weeks if possible, but then, I was in the comparatively salubrious climate of Base Camp for most of the time. The Tibetan countrymen, who, for some reason connected with national custom in dress, exposes large portions of flesh to the elements, covers these exposed parts with grease, oil or ghee. But he then spoils the effect by living in a smoke-laden atmosphere and a very small hut, so that after a while he becomes covered with a layer of mixed grease and soot. That just stays there.

And so we started out on the last lap, five marches to Base Camp. There was an air of expectancy about the party now. A glimpse of the mountain from the Shekar dzong showed it to be besieged by heavy clouds. Was the weather going to be bad ? Would we suffer the blizzards which proved such a set-back to the 1924 Expedition ? What was the mountain really like, that last 2,000 feet, when seen at close quarters ? Smijth-Windham and myself were no less concerned in the answers to these questions, although we were climbers in no sense of the word. For us, too, there was a very big question. Our wireless gear—what was it like, and was it going to meet the requirements of the case ? We were about to make a very big assumption in erecting a wireless station in the very heart of the Himalaya. For all we knew, we might never hear a sound of the Darjeeling station.

It was in a state of something like excitement, then, that the party arrived at Rongbuk Monastery, one march (of five miles) from Base Camp. Thick clouds were lying low over the mountains when we got there, but in the evening everything cleared and there ahead of us, framed between the valley walls, was the goal—Everest. A big astronomical telescope—the property of the Royal Geographical Society, and specially lent to the Expedition for the purpose of observing the higher parts of the mountain from a distance—was got out, and the upper part of the North face closely studied. Arguments arose again as to the possibilities of the Second Step, Norton's Traverse, and the difficulties which might or might not be met with on the snow slope of the final pyramid. It would be of little value to enlarge on these now. I hope to show, in the continuation of this article, what actually happened. Smijth-Windham and I, gazing up the valley, were not impressed with the sight from the point of view of wireless working. It looked as though we were going to be very much shut in.

This view of Everest from Rongbuk Gompa has been described, by persons more worthy than myself, as ugly. I venture to disagree. To an artistic mind, it may lack balance and a number of other things. I have no pretensions that way, so perhaps I am not a fair judge, but although I saw the mountain, more or less from the same viewpoint, for a longer period than any other member of the party, I cannot say that I ever found it anything but magnificent to look upon, or agree that it is in the slightest bit ugly.

The first thing that strikes one about Everest at close quarters is the solidity of it. It runs up to a somewhat truncated and eccentric point from a wide base, a firm foundation. After a while, when one realises that it is still 15 miles away, the enormous scale of it impresses itself upon one. The ridge from north-east shoulder to summit is just a mile long. That face, the north face seen from Rongbuk, is some 12,000 feet high—a little less than the highest mountain in Europe—while the foot of it is already 2,000 feet higher than the summit of Mont Blanc. When we saw it first, practically the whole of the North face was clear of snow—at least of fresh snow, for there is always perennial snow lying in the Great Couloir and isolated patches out on the face of the mountain—and the yellow sandstone band, that is such a feature of this side of Everest, running clear across from north-east shoulder to north-west ridge could be seen distinctly. Above this is the black band, whose outcrop on the arête forms the Second Step. Below are fearful precipices of rock and hanging glacier. All this, and the mountains around, and the softer brown hills near the valley, form a picture indescribably grand.

On April 17th we reached Base Camp, the approach march and concentration finished, and the work about to start.

PART II.

The site chosen for the Base Camp is the same as that used by all three previous expeditions, and might be spoken of as " Base Camp on Everest " rather than as " the Base Camp of such and such an Expedition. " There is only one approach to Everest, from the climber's point of view, and the position selected by the first Expedition for their Base is as nearly ideal as possible. It is the limit to which animal transport can go up the Rongbuk Valley, is not too high (16,800 feet), reasonably well sheltered, and plentifully supplied with fresh water. Food supplies are, of course, non-existent, the nearest place from which even vegetables can be obtained being some 70 miles away, though a certain amount of meat is to be had in very limited quantities from nearer at hand.

The consideration of altitude is an important matter. While it is desirable that the Base Camp should be pushed up as high as possible in order to reduce the length of the Line of communications formed subsequent to the move up the glacier, yet it must not be so high as to afford no, or only partial, relief to exhausted climbers descending from the mountain. These, as was shown this year, will often be in a very bad state, but yet, owing to lack of numbers, may be required to ascend again after a period of recuperation. It is in order to ensure this necessary recuperation that Base Camp is situated where it is, very little higher than the average altitude of the Tibetan Plateau, across which the party has marched for many days, and to the altitude of which everybody is well acclimatised ; and in a place, too, where the effects of the summer—all too brief in these parts—are felt as early as possible. I was there myself, when climbers began to return after the first attempts on the mountain, and I can vouch for the effect produced on them by the sight of soft brown and purple hills, green grass (to me, all too scanty), and flowers, the warmth and returning sense of smell, after a long stay in a scentless atmosphere, amid a wilderness of ice and snow and black rock. I experienced it later, but to a lesser degree, for by then the presence of the monsoon had greatly reduced the harshness of conditions at Camp III.

The first step, after arrival at Base Camp, was to sort out the stores required for the glacier camps, and those which would form the equipment for Camps IV, V and VI on the mountain itself. For the first day or two all hands were busy on this, while Smijth-Wind-

ham and myself were erecting the wireless station. At the same time, Smythe set off up the glacier to reconnoitre the route and the position of Camp I. On his return he reported having seen something in the sky near the summit of Everest, which later on was proved to have been one of the aeroplanes of the Houston flight. There was nothing to prevent the old site of the camp being used again, and, after an interval during which various climbers made the journey up to Camp I and back accompanying relays of porters carrying loads of glacier and high altitude stores, the camp was established on April 21st.

What I have to relate now, up to the time when I went up to Camp III myself on June 11th—14th, is largely hearsay. The descriptions I shall give may be slightly inaccurate, for things were very different when I went up. I will try, however, to piece the story together partly from what I saw later, partly from accounts of those who were actually there, and partly from my experiences gained by being at the Base Camp end of the wireless link to Camp III.

The route to Camp II lies over tumbled heaps of morainic detritus resting on the surface of the East Rongbuk glacier. It is by no means difficult in that it is simply a case of slogging over a series of mounds, each one higher than the last, until Camp II is reached. The route to Camp III, on the other hand, provides a pretty problem, for here the moraine is left behind, and the route lies over rough, uneven glacier. When the first move up was made the whole was in a frozen state, which simplified movement to a certain extent, but later, with the monsoon, streams began to form in and on the glacier, and lakes suddenly appeared submerging half a mile or so of well-worn track. Crevasses, too, which at first were mere cracks easily stepped over, now widen, and their approaches become unsafe so that they may even require bridging.

All this, the first move up and establishment of glacier camps, was done in comparatively fine, though cold weather. Occasionally clouds descended on the valleys and mountains, and a blizzard would rage for some hours, but on the whole, the work went steadily on. Camp II was established on April 26th and Camp III on May 2nd. At the former a temperature of 20 degrees below zero Fahrenheit was recorded one night, and it is low temperatures such as this, coupled with the reduced oxygen content of the air, that is so wearing, and makes proper acclimatisation a thing to be achieved slowly and surely.

Even this much of the work had not been accomplished without casualties. On arrival at Base Camp, Wyn-Harris and Wager went down with mild influenza. That they recovered so quickly as to be the pair to make the first attempt on the summit is something of a miracle. Most of the climbers were suffering from a form of sore throat brought about by the cold and extreme dryness of the atmosphere. This did not prove a complete bar to progress, though one or two had to descend to Camp II from III for a few days' rest. One, Shipton, lost his voice entirely, and failed to regain it even when the sore throat had gone. His efforts to shout "Koi hai" were heart rending. The only effective cure for him was the re-ascent to Camp III, after six or seven weeks of almost complete effasia. A more serious case was that of Ondi, a veteran porter of many Himalayan Expeditions, who, on April 20th, on arrival at Camp I, suddenly collapsed with acute pneumonia. He was immediately taken back to Base Camp, where for the whole night he was kept alive by oxygen administered by the doctors, Greene and McLean. In their opi ion the only thing to do was to get him away on a stretcher to a lower altitude. His condition was so acute that they had almost given up hope, and it was feared that despite a constant supply of oxygen and frequent injections of heart stimulants, he would not live another 24 hours. On the morning of the 21st, therefore, he was sent off, McLean and Crawford accompanying him, the former for the first stage only, to Rongbuk, the latter to go the whole way to the Kharta Valley. The journey was about 50 miles. The stretcher broke twice in the first five miles, and a 17,000 feet pass was crossed in a blizzard ; yet, by the end of this, Ondi (contrary to all orders) was walking about when he got the chance, and rather less than three weeks after he was carried from Base Camp to all intents and purposes a corpse, he appeared there again, carrying a full load on his back, and volunteering the information that he was on his way to Camp V or VI. He returned the same day by the way he had come, very depressed about it all—evidently of the opinion that he was harshly done by. Of such stuff is the Darjeeling porter, the man who makes possible an attempt on the great Himalayan peaks, and without whose help and almost overwhelming keenness, no expedition would stand the slightest chance of success.

Meanwhile, at Base Camp, things were not going too well with the wireless station. Smijth-Windham and I commenced erecting the

station on the 18th, the day after our arrival, he getting on with the outside work, I with the indoor wiring up of the sets. Everything went quite smoothly, the whole installation was tested out on the 20th, and showed every sign of working in a perfectly normal manner. At midday on the 20th, we commenced to call up the Darjeeling station. Considering that it was well over a month since we left there, we had every right to expect that the wireless station there had been erected, tested, and was only waiting to hear our first calls. We received no reply. However, deciding that we were not giving them a sporting chance by calling up out of prearranged working hours, we closed down, and repaired to tiffin to wait for the evening watch. Still we got no reply. After another day of complete silence, we commenced furiously to think. Our apparatus appeared to be working perfectly. If the Darjeeling station was working, surely we could not fail to hear them, at a range of a mere 111 miles? Day after day went by, and still we got no answer. We called other stations, civilian and military, with a view to getting a message sent through to Darjeeling. Somewhat to our consternation, we got no reply from them, either. It was all very worrying. Was it that the high horizon clearance angle—22 degrees—on the direct line between us and Darjeeling, was cutting off our transmission? Perhaps we were in a dead spot. Eventually, this combined with the question of the clearance angle, decided us to look about for another site for the wireless station. The Camp III equipment was immediately got out and tested with the Base Camp set. Both were working perfectly, the Base Camp transmitter being "blastingly" strong. On April 27th therefore—eight days after we had started calling up—Smijth-Windham set off across the valley and up the 400 feet moraine on the far side to try to find a site in which it would be possible to hear Darjeeling. We had made an arrangement whereby, as soon as he heard the latter, he was to let me know, whereupon I would immediately set about dismantling the station with a view to moving it over in the shortest possible time. I saw him off, and watched him and Wager slowly ascending the moraine. Then I went into the operating tent, and in a despairing manner commenced to cast round again on the receiver. To my intense relief I heard the call "VUE VUE v VUD—VUE VUE v VUD"—Darjeeling calling Base Camp. As soon as the call was finished, I switched on the transmitter and replied, anxiously wondering whether I should receive a relevant reply. I listened in, and after a moment's hesitation heard

Darjeeling tell me that my signals were being received at good strength. We were through. After a few minutes' chat I told them to wait, and closed down while I went outside to signal, with a flag, the glad news to Smijth-Windham, still toiling up the moraine. He, also with a sigh of relief, returned. It transpired later that Darjeeling had experienced some trouble with their main transmitter, which was, in fact, pushing out signals far too weak for us to hear. This was only noticed when they heard our continuous calls, but failed to elicit any reply from us. The transmitter was still out of action when Mr. L. W. Ford, the owner of the amateur station VU2CS, kindly offered to allow his transmitter to be used, and it was with this that communication was primarily established. Later, the transmitter at VUD Katapahar (about three to four miles from Darjeeling) was got into working order and gave very satisfactory results.

Camp III being established and the necessary rations and stores for the high camps being collected there, the next problem was to find a way up to North Col, which is the lowest point of the ridge connecting North Peak (Changtse 24,730 feet) with the north-east shoulder of Everest. It is this ridge that affords the only practical way up the mountain. The slopes below North Col provided some 2,000 feet of crevassed ice and snow, sometimes gentle slopes, in places wicked hanging glaciers, apparently ready at any moment to hurl down tons of ice to the slopes below; avalanches capable of overwhelming porters or climbers in a moment of time, and giving them no hope of escape. The upward sides of crevasses were possibly treacherous snow slopes which, if disturbed by the passage of men above, might start to slide, wholesale, and carry men with them, to engulf them in the crevasse below. It will be remembered that this actually happened in 1922, when seven porters were killed by being swept into a crevasse. One member of our party—Crawford—had good cause to remember the accident for he was in the party on the slopes of the Col when the avalanche occurred.

Shortly, after the arrival of the party at Camp III, two reconnaissances of the ice wall were made, and on May 8th Smythe, Shipton, Longland and Greene left Camp III *en route* for the Col. Their plan was to establish a temporary camp—III*a*—at its foot (in order to obviate the necessity of making the long walk to and from Camp III every day that work had to be done), and to endeavour to make a route half way up. In this they were to be relieved by Wyn-Harris,

Wager, Birnie and Boustead. The distribution of the party at this time may be of some interest. It will be remembered that Birnie was the high camp Transport Officer, while Greene was to be the doctor at Camp IV, in addition to being one of a possible high climbing party. At Camp III were Ruttledge, Brocklebank and Wood Johnson. Shebbeare, who at this time was suffering from acute sore throat, was back at Camp II ; McLean was attending a bad dysentery case at Camp I, while Crawford, having returned from the Kharta Valley, was moving up by easy stages from Base Camp, which he had left on May 3rd. Smijth-Windham and myself were at Base Camp. It will be seen therefore that there were 11 fit men at or above Camp III, a situation made possible by the slow advance up the glacier.

At this stage, before even the party was on the North Col, the weather showed signs of breaking. Already monsoon clouds could be seen welling up to the south below the Rapiu La—a low pass about a mile and a half across the glacier from Camp III—and blizzards were sweeping the mountains. Work on the North Col proceeded sometimes under a blazing sun, which was reflected in a burning glare off the snow, sometimes in a tempest of wind. Day after day the party would start out from III*a* to find all their work of the previous day obliterated, fixed ropes and pitons buried under a smooth expanse of soft fresh snow. Then would follow more tramping of the track ; groping in the deep snow for a sign of a rope, and unearthing it when found ; and more laborious step cutting in the hard ice.

The route selected was safe but steep. Ruttledge described it as being "up to first class Alpine standard," and what a climber can do, with difficulty, in the Alps, may be well nigh impossible at heights between 22,000 and 23,000 feet. Yet Smythe amazed the whole party by the way he cut " pillar-box " steps up 30 feet of perpendicular and partly overhanging ice. This, it might be explained, meant hanging on with one hand, while with the other he reached out above him and hacked out the next step in the ice above his head. Exhausting enough at sea level.....

At last the route was completed, fixed ropes in position and the whole made a practical way up for porters. On May 15th Camp IV was established on a little ice shelf at an altitude of about 22,800 feet, or some 200 feet below the summit of the Col. The site was a good one from the point of view of the shelter it had from the biting winds that swept over the Col, but it was in the lee of a small ice slope,

from which little falls of snow used to descend periodically on to the tents. Later on, these falls became so frequent, that it was feared that the camp was in danger of being hit by an avalanch which might overwhelm the tents. The camp was therefore moved up and over the Col, to a position which was certainly safe from avalanches, but the price paid for safety was exposure to any and every wind that blew.

At Camp IV the party was held up to a certain extent by weather, blizzards being frequent, but five days after the camp was established a party, consisting of Wyn-Harris, Birnie and Boustead with ten porters, set off in an attempt to establish Camp V. The day started fine but rapidly deteriorated and at a height of some 1,000 to 1,500 feet above Camp IV, the gale was blowing with such force and the cold so intense that Birnie, who was in charge of the porters, decided that for their sakes it was inadvisable to continue upwards. Loads were therefore dumped and the Party returned to North Col. For another day they were confined to their tents, but the following day, May 22nd, was fine, and Wyn-Harris, Greene, Birnie, and Boustead again set off up the mountain, Wager and Longland accompanying them for a training walk. Again a terrible wind raged but this time there was no stopping. The abandoned loads of two days before were picked up and Camp V was established at 25,700 feet. Greene, who was not fully acclimatised, became exhausted on the way up, though he temporarily revived himself with some oxygen found at Finch's camp of 1922, and his condition was so serious that he was forced to turn back, arriving at North Col with a three-inch dilation of the heart. Wager took his place in the climbing party, he and Wyn-Harris remaining in the tiny tent at Camp V, to attempt with eight picked porters, who also stayed, to establish Camp VI the following day. That night was windy and the next morning so bitterly cold, that they decided against any further move up that day. They put out a signal on the rocks to indicate to those below that they were staying, and retired, numbed, to the tent. The whole operation of putting out the signal took them not more than five minutes, yet it was three hours before their blood circulation was restored, and feeling returned to their frozen limbs. About 4 p.m., Smythe and Shipton, who apparently had not seen the signal, arrived at Camp V, whereupon Wyn-Harris and Wager decided that, owing to the congestion in the tent, it would be better for Smythe and Shipton to replace them in the climbing party, and returned to North Col. May

24th was again too windy to allow of any move towards Camp VI, and owing to the inevitable shortage of rations, which had never been calculated for a prolonged stay at Camp V, Smythe and his companion decided, on May 25th to evacuate and descend to North Col.

For several days now work above the Col was impossible, and the climbers were busy moving Camp IV to the crest of the Col. Ruttledge, Greene, Crawford, Brocklebank and Boustead returned to Camp III, escorting thither a number of porters whose frost-bitten hands necessitated their being helped on the steep portions of the descent. Smythe, Shipton, Wyn-Harris, Wager, Longland and Birnie were now left at Camp IV, and on May 28th a party again set out for Camp V. This was reached in safety, and the following day being passably fine, Wyn-Harris, Wager and Longland, with eight "Tigers," went on and established Camp VI at a height of 27,400 feet—surely the greatest carry ever made by Himalayan porters. Longland, in a magnificent piece of mountaineering, conducted the porters down to North Col that evening, most of the journey being done in thick clouds, a blizzard, and a terrific wind, on a slope on which one slip would be fatal. I believe that when the party arrived at Camp IV, each man's left side was covered in ice. Beards were completely concealed by ice, and goggles had been of little use since leaving Camp V. Longland's performance ranks perhaps as one of the greatest things that has ever been done on Everest.

Then began the first attempt on the summit. Down below, all was confidence that the mountain would be conquered at last. The men were so fit; Camp VI had been placed so high, and the summit seemed so near. Surely they could not fail? Wyn-Harris and Wager left their tent at Camp VI at about 5-30 a.m. on May 30th. At 7-0 a.m. they were seen by Longland from Camp IV, "going strong." Then clouds descended, and from that moment, for 36 hours, they passed from the ken of those anxiously waiting for news below. As time went on, and no news came through, Longland's last message about them took on an ominous savour—it sounded too much like Odell's report of Mallory and Irvine in 1924.

Smythe and Shipton went up to Camp VI. They too vanished for the time being. Back at Base Camp, I kept on asking Smijth-Windham for news. Greene, Wood Johnson and I were in agonies of suspense. Telephone calls from Camp III elicited no response, and

thick clouds wrapped the mountain in mystery. At last Smijth-Windham began to transmit a communiqué to me, and while I read it out aloud Greene decoded it. I reproduce it in full :—

"Phone message from Camp IV at 1,725 states Wyn-Harris Wager returned without injury after night Camp V. Left Camp VI yesterday soon after dawn finding between camp and first step on ridge ice-axe supposed Mallory's. Following yellow sandstone band crossed great couloir to about same point as Norton. New snow on slabs. 1,230 realised not time to reach summit and decided further recce second step in order assist second party. Found south of step very smooth difficult snow slope. Returned Camp V. Meanwhile Smythe Shipton arrived Camp VI. To-day will examine second step and proceed if possible. If impossible, will sleep again Camp VI and attempt summit to-morrow. Owing clouds no news of them to-day."

The finding of the ice-axe is an interesting point, and has been the subject of considerable controversy. It is now generally admitted that it is not the one dropped by Somervell in 1924. Indeed, there are several very conclusive arguments against this theory. Either Mallory or Irvine, probably the former, owned the axe, and the spot where it was found by Wyn-Harris is almost certainly that at which the accident occurred which cost Mallory and Irvine their lives. Grating of nailed boots betokening a slip of the man on the rope behind ; a hasty putting down of the axe to have both hands free to hold the rope ; a jerk, and the beginning of that awful slide which could only finish some 10,000 feet below on the main Rongbuk Glacier. It might happen at any time to a tired man, and once the slide has started, there is no recovery.

A short analysis of the communiqué which I have quoted may be of interest. Wyn-Harris' and Wager's primary object was reconnaissance of the mountain above Camp VI, with a view to finding a practicable route up. If they found such a way, and if time and their physical condition permitted, they were to have a try for the summit. Wyn-Harris, describing the climb, said that as they approached the second step, it took on more and more the appearance of the bows of a great liner, towering some 300 feet above them ; while below, and on the North side, there appeared to be an easy, wide, level pathway. Small wonder that they took the latter way, without a further glance at the step. The "garden path," though I do not think they

knew it at the time, was the beginning of Norton's traverse, and very rapidly lost its smoothness and levelness, as it ran out across the North face of the mountain, to merge into the general slope. Progress along it was necessarily slow, the fresh powder snow making it exceedingly difficult to find footholds, or to be sure of them when found. A nerve wracking performance. Arrived at the point where the direct horizontal traverse ceased, and the upward climb was to begin, reluctantly they had to decide that the summit was out of the question. There were left now some 1,100 feet of steep climbing to be done, over slippery rock and loose snow, and to make the summit and return in safety to Camp VI, before dark, was an obvious impossibility. The direct climb up the wall of the second step was, in their tired condition, too much for them even to attempt, possible though it may or may not have been to a fit man. From the descriptions of the various men who have seen the second step, it seems more than probable that it is never likely to be the route to the summit. A climb of 300 feet at that altitude—however fit a man may be—can only be achieved if there are "arm-chair" foot and handholds. Any sort of climbing which entails heavy muscular exertion of the arms and legs will rapidly prove too exhausting, and might even result in a collapse from heart failure.

Wyn-Harris and Wager, on their way down, stopped at Camp VI for a few moments, to pass on the results of their reconnaissance to Smythe and Shipton who had that day ascended from Camp V. On the morning of June 1st, after two nights and a windy day confined to the tent, the latter pair started out on their attempt on the summit. It would be tedious repetition to recount this climb in detail. Smythe's own story of it has been published both at Home and in India, and one can only marvel at his very gallant lone effort after Shipton's return to Camp VI. It might be pointed out that orders were very clear cut on the subject of false heroics on the mountain. No man, if he felt unfit, was to carry on to the point of collapse, for in so doing he would endanger not only his own chances of safe return to camp, but also those of his fellow-climber. Shipton realised early that owing to internal trouble he would not be able to go on any further, and Smythe, after reassuring himself that Shipton was in a fit condition to return alone, continued the upward climb. His was such an intimate experience that day that I can only refer the reader to the official account of the Expedition and to Smythe's own story.

And so the second assault party had failed and descended to Camp III. Here a conference was held, and the state of affairs examined. There was much snow on the mountain, and it looked as though more would be deposited, making conditions even more difficult than they had been so far. The monsoon was well established in the Everest region. It is barely conceivable that an attempt might have been made had there been enough fit men for the job. The state of the party was however the deciding factor. Not one of those who had been high but was suffering from a dilated heart, to a greater or less degree, and many had frostbite, and there were not sufficient fit men to make even one assault and support party. The doctors were, however, of the opinion that a rest at Base Camp was essential, and this decided Ruttledge to withdraw from Camp III, though the climbers were already arguing over plans for another attack, and asserting their own claims to physical fitness. However, it was a weary and battered party that began the descent to base on June 4th.

A week or more was spent in what Ruttledge described as " the Capuan delights " of Base Camp. I agreed with the description to a certain extent, but then, I am biassed. I had not yet been up the glacier. It was pleasant, though. The days were warm, to the extent of being hot at times. Smijth-Windham and I had recently received a fresh consignment of food, which was eagerly pounced upon to relieve the monotony of the Expedition's rations. There was some Irish Whisky which proved very drinkable when taken neat —some bottles of rum, too.

Raymond Greene and I, in our spare time efforts to beautify the home, had supervised the damming up of the stream which runs from the spring in the camp, and had succeeded in making a very sizeable pool, in which we proposed to bathe. We did, too, he and Longland and I. Greene, hardened no doubt by similar experiences in the Kamet Expedition, was wont to take a regular morning bath in it, ice or no ice. Longland and I preferred a rapid dive through the three feet of water, followed by five minutes' intensive effort to regain one's breath after climbing out. The first time I bathed the temperature was 35 deg. F. ; the second time it was one degree lower. I only bathed twice. But it was a world's record, we think, bathing at 16,800 feet and enjoying it too, really.

At this time, there was much discussion as to what was to be the next move. No one yet had been on the mountain during the

height of the monsoon. No one knew what effect a break in the monsoon would have on the mountain. And no one was in the least bit in favour of leaving without making another attack on Everest. At last the doctors pronounced sufficient men fit to make a skeleton party to go up again, and on June 11th, Crawford and Brocklebank started up for Camp I, followed by Ruttledge, Smythe, Shipton, Wyn-Harris and Longland on June 13th. I accompanied the first named pair, in order to reopen the wireless station at Camp III, leaving Smijth-Windham to carry on at Base Camp.

The walk from Camp I to II was perhaps one of the hardest I have ever done. The rise is only about 1,500 feet and the distance five miles—not much, one would say. But for some reason or other, I was off my feed that morning, and could only eat a very small breakfast, the comfortable feeling of which had worn almost before I had done a mile, and I completed the rest of the march on an empty stomach. The early part of the walk, as I think I have said before, is nothing more than a drudgery of climbing up and down piles of morainic material, but always going up. The scenery, too, was monotonous to begin with, but towards Camp II I began to get a view of the ice seracs—isolated towers of ice—where the glacier was not covered by morainic material. They stand up, some of them, 80 or 90 feet, and, when I saw them, glistening white, a striking contrast to the dark brown and black of the rocks and mountain sides. The sight of them, protruding over a near ridge of the moraine, persisted in my mind as an impression of a line of stately sailing ships, sails set. At times I was half expecting them to move. Some of them showed large cracks, in the depths of which I could see clear ice of the purest blue in colour.

On either side now were great glaciers coming down as tributaries into the East Rongbuk. It is remarkable how some of them stick to the mountainside at all, so steep are the slopes. In the distance, on the next day's march, I could see the open glacier leading to Camp III, but by then I was not in a very appreciative mood. Every step was an intense effort, and the way was still steep. I was, of course, unacclimatised, the altitude now being in the region of 19,500 feet, and in order to get a bit more used to it, I rested a day at Camp II, while Crawford and Brocklebank—to whom, of course, this ascent was in the nature of a picnic—went on to Camp III. Immediately in front of the Camp II is an icy lake, formed by the damming up of a

small stream by the snout of a big glacier. This latter comes down from a 25,000 feet peak which is quite close to Everest itself, and its snout is very much broken up into enormous ice towers. In the early morning, one could hear cracking going on, and when I came down again, I noticed that one of the towers had collapsed into the lake.

When I arrived at Camp III on June 14th, after a walk nearly as exhausting as that to Camp II, and a bad go of " glacier lassitude " I found Crawford and Brocklebank in their sleeping bags, though I had expected them to go on to Camp III*a* that day. The weather, however, was bad. Snow had fallen the previous day, and was falling when I arrived, and in addition, the roar of avalanches could be heard from the direction of the Col.

They left next day, for III*a*, but returned the day after that with the news that they had tried the Col on the previous afternoon, and found that it was some five feet deep in powder snow, and quite impassable. Not only was it unsafe, but even had a party forced its way up to Camp IV, it was by no means certain that any advance from there could be made, for the party would have to halt there at least until the higher parts of the mountain were reasonably clear of snow.

So we all sat down to wait. Every morning there was brilliant sunshine, which took some of the snow off the mountain, and every evening there was a snow storm of varying intensity, which put back all the whiteness that had come off during the morning. And there was hardly any wind. A state of affairs had been reached whereby the N. W. wind of Tibet was balanced by the monsoon winds from the south, and Everest lay bathed in sunshine, but looking no blacker. When we first arrived at Base Camp, we had noticed that even several days' snowfall would be cleared off the mountain in a comparatively few hours with the N. W. wind blowing its hardest. Now, however, there was no wind, and the sun, hot though it was, made little or no difference, though the eye of hope thought it saw otherwise. It seems that the only clearing agent, at such high altitudes as the upper parts of Everest, is wind. The air temperature is so low that, except in sheltered spots, snow can remain in full sunlight without any tendency to melting or sublimation, at all events, not sufficient for our purposes. Then one day there started a blizzard, which continued for 18 hours, by the end of which, when the clouds cleared, it was evident that we had had our break in the monsoon, for the mountain was once more white as a sheet. That settled it. At Ruttledge's

request I wirelessed Base Camp to order transport for the return journey, and the evacuation of the glacier camps started on June 21st.

Wyn-Harris, Longland and myself were the last to leave Camp III. On the morning of our departure, we crossed the glacier to the Rapiu La. From here we had a glorious view of Makalu and Chomolonzo, rising out of a sea of monsoon clouds, though the distant view of Kangchenjunga was hidden. Still more magnificent, though, and awe inspiring, was the sight to the south-west, which included Lhotse and most of the south-east face of Everest. Words fail me to describe its size and appalling grandeur. From where we stood, we must have been looking at at least 8,000 feet and more of steep, ice-covered and avalanche-scarred slope. One shuddered to think of anyone attempting to climb this side of the mountain, though this was one of the points that the 1921 Expedition considered—and settled, once and for all. Even so, Wyn-Harris and Longland were busy devising a possible route up a dizzy looking ice ridge, that was more a series of connected ice pinnacles than a continuous ridge. It reminded me of the descriptions and photographs of the routes attempted by the Bavarians on Kangchenjunga.

It was very pleasant sitting there in the sun, watching the ever changing cloud effects on the mountains around us. Everest was being assailed continuously by swirling masses, which would beat up against the south-east face, be pressed upwards, and then hurled back as they met a faint breath of the N. W. wind over the ridge. There were dazzling white, billowy clouds, hurrying mists, and over all, silence. Not a sound came up to us from below the pass, we might have been the only living things in all the mountains—except for a flock of Tibetan snow tits struggling to make the height of the pass, and even they were too tired to make their usual friendly chirping. Wyn-Harris remarked that they must be unacclimatised. One could have sat there for hours, drinking in the scene, and it was with a sigh of regret that we turned to leave, to begin the long, weary plod down to Camp II.

That night, the spirits that inhabit the mountains must have been astonished, for after dinner we sat long in the tent, singing, and the next day we marched into Base Camp to the tune of " The Volga Boatmen." Has anyone before ever had enough breath in his lungs to spare for singing on Everest ?

We, too, were astonished to find that at Base Camp the main topic of conversation was the formation of another Expedition to Everest. Instead of wanting to see the last of the mountain, they were wondering when they could get back to have another shot at it. There were also discussions as to whether it would be feasible for the main body to move down to the Kharta Valley for a month or two, in the hopes of being able to recuperate sufficiently for a post-monsoon attempt; and there were some who were enthusiastic supporters of a scheme in which two men were to be left at Base Camp to form a meteorological station, for the purposes of obtaining accurate data as to conditions on the mountain during the latter part of the monsoon.

Discussions were brought to an abrupt conclusion by the arrival, by wireless, of a cablegram from the Everest Committee, ordering the immediate withdrawal of the whole party. Funds would not permit of a protracted stay in Tibet. July 1st was a "memorable day" for Smijth-Windham and myself. For five hours without a break we kept the Darjeeling station busy reading our messages, which included a press-cablegram, in cipher, of just under 700 groups. The following day we closed down—Base Camp and the wireless station—and in a few hours the station was reduced from its complete working state to a collection of full packing cases. Shebbeare and Wager were still up the glacier dismantling the camps and supervising the transport of stores to Base Camp, but the remainder of us left that evening for Rongbuk Monastery, the first stage on the way home.

Our return differed from the outward march in that, between Chodzong and Tengkye, we turned south for the Kharta Valley. This, from the point of view of fertility, is really an offshoot of Nepal. Northwards, in the space of a day's march, one gets into the typical, sparsely vegetated country of Tibet. South, through the Arun gorge, is the Nepal frontier, a few miles away. Some of us spent a glorious day rambling in pine forests amid long, thick grass and wild-flowers, at a modest height of 11,000 feet. At one point we caught a glimpse of Everest, up a side valley, though we never saw Makalu, which I am told is a most wonderful sight from this valley.

At Kampadzong weaga in struck off the route of the outward march, crossed the Sikkim frontier at the Sabo La, and dropped into the head of the Teesta Valley. From the pass we saw the magnificent view of the north face of Chomiomo, some four or five miles away. This is one of the peaks climbed by Kellas in 1921, though he tackled

the southern side. Indeed, Jack Longland, with whom I was marching, gave it as his opinion that he had never seen a more completely defended and unclimable mountain face than that at which we gazed from the Sabo La.

The Teesta Valley is, I suppose, one of the wonder valleys of the world. Commencing at the Sabo La, at 17,000 feet or over, it is born in a wild mountainous land, surrounded by high peaks, no vegetation, and the young Teesta River a trickle over which one can step with ease. In 60 or 70 miles it has dropped to 1,500 feet, and is passing through steamy, tropical Bengal. In between, it is fed by innumerable tributary streams, one of the greatest of which is that which runs out of the Zemu Glacier, which drains the whole of the east side of the Kangchenjunga group, until, at the Teesta Bridge between Darjeeling and Kalimpong, it is about a hundred yards wide, and no placid stream at that, but such a torrent as no man could live in for more than a few gasping, terrifying moments. Even here it is still a mountain stream, falling rapidly, running between steep, forest-clad mountains. The thunder of its passage is awe-inspiring and ever present as one descends the valley by the forest path, now at the water's edge, now 800 to 1,000 feet above it, when the roar is hushed to a low growl, and one can make oneself heard without shouting.

As one would expect, in a valley which starts above the highest line of vegetation, and runs down to tropical heat, there is an amazing variety of tree, flower and insect life to be seen as one passes down the valley. Round about Tangu, at the 12,000 feet level, there are pine trees, rhododendrons, and soft turf. By Tsungtang the vegetation had already become sub-tropical, while at Digchu, where we left the main valley to go over to Gangtok, it is quite tropical, and the steamy heat terrific. Most of the way down we were plagued by leeches, which insinuate themselves into one's clothing despite all efforts to keep them out.

Some of the most beautiful features of the valley are the waterfalls, which for size and grandeur surpass anything I have seen elsewhere. When we saw them, the streams were all swollen by monsoon rain, and the falls were probably at their best. Many of them drop for as much as six or eight hundred feet, some of them slender, like a grey mare's tail, others sturdy columns of rushing water. One we saw fell so far that it turned to water vapour long before it reached

the bottom, and around its foot was a beautiful rainbow of colours glinting in the bright sunlight.

And so, at last, to Darjeeling and the very generous hospitality of the Planter's Club, and the end of another Everest Expedition. For the fourth time, Darjeeling welcomed a defeated party. And one wonders what will happen next time. It would be idle to speculate on chances, there are so many factors that affect the situation, factors which cannot be correctly gauged until the mountain is reached. This year the chief cause of failure was undoubtedly the early monsoon, and it would be worse than bad luck if the next expedition experienced the same weather. Given a good monsoon, with the experience gained by this year's party, there seems to be little reason to doubt that the next will be successful. It may be sickness next time. It may be the summit. Who knows ?

BACTERIAL WARFARE.

By Major Leon A. Fox, M.C. U.S. Army Medical Corps.

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The question of bacterial warfare has been brought forward from time to time since the World War. The use of the organisms that cause communicable diseases as an instrument of warfare was considered by the Conference on the Limitation of Armaments held in Washington in 1922. An International Commission consisting of Professors Pfeiffer (Breslau), Bordet (Pasteur Institute), Madsen (Copenhagen) and Cannon (Harvard), appointed at the time, reported to the League of Nations essentially as follows :—

(*a*) The effects of bacterial injury cannot be limited or localized;

(*b*) Modern water purification methods protect against the organisms of typhoid and cholera;

(*c*) Plague is a disease that would be as dangerous for the force using the organisms as for the attacked;

(*d*) The danger from typhus has been exaggerated;

(*e*) Modern sanitary methods are effective in controlling communicable diseases.

Following this pronouncement by these eminent scientists, the question of bacterial warfare suffered a lapse of interest; but during the past year, as an incident of the preparation for the Geneva convention, there has been a marked revival of concern in this supposed bugbear, bacterial warfare. Possibly this is only a part of the effort of professional pacifists to add all the imaginary frightfulness they can picture to the known real horrors of war.

The fact that a conquered nation, possibly of superior physical development, has considered a weapon to be a cruel and brutal implement did not cause it to fall into disuse. The only thing that caused these weapons to be practically abandoned has been the development of such protection as caused these implements to cease to be effective, or because other instruments were designed of greater

range and effectiveness. These factors are the only things that have ever caused a weapon once used successfully to be abandoned.

The outcry against the use of chemicals seems to people of this day to be quite a serious matter, and some wonder whether their use will be curtailed by this influence. The following factors should be considered before we make a decision:—

(*a*) No effective weapon has ever been abandoned until a more effective weapon or protection has been developed or has rendered the instrument useless.

(*b*) The hue and cry that attended the introduction of chemicals is not unusual on the introduction of a new weapon. The early use of gunpowder produced a reaction in every respect similar to the cry of the present-day pacifist against gas.

Will the use of chemicals in warfare be abandoned? Probably not. Will the use of chemicals be curtailed? Certainly; as the race progresses, and as new and more effective weapons are designed; but not before this advance is made. Will the next advance in warfare see the use of biologics? Will the next agent used be the living organisms, bacterial warfare—the scourge of armies from the most ancient times, the communicable diseases?

Before attempting to answer these questions the subject of biologic warfare will be considered in more detail, because here again we encounter most elaborate and fanciful statements.

A review of military history reveals the great influence that disease has played in past wars. Results have been decisively influenced in many campaigns by epidemics of communicable disease. In some campaigns disease has caused such losses that the combat has reached a stalemate. However, in certain instances, for unknown reasons, there has been a great difference in the degree to which combatants have reacted to the epidemic conditions. In a few cases we are able to understand why the communicable diseases appeared to have greater invasive power toward one of the armies; in other instances we do not understand clearly why there was a difference in the degree of involvement of the forces.

Volumes have been written on the epidemic diseases that have attacked military forces. We will not attempt to review this extensive literature, but the doctor, especially the epidemiologist, knows

that the student of history who reads only of tactics and strategy, the victories and defeats of a campaign, without familiarity with the medical history of War, is likely to give some commander credit for success or failure that all too often has been caused by some epidemic of communicable disease. This is not meant to depreciate military success, for the great general is often a great sanitarian, and even Alexander may owe a part of his success to his doctor—philosopher—teacher, Aristotle's advice to " boil his water and bury his dung."

We can search the pages of military history down to the XXth century before finding a campaign where the missiles of the enemy produced more casualties than epidemic disease. In most of the ancient campaigns of any duration some one of the great military plagues did more to decimate the military forces than all the man-made munitions: I say " one " advisedly, although often many infections raged, and famine and scurvy accompanied the communicable diseases. What was the nature of these ancient pests? Were they diseases of that age now no longer known? No—the military pests that existed then are still with us.

The Big Six of all war-time are:—

(1) The Enteric fevers—typhoid and the para-typhoids.

(2) The Dysenteries.

(3) Cholera.

(4) Typhus.

(5) The plague, Bubonic Plague, the Black Death.

(6) Small-pox.

Do not consider for a moment that the above diseases had any monopoly of the right to destroy armies. It is probable that at times influenza and the epidemic pneumonias took such heavy toll that but little fuel was left to be consumed by the Big Six. Again, under conditions where malaria is endemic, this disease is second to none in the production of non-effectives in military ranks. In fact, measles and epidemic meningitis might well be added to the list of military scourges.

Nevertheless, it is not our purpose to consider the epidemic conditions of the armies of the past, but rather to consider the belief that, if these infectious agents were able to produce such frightful outbreaks of disease by the simple process of chance infection under natural

conditions, then, in the hands of man as a military weapon, they may well prove even more destructive; and to show that this opinion fails to consider the fact that the same measures that are now so efficacious against the chance infections occurring in nature may prove of equal value in combating the same agency of destruction when used by man.

We have presented biologic warfare in all its horrors; now let us analyse the problem in detail. What agents can be used to produce death and disease? How can these agents be introduced into the bodies of the enemy? We will discuss these questions in the order stated.

The biologic agents available for warfare are:—

(1) The communicable diseases.

(2) Other infective processes (such as wound infections).

(3) Toxic products of bacteria.

The communicable diseases are well-known They are the so-called transmissible diseases that produce epidemics. They are caused by a living contagion and are spread from man to man or animal to man by various channels of transmission. All of the Big Six and the other diseases mentioned above belong to this group.

The second group, the other infective processes that are available, include such infective materials as the agents that infect wounds, gas gangrene, tetanus, anthrax and other wound contaminations that are infectious but not communicable.

The last group of dangerous agents are the toxic products of bacterial growth. We will mention but a single terror—inspiring example—botulinus toxin. A portion of this toxin almost inconceivably small, when introduced into the body by any channel, is lethal.

The important question, then, is how are these agents to be introduced into the bodies of the enemy to produce casualties? In addition, any proposal for the deliberate use of pathogenic organisms as a means of warfare will have to consider the question of how to produce a destructive epidemic in the forces of an opponent and at the same time protect one's own forces from invasion by the virulent organisms in question. Certainly at the present time we know of no disease-producing micro-organisms that will respect uniform or insignia, and the use of bacteria in warfare for the destruction of opposing forces will

have to be predicated upon the sucessful prior immunization or the complete isolation of the forces employing the disease-producing organisms.

This investigation must therefore begin with a study of the channels of infection. The communicable diseases may be classified on the basis of their "Routes of Transmission". By this is meant the path that the living contagion follows when it leaves the body of the sick man or animal, or in some cases the carrier, to enter the body of the susceptible host to produce disease. On this basis we may classify the communicable diseases into intestinal diseases, respiratory diseases, direct contact diseases and insect-transmitted diseases.

The intestinal diseases are produced when some small portion, usually a microscopic portion, of the material from the intestinal canal of the sick man with its living micro-organism, is introduced into the alimentary canal of the susceptible individual. Typhoid, cholera and dysentery are well-known examples of this type of disease. The respiratory diseases, sometimes known as "sputa-borne" or even "air-borne" diseases, are the communicable diseases spread by the transmission of living micro-organisms from the respiratory tract of the sick to the respiratory tract of the invaded. This group of diseases is of very great importance and embraces such conditions as the common cold, influenza, pneumonia, diphtheria, epidemic meningitis, small-pox, and possibly of special importance for war purposes, the pneumonic form of bubonic plague.

The group of diseases that we refer to as "insect-transmitted" are those where the invasion of the new host is effected by the bites of insects which have previously fed on an individual—man or animal—infected with the disease in question. A period of incubation on the part of the insect between feedings on sick and feedings on individuals to be infected is necessary in certain instances; with other diseases such interval is not required. Examples of insect-transmitted diseases that require an interval for the development of the contagion within the body of the insect after feeding on the infected individual are malaria and yellow fever, both transmitted by mosquitoes.

Bubonic plague, a disease of rats that is transmitted to man by the bite of the rat flea, does not require an incubationary period for the rat flea to develop infectiveness.

The venereal diseases are direct contact diseases. They are of profound military importance and have proved decisive factors in cer-

tain past wars; notably influencing the European campaigns of the XVth and XVIth centuries. The deliberate use, however, of this means of injury is fraught with difficulties when we plan a method of securing personnel to effect the necessary exposure. The soldier's danger from the venereal diseases will not come from the openly avowed war-time enemy who loves him least, but from the money-loving or uniform-worshipping ladies who profess to love him most. Therefore, while these diseases may at times exceed all other causes of military non-effectiveness, we can dismiss them without further discussion while we are considering bacterial warfare.

It follows, then, that the communicable diseases that constitute an epidemic or pandemic threat to the military forces are the intestinal, respiratory and insect-transmitted diseases.

The Intestinal Diseases.

Mankind is all too familiar with the terrible epidemics of typhoid, cholera, dysentery and the diarrheal conditions that have destroyed military forces in the past. However, it is highly questionable if this group of diseases will ever in the future cause any such catastrophes for the reason that the epidemiology of these infections is so thoroughly understood, that modern sanitary methods and immunization processes have rendered comparatively innocuous these hazards of earlier armies.

The deliberate use in warfare of these agents, however, we shall consider. While occasional small outbreaks of these diseases may be due to food infections, real epidemics of this group of diseases are only traceable to infected water and milk supplies, or to such a complete sanitary breakdown that general fecal contamination of food supplies occurs. The possibility of contaminating a milk supply presents practically insurmountable difficulties, although it is theoretically possible that agents might use such a means to discommode and harass civil populations. It has, of course, no practical application to the military forces themselves.

Contamination of water supplies of civilian communities by means of infection of large reservoirs and storage basins, where the water is held awaiting consumption, is a possibility. Contamination, to be effective, would have to be subsequent to treatment by the modern water purification plant consisting of filtration and chlorination, or of course it would be valueless; but this is within the range of possibil-

ities, and it is possible that future wars will reveal that agents may make an effort to contaminate municipal water supplies.

The use of the intestinal group of diseases against forces in the field would probably prove entirely ineffective, because modern water purification methods and the close supervision of the water supply that is accepted as a necessary incident of military service will absolutely preclude the successful employment of this means of combat.

However, it may be well to stress the fact that the reason modern armies, and for that matter all civilized communities, do not have serious epidemics of these diseases is not because the infective agents that cause these diseases are not present or available, but because modern sanitation protects the personnel.

Let us take a typical example, typhoid fever. The incidence of typhoid in our civil population has been greatly reduced during the present century. Let no one think, however, that this is due to any scarcity of the typhoid bacillus, while it must also be remembered that a civil population has not had any general immunization such as helps to protect an army. Typhoid has not retreated to the outskirts of civilization ; it is all about us ; every country is infected. Typhoid-carriers in the United States possibly number 100,000, and are generally without supervision. The reason we only have about 5,000 deaths per year in the U. S. A. instead of about 100,000 deaths from typhoid fever is because the great mass of our people now use water that has been rendered safe by filtration or chlorination. They consume milk that has been pasteurized and other foods that have been protected.

The same statement may be made concerning the low incidence of the dysenteries. The infection is present, but epidemics do not occur because our sanitary measures are effective. We need not fear any external infection with this group of diseases ; we are already grossly contaminated.

The die-hards will say that cholera is not so easily handled and is not at present a problem in America. Granted. We do not have cholera in the States ; but our army and our people do live in the presence of cholera without having epidemics of the disease. The Philippine Islands, where our army maintains an effective fighting force entirely free from this terrible scourge, has a carrier incidence of the vibrio, which causes cholera, that is always high.

The intestinal group of diseases will certainly not prove destructive against any civilized nation which cares to pay the price of the protection that modern sanitary methods provide.

The Respiratory Diseases.

In leaving this group of diseases we proceed from the problem that represents the greatest triumph in preventive medicine to the group of diseases that baffles the best efforts of all health workers. In the control of the intestinal diseases we have so much to be proud of; in preventing the respiratory diseases we have accomplished so little. This is stated with full knowledge of the wonderful results that have been obtained with small-pox vaccination, and the immunization to diphtheria by the use of toxin products, as well as with a full realization of the fact that we are on the threshold of equally great accomplishments in controlling scarlet fever.

It should be noted that these great accomplishments are not sanitary triumphs such as glorify our work with the intestinal group of diseases, but immunization processes. Not being able to prevent the infection reaching mankind, we take advantage of the fact that familiarity with the organism, while not breeding contempt, does produce immunity. Therefore we use the only method that appears to offer any great protection against the respiratory diseases in nature, namely, immunization. It must be admitted that health workers can accomplish practically nothing in the way of protecting peoples from infection with the great host of respiratory invaders, and such protection as we have is due to either the natural or artificial exposure to these organisms.

In this group we find a number of maladies that are serious enough to be effective war weapons if ways of using them can be devised. However, before proceeding we should call attention to the fact that this group also includes a large number of diseases that are not suited for military purposes. For instance, small-pox, though a very serious epidemic disease, must be dismissed immediately, since all military forces are immunized to this dreadful scourge.

Many of the diseases of childhood, while constituting a military problem at time of mobilizing rural recruits, are not suitable for military purposes for the reason that the factor of age-susceptibility is of so much importance when we consider the entire group that comprises our population. As an example we may mention diphtheria. While

in childhood a very high percentage of the population is susceptible to this disease, the great majority of these same individuals develop considerable natural immunity to the organism that causes diphtheria without further interference than normal ageing. Therefore, while we see epidemics of diphtheria in schools and orphanages, we do not encounter serious outbreaks involving large numbers of any adult population. This disease is cited only as an example wherein the factor of age-susceptibility is important; there are a number of diseases that show this phenomenon and would, therefore, be unsuited as offensive military weapons.

Certain conditions, such as influenza, pneumonia, and the common cold, do not show a marked tendency to limit their injury to any one age group and would be efficacious if they could be used against military personnel. Mankind is as helpless to-day as at any period in history in the control of these diseases; also they are very serious conditions that produce great numbers of non-effectives, and in the instance of the epidemic pneumonia they result in a very high mortality.

Before we surrender to the individuals who threaten such frightful havoc with this group, we may well ask how they are going to start an epidemic of influenza, pneumonia or the common cold. If they answer that they will introduce the germs that cause these diseases we can well laugh at them. The process is not so simple. The factors that make respiratory epidemics are not so elementary. They include not only the infection of the individual, but the question of the resistance of the infected animal. The organisms that cause these diseases are all about us. They are always with us. Epidemics mean more than simply infection; they mean the rapid transfer from individual to individual of these infective agents; they mean a lapse in the immunity of the invaded, and possibly something else.

I do not know of a bacteriologist or an epidemiologist who can tell how to start a respiratory epidemic unless the stage is especially set. I know many who are certain that whenever a large group of individuals, man or beast, is placed under poor hygienic conditions, with *over-crowding*, poor ventilation, and exposure to unfavourable climatic conditions, or other factors that decrease resistance, respiratory outbreaks will occur in spite of any precautions than can be taken, and that if large numbers of highly susceptible individuals

(rural populations) are present, the outbreak can be expected to assume epidemic proportions.

It is also worthy of note that when epidemic conditions prevail certain organisms may possibly have greater invasive power, since then apparently, populations that were not so susceptible or readily invaded may be attacked when they previously escaped injury. It will be noted that, as in the case of the intestinal diseases, so with the respiratory diseases it is not a simple case of introducing infection that constitutes a menace. The organisms that produce most of these diseases are always with us, and epidemics mean more than infection. While we cannot understand exactly how epidemics start, and we question the ability of a military agency to produce an epidemic of one of these diseases deliberately, we feel certain that if bacterial warfare is ever contemplated, they will not think of using the respiratory group of invaders for the reason that quarantine, isolation, and all other methods to control diseases such as influenza, are practically valueless. The torch once set off might destroy friend and foe alike, and would therefore prove of no value as a military weapon.

The two diseases in this group that are most frequently mentioned are influenza and epidemic meningitis (cerebrospinal fever), possibly because of their importance during the World War. All that has been stated above applies with special force to influenza, where, in addition to the fact that no one knows how to control this disease, we must add that we are not even positive about the actual organism that causes the condition. Epidemic meningitis, on the other hand, is a very definite, specific disease due to a very well-known organism. We must admit at the outset that this is a very serious disease, and that it often assumes epidemic proportions in military organizations. However, if we stop to consider the nature of the organism and the epidemiology we see how entirely unsuited epidemic meningitis is for use as a military weapon. The organism, the micrococcus of Weichselbaum, is so delicate that even on the most favourable culture media it rapidly dies when exposed for even a few hours to temperatures much below that of blood heat. This disease is spread by carriers, and the organism must be introduced almost directly from the nasal pharynx of the carrier to the respiratory mucous membrane of the individual invaded or it will be destroyed by the unfavourable temperature conditions while *en route*.

Those individuals who think this disease may be used for military purposes will answer that carriers in the form of prisoners, etc., would be introduced into the opposing forces. To those who know anything about epidemic meningitis this suggestion is ridiculous. Any military aggregation of any great size already has so many carriers present (anywhere from 2 to 30 per cent.) that the introduction of a few more or less is of no moment. Epidemics of meningitis only occur when *over crowding* is associated with conditions that lower the general resistance, such as exposure, unfavourable climatic conditions and fatigue. Meningitis is, and probably always will be, a military problem; but the individual's friends and associates, not the enemy, are the great problem with this disease.

We will not attempt to tabulate the various respiratory diseases, for the story would always be not so much a question of the great danger of the introduction of the infective agent, but the creation of epidemic conditions, a soil in which the organism could produce an epidemic, that is over-crowding and lessened resistance.

The Insect-transmitted Disease.

These diseases will probably most certainly influence wars of the future as they have in the past. An invasion of such a country as Mexico, at the present time, would constitute more of a sanitary than a military problem. With malaria, dengue, and possibly even yellow fever along the seaboards, and typhus endemic in the plateau district, the main problems would be sanitary. Bubonic plague might also be encountered here as well as in any other place. This disease—bubonic plague—is the disease entity that many consider best suited for military purposes. To begin with, it is a most serious malady—a decimating disease that has most profoundly influenced warfare in the past. It is possible that the rise of the Mohammedan world was due to a great extent to the fact that Europe was in the throes of the greatest scourge mankind has known, the plague, at the time that Mohammed's followers were ready to organize and extend the influence of the crescent until the horns were about to encircle the Mediterranean. Certainly these Arabian tribesmen had never shown any signs of military greatness or valour prior to this period, and is it probable that their religious ardour would have met with small success against the well-organized nations of the time if these nations had not been practically exsanguinated by the "Black Death."

The use of bubonic plague to-day against a field force, when the forces are actually in contact, is unthinkable for the simple reason that the epidemic could not be controlled. Infected personnel captured would provide the spark to set off possible outbreaks of pneumonic plague in the ranks of the captors. Infected rats would also visit and spread the condition. An advance over terrain infected with plague-bearing rats would be dangerous. Therefore, except as a last desperate, despairing, hope of a rapidly retreating army, the use of plague by forces in the field is not to be considered.

The use of plague to harass civil populations presents less difficulty than the use of the organisms against a field force. Those who think that plague will be used as an offensive weapon consider that civil communities may be infected by introducing plague-infected rats. Of course, this is easier to state than to accomplish, but it may be possible for airplanes flying low to drop recently infected rats. At least this is the statement that the individuals make who consider feasible the use of this weapon. Even with so terrible a pandemic disease as plague, however, there is a great deal more to the question of epidemics than mere infection. For instance, to cite an example, one that Gill so forcibly states, "Not half a dozen cases of plague occurred amongst Europeans (including British troops) stationed in the Punjab during the year 1924, when about 500,000, or one-fortieth of the indigenous population suffered from the disease."* If these intelligent people were able to avoid the infection when residing in an environment that was literally infiltrated with the infection, it certainly should be possible to control bubonic plague in a population such as we have.

For that matter, the question of plague is not a condition that takes us to the outskirts of civilization. Our own Pacific Seaboard became infected in 1900, and following the San Franciso earthquake the infection extended and is now more or less endemic as a rodent disease involving not only rats but ground squirrels. Here again it is not a question of can we control the infection; we are controlling it, and have not had an outbreak of human plague of sufficient size to designate as an epidemic.

The other insect-transmitted disease that is most frequently assigned a place of importance as an agent suited for warfare is typhus.

* Gill, C. A.: "The Genesis of Epidemics." London, 1928.

This disease is certainly terrible enough, and the military and civil populations that have been destroyed by typhus bear witness to how effective this agent of destruction can be. However, again we have a condition that is easily controlled. Complete solution of the problem of endemic typhus is not yet in print, although it is probable that the work of such men as Dyer, Maxcy and Zinsser will soon offer a complete explanation of how this scourge simmers along during the inter-epidemic periods. Epidemic typhus is thoroughly understood. The epidemiology is so simple that it can be embraced in the name of the transmitting insect, the body louse. The control of epidemic typhus is the simple question of the control of louse infestation. Of course, quarantine will help to prevent the introduction of the infection, but quarantine is futile if an army is allowed to become lousy. A lousy army may become the victim of typhus, even in America, without the introduction of infection from extraneous sources. The weight of opinion in the best epidemiological minds is that, as Maxcy suggested, endemic typhus is probably carried over between epidemics in a rodent reservoir. Endemic cases occasionally occur when transmitted to man by an insect, and when the infection is passed from man to man by the body louse, with the resulting enhancement of virulence, epidemics may be expected to result.

The difficulty of starting an epidemic of malaria, yellow fever, or trypanosomiasis (sleeping sickness) appears to be obvious, for no one has suggested the use of these agents. Those who understand the epidemiology of these diseases know they are not suited for war purposes, even though they realize the problem they present to military forces in endemic areas.

This completes the study of the communicable diseases. We have discussed in some detail practically all except the direct contact group. The only diseases of this group of great military importance are venereal, and we have given our reasons for dismissing this group from consideration.

The Infective Processes.

Certain disease processes that affect the tissues are caused by living organisms and are, therefore, designated as infective, even though they are not considered communicable in the sense that they tend to be transmitted from man to man. These disease processes

include such infections as tetanus, gas gangrene, anthrax, and the ordinary pyogenic (pus-forming) invaders. The agents that produce these infections have all been mentioned as possible war weapons, and it must be admitted that so far as the first three are concerned, with some scientific judgment on the part of their sponsors.

The agents that cause tetanus, gas gangrene and anthrax are not delicate organisms such as the relatively short-lived, easily-destroyed pathogens that cause most of the communicable diseases. They are very resistant, spore-forming organisms, generally capable of a prolonged period of viability without loss of virulence, even when separated from the animal tissues. It is not surprising, therefore, to find one of this group (anthrax) selected as the infectious agent best suited for military purposes by a science student preparing an undergraduate thesis on " Bacteriologic Warfare."*

In fact this selection of anthrax and the entire study shows more intelligent thought than any article that has come to the attention of the writer. His description of the characteristics of the proposed bacterial invader are worth quoting:

" What shall we say are the requirements for a perfect military pathogen? It attacks preferably both man and animals. It must be quick-acting, highly virulent, and capable of causing disease in small quantities. It must be highly resistant, capable of surviving outside the body under the most adverse conditions, and even resisting partial cooking or a careless attempt at sterilization (a spore-former). The causative organism should be able to force its entrance through all the avenues of infection; respiratory tract, alimentary tract, and breaks in the skin. The disease should not be too actively contagious, and it must be very well understood—for pathogens should never be used without contemplating the possibility of their getting out of control. Finally, and perhaps most importantly, it should be possible to obtain large quantities of the pathogen in virulent strain and spore form with the least possible manipulation and delay."

After this excellent description of the perfect hypothetical agent, he selects anthrax as the agent best suited to meet the requirements of a bacterial weapon. Still, I cannot agree with him that " Anthrax satisfies the requirements almost perfectly; " but I believe all bacterio-

* " Some Thoughts on Bacteriologic Warfare," C. F. Pentler, Mass. Institute of Technology; Department of Biology and Public Health.

logists will agree that he has selected the agent that most nearly meets the requirements he has so well outlined.

These spore-forming invaders are a real problem. Tetanus and gas gangrene are pathogenic processes that have always been associated with gunshot wounds and are, therefore, of special interest to the military surgeon. They do not produce epidemic diseases, however, and they are not communicable. They have to have a portal of entry made for them, a wound, and while the use of these organisms to contaminate battlefields might cause an increase in the number of cases of tetanus and gas gangrene, they would not increase the number of casualties. They would only complicate the treatment of those already disabled. It might be added that we have an entirely satisfactory serologic prophylactic agent for tetanus, and that as a result of the surgical advances of the last fifty years, gas gangrene is less frequent than in the pre-bacteriologic days.

We cannot dismiss anthrax so readily; however, it is worthy of note that although anthrax is almost a world-wide disease, nevertheless anthrax infection of gunshot wounds is practically unknown. If gross contamination of battlefields with the organism of anthrax is effected, it is granted that cases of anthrax infection of wounds will occur, and possibly some few cases of infection in individuals who have not been wounded; but when we consider that human epidemic anthrax is unknown during the bacteriologic era, I question if we need fear greater danger from this organism than contamination of wounds.

It will be noted that up to this point we have not discussed the technical difficulties that a military force would have in contaminating a hostile force. The difficulties in the case of the communicable diseases are so obvious that they need not be mentioned. The epidemiologic factors make the communicable diseases unsuited for offensive military use. The causative organisms are all either short-lived when separated from the living tissues or else readily destroyed by ordinary routine sanitary precautions.

We cannot make this statement concerning the highly resistant infections such as tetanus, gas gangrene and anthrax. These agents are admittedly the most dangerous; but it must be remembered that to be dangerous they must be alive, and that many technical difficulties present themselves, if living agents are adopted, that are not present when missiles and chemicals are employed. Shells can be

used to project missiles and chemicals on to an enemy many miles distant; but bacteria cannot be treated in this way. No living organism will withstand the temperature generated by an exploding artillery shell. Airplanes may contaminate terrain, but their effect would be quite local and probably less dangerous and less certain than high explosives used in the same way.

It is not maintained that bacterial contamination is impossible. A retreating enemy may hurriedly contaminate the terrain that is to be evacuated. However, it is believed that the use of living organisms in offensive warfare presents technical difficulties that are not generally considered. The contamination that agents and other individuals could effect, using the only really effective agents we have mentioned—the highly resistant, spore-forming organisms that are so dangerous to wounds—would prove too local to be of any value whatsoever.

Toxic Products.

The forms of bacterial warfare include not only the possible distribution of living organisms in the force of an enemy, but the possible use of toxic products derived from bacteria. Certain of our bacterial toxins are the most deadly poisons known. The toxin of the bacillus botulinus is so powerful that instances have been recorded where toxins have been produced so toxic that ·005 milligramme killed a 250 gramme guinea pig. This material, botulinus toxin, is poison for man. It is possibly the most toxic agent known, and will produce the lethal effect in whatever way the material is introduced into the animal. If consumed with food, injected into the tissues, or even dropped on to the mucous membrane or conjunctiva, it is equally deadly.

This must be the material referred to when we read such dramatic statements as the following: "An airplane can carry sufficient toxins to destroy an entire city." Such statements have an element of truth in them; in fact they are conservative. An aeroplane could carry enough of the botulinus toxin to destroy every living man in the world *if* administration of the toxin was as simple a process as production and transportation.

There were over 100 billion bullets manufactured during the World-War—enough to kill the entire world population 50 times; but a few of us are still alive. It is easy to calculate the lethal (fatal)

dose of a toxic agent; but I do not think it is so easy to reckon on its casualty-producing power as a military weapon.

The hostile aviator will not be received with a welcome, nor can he expect to land at an aerodrome near any large city and find the entire population lined up ready to accept the carefully measured lethal dose of botulinus toxin.

The release of vast quantities of botulinus toxin over a large city may produce human casualties; nevertheless, the extent of the damage might be only the wholesale destruction of rodents, sparrows, and possibly numerous cats and dogs. It is difficult to evaluate properly the possible effects of the bacterial toxins. Certainly such statements as an airplane destroying an entire city with toxins is ridiculous; but they may have a value comparable to chemical agents, with this great disadvantage, however, that bacterial toxins are readily destroyed by heat; therefore, like bacteria, they are unsuited for use in shells.

Animal Diseases.

The use of living organisms to produce disease in live stock, such as horses and mules needed for transportation of army equipment and supplies, has been mentioned as a possible form of bacterial warfare. It is believed that the difficulties here are quite similar to those mentioned for diseases attacking man, with the great advantage to the defence which the veterinary officer will have in controlling epidemics. The veterinary officer can destroy any animal or group that he considers a menace to the health of the animals in the army. The medical officer cannot take such steps to control epidemics that threaten human populations.

If we expand the term bacterial warfare to embrace such phases of biologic warfare as will include the agricultural pests, then, an additional factor to consider is the fact that agents and possibly hostile aviators might inoculate growing crops with such pests as the boll weevil, the corn borer, the Mediterranean fruit fly, and like destructive agents. These agents in most instances, however, take so long to invade sufficient terrain to be effective in destroying crops that their value in actually overcoming the resistance of a foe is questionable. They take several years to advance over a large area, and might prove an economic problem years after the war has been completed; therefore, they violate one of the fundamental ideas in warfare, since they

would interfere with the ability of the conquered nation to pay the victors for the defeat they had suffered.

Conclusions.

It is believed that the development of implements of warfare represents an evolution based on the gradual application of the improving mind of man. The one factor of importance in this development has been effectiveness. It has been a question of the clever mind versus the strong back; of the thinker versus the lifter. It is believed that the future of warfare will be based on the same principles. It is, therefore, apparent that the question of whether chemical munitions will be used or not, and whether bacterial warfare will be used or not, will depend on their practicability rather than on the sentimental reactions of pacifists.

On the other hand, I consider that it is highly questionable if biologic agents are suited for warfare. Certainly at the present time practically insurmountable technical difficulties prevent the use of biologic agents as effective weapons of warfare.

WHAT EVERY YOUNG OFFICER WANTS TO KNOW.

By "Mouse."

A.—"*I have, therefore, had every opportunity of studying the lines on which your course is conducted, and in my opinion it would be difficult for these to be improved upon.*"

Extract from a published testimonial, signed by a distinguished General Officer, testifying to the merits of a certain commercial school of instruction for young officers.

B.—"*It is the duty of senior officers with their greater knowledge and wider experience to encourage and guide their juniors in their individual studies. They must first and foremost assist them in the interpretation of the principles of war, as enunciated in the Field Service Regulations, by means of concrete cases from military history. They must also show them how to study military history and the regulations in the light of these interpretations.*"—Training and Manœuvre Regulations.

For the promotion of efficiency and uplift of the Army in India we have nine schools of instruction:—

The Senior Officers' School.
The Staff College.
The Small Arms School.
The Machine-Gun School.
The Equitation School.
The Signalling School.
The School of Education.
The I. A. S. C. School.
The Army School of Cookery.

Besides, there are minor schools for the technical services, air, tanks, motor transport and so on, concerning which I dare not presume to write. Before the Great War fought to end schools of military instruction there were four establishments; staff, small arms, horses and signalling. In those mediæval days it was expected and taken for granted that an officer or N. C. O. could become senior without

special academical qualifications, could look after his transport and could read and write.

The necessary specialistic qualifications which trench warfare and the masses of personnel involved led to the rise of a host of small schools which produced technical experts in gas, bombs, camouflage, and machine guns. This mass production of specialists was a necessity incurred by the special conditions of a war which, if I am to believe all modern military thought, are not likely to behave like that again. But we still have the legacy of those old-fashioned conditions in the shape of numerous schools all designed to produce the ingrown expert in machine-gun locks, flint-locks and fetlocks.

Let us review dispassionately and as calmly as possible some of our schools. No ; let me to do it, because in some cases I shall probably do it unfairly, and because although some of the opinions expressed may represent a majority, some of the others are certainly personal and rather naughty.

The Senior Officers' School.—A most excellent institution. No praise can be too high for a school which receives dithering, incompetent, self-distrustful and narrow-minded Majors, and returns them to their units confident, keen and anxious to share their knowledge with their juniors. Cavalry majors learn that infantry are not all feet ; infantry majors learn that the cavalry are not always watering ; and gunner majors gain the priceless knowledge of close and intelligent co-operation with troops who have not the time in battle to do so. From my own point of view—very prejudiced when I survey the enormous number of my contemporaries with whom, sooner or later, I shall have to combat regarding command of a battalion—I think that this school could afford to be more rigorous in its bowler-hat-tricks.

The Staff College.—Hush. Every year this college turns out about seventy good staff officers, of whom about forty (a generous statement) are good regimental officers. Personally I view the increasing number of staff college graduates with the greatest dismay. The annual census shows clearly the primeval urge of the survival of the fittest, and merely because the incandescent letters *p. s. c.* are generally and rightly recognised as labels of good brains, concentration and military ability, they tend to be recognised now as an alphabetical decoration affixed for insurance purposes. The future for most officers is uncertain, but I must deplore the modern tendency to ensure

it by sacrificing regimental service.* I may be exaggerating this tendency; but how many *p.s.c.* officers of the present generation will lay their hands on their hearts and be content to remain with their regiments when war breaks out? The regiments themselves will need them desperately, and the staff of the higher commands has always in war found adequate adherents without denuding the battle troops of their most brilliant stars.

The Equitation School.—The cavalry academy is a common butt for military and other humorists. I, on the contrary, wish to regard it seriously. We have here a school, built, equipped and staffed to teach horse management, umping, equitation, polo, reconnaissance duties, horse-dealing and all the other cavalry side lines. I believe it carries out these duties extremely efficiently and turns out annually large numbers of cavalry officers who have benefited both themselves and the Army by the work they were forced to do therein.

So far so good. But what about me? Man and boy for the last decayed decade everybody has been driving one word into my ears—co-operation. Success in battle depends, I have been persuaded to believe, on co-operation between all arms. Battles are fought by the infantry who supply and man the targets, and are won and exploited and decorated by the psychological intervention of the other more volatile arms. So far as I can gather from the latest modern military thinkers Mobility is now the favourite runner among the Principles of War. "Infantry must be made more mobile," they say. "Infantry must adopt more cavalry methods," they mean. Now I admit most cordially that the average infantry leader is a dull dog, a slow coach, hide-bound by all the traditions which encompass and befog all earthy movements, apt to see no further than the next pair of boots, slow—dangerously slow—in appreciating topographical features, blind—sometimes stone-blind in summing up quickly a situation. That is why so comparatively few infantry officers rise to General rank.

But is it altogether the infantryman's fault? What encouragement does he get to become more cavalry-minded? The various post-war schemes devised to increase co-operation between the various arms have lacked vitality and enthusiasm. One cannot absorb the cavalry spirit in one patch-worked month's attachment to a regiment

* (We must disagree with you here. The War Office lost 85 % of its p.s.c. officers during the first year of the War.—Ed.)

doing troop training. It would be more beneficial to exchange for six months a squadron leader and a company commander in the same station and let them learn by each other's mistakes. But possibly it would be more agreeable for the infantry company commander if he could be allowed to do a long course at an Equitation school. After all, the work taught at Saugor is only the applied science of animal management and minor cavalry tactics—knowledge which the masses of senior cavalry field officers in their own regiments are equally capable of imparting. But the infantry officer is forbidden to water at this fount of wisdom—with the lamentable result that the great majority of higher appointments tend to become a cavalry preserve. And no one knows better than the infantry what a menace all this is to the infantry in war. A surprising number of infantry officers need only the encouragement and confidence gained at Saugor to become even more audacious than their mounted colleagues.

Weapon Training Schools.—I don't know which I liked better, Pachmarhi or Ahmednagar. I had a most interesting, instructive (and amusing) time in both places. The sergeant instructors viewed my appearance on parade with bitter despair but they took commendable pains to ensure that the minimum of their technical instruction would be drilled into the soft parts of my brain so that I would not altogether disgrace their squads. The officer instructors were terribly kind and very grateful when a gleam of slight intelligence flickered on my face. But, it must be admitted, the greater part of the intensified training was boring. If anybody asked me to strip and assemble a M. G. lock now—I did it in fifty seconds once – I would make a complete mess of it. If I were asked at this moment what the 3rd Muscle Exercise is (or was) I should burst into tears and reply that my book must first be consulted. And yet I have spent hours and hours stripping locks and exercising muscles.* On the other hand, I think I would remember the tactical principles of fire and movement and the tactical handling of machine-guns. Why is it that one can remember the essential things about weapons, and forget so easily and quickly all the fiddling little technicalities on which so much labour and time have been spent? Is it because one is normally steeped in deeper things? Is it because one has four Indian officers, four havildars, seven naiks and many lance-naiks, who are even more deeply and accurately saturated in this tangled machinery? Or is

* (This criticism is obsolescent.—Ed.)

it because one does not give a damn if the safety-catch is propelled by the primary digit or by the unhygienic thumb so long as the firing party are in the right place at the right time to hit the right target ?

The School of Education.—Common belief has it that Mr. Lloyd George foisted this encumbrance upon an unwilling Army Council. This is probably as untrue as most of the post-war crimes saddled upon this distinguished statesman, but rumour dies hard, and certainly in their initial stages the schools of so-called education were liable to derision. But once they got into their stride they have forged along, and brought the three " R's. " into the common perspective of all ranks. Within the last ten years the spread of knowledge in Indian units—and I presume British units have gained correspondingly—is rather extraordinary. Whether all this book-learning is a good thing or a bad thing I am incompetent to judge, but the fact remains that one now finds and *demands* far more intelligence and far more quickness in the uptake regarding all the horrible technicalities of modern soldiering than did our pre-war soldiers.

All schools now demand certain certificates of education before pupils are admitted. Compare these drastic qualifications with those of 1912-13 and it will be seen at once that the schools of education play a very important part in training the army.

I shall perforce eschew comment on the Signalling and Cookery schools at Poona, because for neither was I ever chosen. But I imagine that the same strictures which I have dared to level at other technical schools could be applied equally. Indeed, regarding the signalling school, I have met young undergraduates so boiled in communications and their complications that they would prefer to set up a "station" and demand receipts of messages in triplicate rather than bawl a message across a valley. The cookery school must be an excellent place, but it should be open for admission to the wives of most officers. (This is, however, a health view which could be brought up better by the medical authorities than by me.)

Having now reviewed summarily and with marked prejudice the benefits and idiosyncrasies of our main schools of instruction the question now arises if they are worth all the time and money I spent in them. What Government spends on them is a matter of complete indifference to me ; they are cutting my pay to do it.

It is more important to consider what I could have done with my money and, incidentally, A. H. Qrs. with their's. An officer's

main functions in life (apart from being on the staff) are to train his men in peace for war and to lead them in war. During the present peace officers are being taught to be technicians; their brains are being filled by all sorts of pettifogging details of pull-throughs and pull-offs; the nice pulling of a horse's tail leads to more commendation than the reading of a map; and Jove laughs at our M. G. lock-smiths. It is the task of commanding officers to instruct their young in tactics. This works out in a series of T. E. W. Ts., and in the training of platoons, companies and the present curtailed manœuvres.

The junior officer, just as sensitive to rebuke and condemnation as any recruit. avoids as much acrimonious unpleasantness as possible by striving to do everything according to the drill book or his C. O.'s well known pet fancies. I have done it myself hundreds of times and it is a common fault among the "yes-men" of higher formations. He applies no initiative, he works out situations slavishly to agree with accepted tenets, he works horribly from hand to mouth in his endeavour to escape a raspberry, he brings no imagination to bear either because his has been atrophied in the mill or because it died when he was at Sandhurst; he hardly thinks. No wonder fellows get tired of regimental soldiering and seek more interesting billets on the staff.

If this is a fair picture of the average regimental tactical outlook among young officers we might well seek the reason. I think it is lack of military education. We teach all our N. C. Os. and Indian officers up to the standard of the next higher rank; we teach our all young officers down to the next junior rank, imparting here and there vicariously a veneer of higher instruction which looks all right on paper. This attitude was commonplace and understandable in the pre-war days when only ordinary intelligence was expected in soldiering, but now in 1934 when it has been realised at last that the military profession demands the highest intelligence in all ranks and when a great mass of schools of instruction are maintained to ensure efficiency it does seem rather odd that the junior officer (who leads the men in war and is expected to win the battles) receives only the most slip-shod and undirected treatment. I think the poor chap is neglected and that is why I am writing this article. Regimental and Brigade Training of officers, sound and helpful as it may look in reports, is spasmodi-

cal at the best of times and eye-wash the rest of the time. The officer, dragged away from his musketry or his office, cannot devote himself whole-heartedly to the problems, rarely prepares himself, and has no background to contest the spoonfuls of tactical instruction poured down his throat. He swallows it smartly, and rushes back to his office or his range.

The junior officer—officers from five to sixteen years' service—needs tactical training. They require a school where they can meet officers of the other branches of the service, they cry out for instruction in the handling of platoons, companies, squadrons and general officers. The running of T. E. W. Ts., the co-operation with the other arms, the issue of orders—and above all, history—are their most bitter necessities. The staff colleges help one to wage the most glorious and magnificent wars and assist one to mobilise a railway system, but it is without their province to teach me to teach Jemadar Filana Khan that if he persists in picquetting that hill in that slovenly manner he will suffer the same fate as did Subedar Canary Singh in the Tirah in '98. The senior officers' schools have their own work cut out to improve the race. But the young officer is sent from technical school to technical school, picking up a certain amount, but given no real foundation.

What is the solution, if any? Very tentatively I would make the following suggestions:—

1. Each battalion or regiment maintains one junior and selected officer in charge of all weapon training, trained at both the Small Arms and Machine-Gun schools. Under him is the Training Cadre for instruction in these weapons and his is the responsibility for producing N. C. O. candidates for these schools.

2. Each company or squadron has one Indian officer or N. C. O. responsible for Weapon Training under the supervision of the company (or squadron) commander. This officer is responsible for weapon training within the company, and this responsibility is not shared.

3. The Signalling Establishment and methods of training to remain as at present, but the high test of efficiency demanded in this branch of training not to be so stressed in annul reports.

4. The Equitation schools to be thrown open to infantry officers if their continuance (in the light of my further suggestions) is insisted upon.

5. The reduction of the officer classes in the Small Arms, Machine-Gun, Educational and Signalling schools, and, if necessary, the abolition of the Equitation School. This will save money.

6. With the money thus saved inaugurate a Tactical School for young officers. In fact, I would like to inaugurate three schools; one at Quetta, one at Dehra Dun and one at Ootacamund or Wellington.

The first objection to No. 6 suggestion will most certainly be financial. "My dear chap," the interested senior officer will say, "and where is the money to come from?" "My dear old boy," I will reply in words to that effect, "partly from the savings on the other schools, and partly from the money annually invested by officers in various commercial academies in England."

"You don't say;" they will, I hope, ejaculate.

"I could say much more than that, Sirs," I won't say, because I am by nature fond of Generals.

Fooling apart, I feel religiously that three small tactical schools could be run in India at a cost very minor in comparison with the great improvement which could be rendered to the efficiency of the junior leader. If the experiment could ever be considered seriously I would suggest the following opening lines:—

1. A Voluntary School. Officers going up for examinations or otherwise keen on their profession to be asked to apply for permission to attend. Railway fares for themselves and servants paid by Government. No T. A. and no D. A.

2. A specially selected instructional staff to be in charge. A commandant to lecture on military history in his spare time and maintain benign discipline during the rest of his sleeping hours. Two instructors on tactics, one cavalry and the other artillery; I think both should be *p.s.c.* with a good regimental foundation. One instructor for military geography and military law (from the infantry if existent).

3. The syllabus (enough to cover two months' privilege leave and exciting enough to remove the dust and ashes from the regimental officer's mouth) should be devised to cover more than adequately the subjects for the next year's promotion examinations to Captain and Major.

4. The students should be encouraged to enjoy themselves both in their work and play. Debates on topical or historical military subjects should be arranged in an informal atmosphere, both to develop powers of expression and combativeness in argument and to promote study.

5. Care would be necessary to ensure that a proportion of all arms attended each course. Too many infantry would make it dull; too many cavalry would make it frivolous; too many artillery would make it a pig-sticking centre. But a good mixture, including R. A. F. and R. T. C. officers, would broaden all the minds engaged in such study, and increase or bring to birth an elementary idea of each other's capabilities in War. For such a consummation of the present fundamental anguish for co-operation between arms even the wages of the instructional staff should not be too great a price to pay.

In conclusion, for those of my readers whom I have so far failed to convince of the necessity for such a school, I should like to quote some advertised testimonials presented to a commercial military college during the last few years :—

(*a*) "Your postal courses should not only enable officers to pass their examinations with credit, but should also benefit the Army generally."

(*b*) "I consider that the work done by the.....College is of great value to the Army."

(*c*) "———many officers have derived great benefit from your courses....in acquiring knowledge of their profession which is likely to be a permanent asset to them and so to the Army as a whole."

(*d*) "The value received, however, must be dependent on the time given to study, and it is gratifying to learn that so many officers are seriously engaged in widening their military knowledge."

(*e*) "To go to a crammer or work at a course when on leave is always irksome."

(*f*) "Apart from the examination standpoint, there is no doubt that courses such as your college provides tend to improve the general and professional knowledge of officers and are, therefore, a great advantage to the Army as a whole."

These excellent chits were written by very senior officers to whom the training of the post-war army has been entrusted. That such handsome and deserved tribute should be paid to such an unofficial institution strikes me as be ng very magnanimous, but they are also an acknowledgment that such institutions are necessary. Whose fault is that ?

P.S.—I can endorse thoroughly all these testimonials from personal experience. It cost me fifteen quid.

ROUND THE WORLD.

By Colonel E. F. W. Barker, C.B.E., D.S.O.

The following notes are compiled by the writer from a recent tour. They may be of interest to officers in India and the East who contemplate a similar way of spending their leave. Those of the British Service who are stationed in India are entitled to eight months' leave during their tour, and it seems the chance of a lifetime as they are already nearly half way Round the World, not to complete 'The other half.' To officers of the Indian Army the opportunity is always with them. This also applies, of course, to other officers stationed further East.

Like most things, given the time and no obligation to visit England, it resolves itself into a question of *cost*. The first matter for consideration is the advertised fare. A 'Round the World' ticket from Bombay to Bombay, 1st Class costs £168-6-6d. (1934). A similar ticket from Bombay to London and return by P. and O. works out at £126. There is therefore a difference of only £42-6-6d. for the complete tour. The compulsory addition to the latter is the food on the trains, and sleeping berth on the railway across Canada. The C. P. R. is preparing inclusive meal and sleeper charges for the journey across the continent. There are also the expenses at any 'Stop overs' and ports of call such as Hong Kong, Shanghai, Nagasaki, etc., which are naturally what one makes them.

These rates can be considerably reduced by travelling 2nd Class or Tourist, both of which are quite bearable, though naturally they have not the luxury of 1st Class accommodation.

Whether you make the trip Eastward or Westward is immaterial. As the writer made it Westward it will be described in that direction. For the trip from Bombay to London no notes are necessary; we will therefore commence with England.

The choice of steamships across the Atlantic is important. The minimum fare quoted above entails travel by "Duchess" ships from Liverpool to Quebec or Montreal. They are good and the accommodation is excellent, but they are slower than the "Empress of Britain," the leading passenger ship in the World. She starts from Southampton, and is well worth the slight extra expense involved. It was in this ship that the writer crossed the 'Herring pond.'

Until one has actually travelled in a ship of this kind it is quite impossible to realise the comfort and luxury of modern sea voyage. Its gross tonnage is 42,000 tons. There is a full size tennis court, a magnificent swimming bath and a ball room. The cabins are called apartments and are the size of a large room. Everything possible is done for one's comfort—dances, 'talkies,' sports are all to hand. Meals 'la carte,' and you get what you fancy without extra charge, whilst a morning paper comes with your 'chota hazri' to your apartment.

The daily run in the open sea averages 615 miles and the crossing from Bishop's Rock to Belle Isle takes under 80 hours, the rest of the voyage being in sheltered waters. The advantage of this route for a bad sailor needs no emphasis. Leaving Southampton on a Wednesday, you find yourself at Quebec on Monday morning. Unfortunately the "Empress of Britain" cannot proceed further up the St. Lawrence so you disembark under the Plains of Abraham (famous for Wolfe's victory over the French in September 1759) after a far too short voyage. The Regiments who took part in this historic battle were the 1st Bn. Royal Sussex, 1st Bn. Ox. and Bucks L. I., 1st Bn. East Yorks, 1st Bn. Gloucestershire, 1st Bn. Loyal North Lancs., 1st Bn. Northamptonshire and 60th Rifles (two bns.). This was the second time Quebec was captured by the British from the French, the first time being on July 22nd, 1629.

The 'Duchess' boats go on to Montreal (160 miles) after a suitable halt. Presuming you 'Stop over' in Quebec, with the aid of a red-cap (Porter) you 'check' your heavy baggage, for which there is a liberal free allowance, through to your ship at Vancouver, and find it on board when you arrive.

The Canadian Dollar varies like all other currencies but is now about 5/-. Before leaving England you must make arrangements for cash during your tour. A letter of credit from your bankers is as good a way as any, and enables you to travel with as little loose cash as possible. Agents of the 'Big five' banks exist in every place, and there is therefore no difficulty in getting money on an 'as required' basis.

On landing in Quebec, avoid the Chateau Frontenac (called after Count Frontenac, a French Governor of Canada in 1672)—unless you are very rich. It is very expensive as are most of the C. P. R. Hotels. Your best plan, if you wish to do the trip economically, is to go (or write

beforehand) to the Chief Tourist Bureau and say what you require in the way of accommodation. There is an excellent system throughout Canada of 'recommended' billets in every town and village. As a rule these are first class, consisting of a room with bathroom plus hot and cold running water. The charge is normally one dollar (5/-). Breakfast and other meals are generally not obtainable, but these are very easily procured at 'a la carte' cafeteria, restaurants, etc. Tips in Canada are on the same basis as in England, not Scotland !

Quebec is full of historical interest and a very good book to read before arrival and also to take with you is the Historical Geography of Canada, in three small parts, published by the Clarendon Press, Oxford. One can easily spend three days here without a dull moment. In passing it is interesting to note that it was opposite to the Plains of Abraham that the 'Royal William' of 363 tons was built and was the first steamship to cross the Atlantic and took 25 days in doing so ! This was in 1832.

A visit by car or train to Montmorency Falls (10 miles) is well worth while. There you will find Kent House, now an excellent hotel, but formerly the residence of the Duke of Kent (father of Queen Victoria). You might consider stopping there a day or two, as there is a first class golf course adjacent to the Hotel. In fact you find golf courses all over Canada and members are most hospitable to visiting officers. If you have friends, so much the better, if not it may be possible to get introductions from mutual friends, and this would make all the difference to your visit. On the subject of introductions, do not forget most units are allied to British ones. If you get into touch with any officers in the former, nothing can exceed their kindness and hospitality. It is proverbial.

In the matter of drinks, it is well to remember that all hotels and trains (except in Quebec where one can get beer and light wines) are 'dry'. Liquor is obtainable at Government Stores on payment of a licence of 4 dollars (£1) after which you can buy as much as you like, but this liquor cannot be consumed in a public place. There is method in this restriction. The province of Ontario alone gets 200,000 dollars a year from such licences, a large proportion of which are taken out by U. S. A. citizens who cross the border to get a drink. One can see how the revenue of Canada will suffer when the States again go "wet".

Having done Quebec your next halt will probably be Montreal, founded by a Breton sailor of St. Malo, named Jacques Cortier in 1535, on the site of the Indian village of Hochelaga, renamed Royal Mount. If you cross the Atlantic in a 'Duchess' ship it takes you to Montreal. On the other hand if you come by the "Empress of Britain" you must either tranship or proceed by rail. The former is preferable. The Canadians are proud of Montreal, and if you read the history of the city you will find much of interest. If you do not wish to visit Ottawa, you can continue by lake steamer to Toronto. But it is recommended to go to the capital city, about 3½ hours' journey.

When Canada was made a Dominion, there was great jealousy between Toronto and Montreal. Both claimed the right to be the seat of Government. So Queen Victoria settled the dispute by deciding in favour of neither and by chosing Ottawa. One advantage is that it is further from the frontier between Canada and U. S. A. and therefore strategically safer. The Ridean Canal is of historical interest. It was first proposed as a military measure during the War of 1812, to provide an alternative route to the St. Lawrence between the West and Montreal. It was built by the Royal Engineers in seven years (1825—1832).

Now a word as to trains in the dominions. (incidentally remember railway time is different to local time). You have a first class ticket and therefore think you are all right. But there is no such thing, practically speaking, as 3rd class. Everyone travels first so you have to pay a supplement to travel 'parlour car', or if you are spending the night your sleeping berth supplement covers it. Both are expensive. If you are travelling 'Tourist' you have the *entree* to the dining but not the parlour car. The sleeping cars are not like those in England. They consist of long carriages with berths (one above the other) down the whole length with curtains to be drawn when in bed. Bedding is provided and there are washing places at opposite ends of the carriage for men and women. Special compartments fitted up can be reserved but are most expensive, about £5-10-0 per 24 hours (for two).

Meals in the Restaurant Car are lavish and served *a la carte*—*e.g.*, you can get a plain breakfast consisting of toast or rolls, marmalade and tea or coffee for 45c (about 2/3d) or with eggs 85c (4/3d). For luncheon or dinner you will find that one portion is ample for two

people, and is a recognised custom. The C. P. R. pride themselves on the civility of their servants and from practical experience it is not an idle boast.

On arrival at Ottawa, if you have not made previous arrangements with a tourist agency, the Chateau Laurier (C. N. R.) is the best. You pay 5 dollars (25/-) for your room alone and pay for meals as required. These are not expensive, an excellent dinner costs about 6/-.

Every hotel in Canada has a 'cafeteria' where you can get 'snack' meals at very reasonable rates. Ottawa is very beautiful, is well laid out and has fine public buildings. In the summer you can get excellent golf and bathing and in the winter ski-ing.

From Ottawa you can train to Toronto, but a better plan is to go to Brockville (2½ hours) and get on one of the Lake Steamers calling at Kingston *en route*.

This is a lovely journey through the Thousand Islands. A 'stop over' in Kingston would enable you to visit the R. M. C., a training college of great interest. Unlike our own R. M. C. it provides a four years' course and students there graduate for civil employment. A very high standard of engineering is set, and all officers for the R.C.E. and R. C. C. of S. qualify at this college, also a limited number of commissions are granted to other branches of the Imperial Services, including the Indian Army. In the Cadets' Mess you will see the regimental plate of the Leinster Regiment (Royal Canadians), which is loaned to the college till such time (if ever) as they are re-constituted. Leaving Kingston by boat in the evening, you find yourself at Toronto in time for breakfast, or you can go by train if preferred.

Toronto, formerly called York, and the site of Fort Roulle is a thoroughly modern and up-to-date city. The Westminster Hotel will meet all your requirements. It is clean and comfortable and its charges are very moderate. By the way you will notice that hotel quotations are 'European' or 'American' plan. The former means room only, the latter is 'en pension'. The Niagara Falls are the 'show piece' from Toronto. These can be reached either by motor car or steamer. The former is the better.

The Canadian side of the falls is perfectly lovely and there are good hotels where one can stay the night if one desires to see the illuminations. The United States side has been spoilt by power houses

and ugly buildings. On the return journey the Brock Memorial should be visited. It is erected on the site where the British under General Brock defeated the Americans in 1812. The onward journey from Toronto should be done by Lake Steamer as far as possible.

You leave for Port McNicoll at 1-30 p.m. and embark at 4-30 p.m. the same day. The steamers are excellent and are far more comfortable than the train.

You have to pay a supplement of 5 dollars or £1 for this, but it is well worth it. You cross Lake Huron, calling at Sault San Mare (1669), now a mining centre about, 1 p.m. next day, and going through some locks enter Lake Superior at 3-30 p.m. Arriving at Port Arthur at 7 a.m. the following morning, you continue your journey by train passing the Lake of the Woods, an extraordinarily pretty journey.

It is interesting to note, by the way, that during the vacation period, at all the fashionable hotels the 'Bell boys' (corresponding to our 'Buttons') are University students. These students do this chiefly to get money for a continuation of their studies. Incidentally *never leave* your boots outside your door to be cleaned. This is a sign that you do not want them and they disappear. In spite of the heavy charges of Canadian hotels, you must get your boots 'shined' at the 'Shine shops' either in the hotel or outside. For this you pay about 20 cents.

Leaving Port Arthur at 7-30 a.m. you have a pleasant journey to Winnipeg, where you arrive the same evening. Winnipeg is not a city with much interest beyond its huge wheat trade.

The train departs at 9-45 a.m. for the journey across the prairies. This is a very hot and dusty trek in the summer months and cold during the winter. You pass through Regina, another large wheat growing centre, and spending the night in the train, arrive at Calgary at 7-55 a.m. There are several small hotels quite good and considerably cheaper than that run by the C. P. R.

Calgary is the Headquarters of No. 13 Military District. It is also the summer camp of Strathconas Horse. Being situated on the edge of the rockies it is on a wonderful site. One should not miss the chance of a visit to the Prince of Wales' (E. P.) Ranch 85 miles distant. Professor Carlisle, who is the Prince's agent on the estate is always glad to see Englishmen and show them round. The ranch is a perfectly gorgeous estate right at the foot of the Rockies. The return journey by the natural oil fields at night is never to be forgotten.

From Calgary onwards the journey can be broken at Banff and Lake Louise, but the former much advertised spot is disappointing. The scenery in Kashmir is better. The journey through the Rockies for 'the coast' is a marvellous piece of engineering. A guide is provided by the C. P. R. in the train who points out all the places of interest. At the 'Great Divide' the boundary between Alberta and British Columbia the train stops for passengers to alight and 'wish' at the parting of the streams, one of which eventually reaches the Atlantic and the other the Pacific.

Sicamous is reached the same evening, and is well worth stopping at. The hotel is at the station and on the border of the lake, where trout fishing (trawling) can be obtained. All gear is provided at a fee. The Dominion Express leaves nightly for Vancouver and gets there at 9 a.m. next day. There are many reasonable hotels in the City and places of interest abound. If time and money permit it is well worth going on a round trip by steamer to Prince Rupert on the border of the Yukon. This takes about five days. Prince Rupert is the terminus of the Canadian National Railways.

Victoria on Vancouver Island is reached by a steamer leaving at 12 noon and arriving at 4 p.m. It is a pretty journey and the ship is comfortable. Meals are obtainable on board. Victoria is very English, and if you are lucky enough to have friends in the Island who can show you round, your last impressions of Canada will never be forgotten. The Beach Hotel at Oak Bay is first class-bathing and golf being practically on the premises. It is rather expensive.

And now comes your important point about the journey across the Pacific. In planning out your tour you must remember that the Empress boats, the best on the Pacific—only sail once a fortnight. If you wish to visit Honolulu *en route* to Japan, you must go by either the 'Empress of Canada' or 'Empress of Japan'. One of these departs every month, the intermediate ships (smaller) going direct and sailing in the intervening fortnights.

You should, if possible, go *via* Honolulu, as the ships are larger and more comfortable and are oil burners. It is five days to Honolulu and fourteen to Yokohama from Victoria. Honolulu used to be a British Protectorate but is now under the American Flag. It is interesting to note that going West you skip one day (known as meridian day) so your week consists of only six days. Going East you add one day making an eight day week.

Arriving in Japan and going through the customs, where they are very inquisitive, your stay will naturally depend on the time at your disposal. The tourist's usual itinerary is Yokohama (of little interest), Tokio (Imperial Hotel very cheap and good), and Nikko, the place for temples where Kanaya Hotel is quite good, 27 yen per diem for two inclusive. (The Yen varies but may be taken now as 1/3d). A day trip to Lake Chuzenji (8 miles), the summer residence for all embassies at Tokio, is strongly recommended. The drive up the pass will never be forgotten. It is hair-raising.

You come back from Nikko *via* Tokio to Miyanoshita to the Fujiya Hotel which is the last word in comfort. Excellent swimming baths and various hot spring baths are thrown in. It is more expensive than the Imperial at Tokio. A day trip to Hakone gives you a good view, weather permitting, of Mt. Fuji. There are numerous other walks and motor drives which enable you to see and appreciate the country. From here you bus and train to Kyoto, the former royal residence of the Imperial family. A permit to visit this place must be obtained beforehand from the British Military Attache at Tokio.

Second class in the train is very good and cheap. In fact all modes of locomotion in Japan are that. From Kyoto train to Kobe where you catch your steamer. You have the option on your ticket of transferring to P. and O. if times of sailing, etc., suit. But this line does not normally call at Nagasaki. The writer continued in the C. P. R. "Empress of Russia" and did not turn over to the P. and O. till Hong Kong was reached.

It is a perfectly marvellous trip through the Inland Sea and is usually done in daylight. Your last port of call in Japan is Nagasaki, a defended port and in which cameras are therefore not allowed. A day is spent in this place. On entering the port, which is very fine, you pass the celebrated cliffs of Shimabara, where 30,000 Christians were massacred by being driven over the cliffs in 1637.

Shanghai is reached in 36 hours from Nagasaki, where the ship usually stops for 24 hours. Sailing at 6 a.m., on Tuesday, taking on a police guard for fear of pirates, you get to Hong Kong at 8-30 am. on Thursday.

You have now ten days at your disposal if you follow the above time table. The Philippine Islands are well worth visiting and this can be done in the same C. P. R. boat which brought you from

Shanghai. The round trip stopping in the ship at Manilla costs £9-10-0, and takes six days. That will reduce your stay in Hong Kong to about three days. There are numerous hotels with good accommodation at about £1 per diem, but the food is very poor. Repulse Bay Hotel on the South of the Island is very fashionable and expensive in the season, otherwise everything is exceedingly cheap.

You have now definitely to transfer to the P. an O. and you may notice the change. Leaving Hong Kong on a Saturday you are due at Singapore on the following Wednesday, sailing again on Friday for Penang. You live on board and make your daily trips from the ship. The new Naval Base should be visited, but a special pass from the Naval Authorities is required. You have only about twelve hours at Penang, but a run round in a car is worth while.

Leaving on Saturday night, Colombo is reached on Wednesday, the stay there being very short with little time to look around. Bombay should be 'made' on Friday morning, completing the round tour.

By travelling by the above route you will have made a tour you will never forget or regret. You will also have the moral satisfaction of travelling under the British Flag the whole way, an important matter in these days when so many foreign lines are subsidised to the detriment of one of our most vital industries.

A FLYING SUGGESTION.

By "Divad."

"I also suggest that every effort should be made to direct the attention of all officers to the air and to flying as a sport. I can conceive of no pursuit, not even excepting hunting, better calculated to develop the qualities we require in an officer—resource, nerve, quick decision and an eye for country—than flying. It is not even now entirely out of reach as a sport." ("The Training of the Army for War," by Brigadier A. P. Wavell, C.M.G., M.C., in the *R. U. S. I. Journal* for May 1933.)

I have no intention of discussing here the truth or otherwise of the above quotation. I think indeed that Brigadier Wavell has correctly stated the value of flying, as adequately and as concisely as is possible in so few words. I commence by assuming that its value is receiving some thought and recognition.

It is now just eight years since the Light Aeroplane Club movement was first launched in England, and some five years since its inception in India. Previous to the movement the enthusiast could get flying in one or two places in England such as the De Havilland ærodrome at Stag Lane, and in such machines as Avres, D. H. 9*s*., or D. H. 6*s*., all of course at a fairly high price. The production of the first De Havilland Moth really made the establishment of Flying Clubs possible. The movement flourished and has been expanding ever since, though the rate of expansion in India has not perhaps been so proprotionately rapid as that in England.*

It cannot have escaped notice that remarks on air mindedness have been occurring with some frequency of late in more than one of the Service Journals. The extract I have given above is one of the most welcome signs which have so far appeared that the value of

* The D.C.A. England in his article "Miscellaneous Activities in Civil Aviation" in the *R. U. S. I. Journal* for February 1933 gives the following figures amongst others :—

1925.	1931.	1932.
Clubs 6 (Just started) Pilots 140.	Clubs 30 Private Pilots Licenses 2,091. Pub. Transport Licenses 315.	Pilots 2,700.

The only information I have at present regarding India is that licenses (Private Pilots) were just over 200 in the beginning of 1931.

flying in the training of an officer is being recognised. Coupled with another quotation I shall give later on, it has tempted me to suggest a possible way in which opportunities for flying for the Army in India might be extended. It is a little difficult to gauge exactly how far officers in India have taken advantage of the formation of Flying Clubs to learn the "art of flying," and indulge in it as a sport. The learning is usually easier than the subsequent indulgence, in a large country like this, which possesses only a few clubs at certain places.

Clubs exist at Calcutta, Madras, Bombay, Delhi and Karachi as far as principal places are concerned. There is also one at Jodhpur, I believe Lucknow, and a previously unfortunate one is being resuscitated at Lahore. I only have the figures for one of these places, where, out of about one hundred pilots trained, eight have come from the Army. Of these eight three came from widely separated cantonments leaving five only from the garrison itself. This makes an average of exactly one *per annum* from the garrison since the Club was formed. Not on the whole a very high average. I hesitate to turn it into a percentage of those stationed there during the last four years, not only because of the impossibility of arriving at any accurate result, but also because I fear it might reveal a rather lamentable apathy in this particular cantonment towards the opportunities at its gate.

There are few of us who have not had experience of ancient relatives who stuck closely to their carriages and horses to the end of their lives, and refused absolutely to enter that dangerous and unpleasant contraption, the motor car. The number of times one hears the remark in connection with flying "No thanks I prefer to keep both feet on the ground," or words to that effect from those of middling service, leads to the sad reflection that a couple more decades may see the establishment, in Cheltenham and other resorts, of a new generation of such ancients who have never ventured into the air. It is those others (fortunately many) who still retain their power of adaptability in a changing world that one hopes questions of flying may interest. Flying is not exactly an adventure, but the regions of the air are one of the few parts of the world which still remain unexplored in full, and about which we have much more to learn. Flying is always producing for its followers new incidents and ever changing conditions.

The cost of flying is the most usual objection held up against its more extended practice. In a measure it may be expensive, but compared with other forms of sport is it prohibitively so ? In India club charges for flying are about Rs. 30/- per hour for dual instruction, and Rs. 25/- for solo flying, with, in some cases, a reduction of four or five rupees after fifty hours flying with the club. The beginner will require five to ten hours dual instruction, which is followed by five hours enforced solo flying, before he takes the tests for his "A" license. His first "A" license will therefore cost him say Rs. 300-450 according to the amount of dual instruction found necessary. Thereafter he is required to do a minimum of five hours solo annually to renew his license, (in England the minimum is three hours). Actually of course he will do more in every case depending on the length of his purse. Twenty-five to thirty hours annually will however keep him in practice, if he cannot do more, and he will get a lot of value for his money.

It is one thing to take a machine into the air at some other persons expense and fly it straight for an unconsidered time; it is quite another matter to take up a machine at a personal cost of about six annas a minute. In the latter case the pilot, unless he has some definite cross country objective in view, or is joy riding an unfortunate friend, will undoubtedly only run through his repertoire and come to earth again as soon as he can. Long hours are not everything; as one of the leading British pilots once remarked "It's not the hours that matter but what you put into them."

No officer should be discouraged from learning to fly by reason of the fact that he cannot afford, or does not expect to be able to do long hours in the air thereafter. "Ground thinking" must in such cases usefully augment flying practice, for a great deal of flying may be learnt on the ground. The Light Aeroplane pilot who remembers this will find, after he has had some experience, that he is able to go periods of two or three months without flying (which circumstances may oblige him to do) and still on his return take a machine straight up and with safety into the air. This applies of course when he has had fair initial experience, and has become used to flying at comparatively long intervals, not forgetting his "ground thinking" in these intervals. At other times he may find fifteen minutes or so dual practice is necessary.

If you compare the cost of flying on these lines with the cost of maintenance of polo ponies for station Polo, or with the cost of one

annual shoot in Kashmir, you will not, I think, find the cost of flying so very excessive. Not I should say for those stationed in places where there is a Flying Club. All forms of sport cost money. Some may remark that officers are no longer able in general to afford polo, or the cost of an annual shoot in Kashmir. This may be to some extent true.

There can be little doubt that if flying costs for officers in the service could be reduced, and the opportunities for flying extended, far more officers would be interested in the matter. It is with this query as to the possibility of improving facilities for flying and reducing the cost for officers in the service, that I will pass on now to a second extract which I wish to quote.

" Great stress is correctly laid on Air mindedness in the Army to-day. Perhaps this could be encouraged more than it is. By tradition officers in the service have been encouraged to hunt and have been given extra leave for this purpose as training for war ; it might be possible, gradually, and in co-operation with the Air Force, to provide aeroplane "Boarders" for those fortunate ones who could afford the sport. In flying the Brigade of Guards is ahead of the rest of the Army with its own Flying Club. Hunting gives an eye for country ; so does flying and the development of that eye from the air perhaps takes more time to mature. With mechanised formations it may be a more useful accomplishment. Both require moral fitness." (The *Army Quarterly* July 1933, Military prize Essay, by Captain and Brevet Major D. Wimberley, M.C.)

If we are agreed as to the value of flying, is there no practicable way, apart from talk, by which officers might be encouraged and enabled to indulge in it more easily ?

The above extract contains the germs of several ideas, which when developed, might be of use for our purpose. Firstly, it suggests more encouragement is required. Secondly, it suggests the co-operation of the Royal Air Force—though for an end, the good of some " fortunate ones " which is very different from what I am aiming at. Thirdly, it mentions the existence of the one service Flying Club, and these three ideas combined lead one's thoughts to a direct suggestion.

Surely it should not be impossible, with assistance and encouragement from higher authority, with the co-operation of the Royal Air

Force, and with some keenness and energy on the part of the rest, to establish, in the first instance, a form of service Fying Club in any place in India where the R. A. F. is stationed, and later perhaps extend branches elsewhere? The exact manner in which such Clubs might be constituted is a minor rather than a major matter. The three essentials to their establishment are given above. The suggestions one could make for them are various. At one end of the scale (and this rather approaches the "Boarder" idea quoted above) one could suggest Light Aeroplanes owned and run entirely by the R. A. F. and available for hire under certain rules for instructional dual or solo and other flying. At the other end one could suggest a more truly constituted Club, a Government assisted combined service movement, appointing its own honorary instructors as it wished and found necessary, and permitted to use the resources of the R. A. F. in some degree for housing and maintenance purposes.

It is necessary to realise that I am aiming at an arrangement which might be expected to reduce the cost of flying for officers. An obvious saving takes place if Clubs can be formed with purely honorary instructors, secretaries, etc., as opposed to the paid ones employed by civil Flying Clubs. Not that honorary flying instructors are entirely unknown there. More than one Club in England has them in addition to, or in the absence of their paid instructor. A second obvious saving takes place if the resources of an organisation like the R. A. F. are made available, even in some measure, for housing and for maintenance facilities. For these two reasons we may say that the co-operation of the R. A. F. must be looked for in the formation of any service Club which might hope to work at reduced costs.

Surely such co-operation could and would be afforded?

I have before me the figures for expenditure for the year of a certain civil Flying Club. They are of interest to our purpose in showing how and where the expenses of Flying Clubs occur. Translating the figures into cost per hour of flying, we get the following interesting facts:—

	Rs.	a.	p.
Cost of fuel (oil and petrol) per hour flying ..	7	0	0
Cost of spares and material, repairs and upkeep	2	0	0
Cost of insurance*	3	10	0
Total ..	12	10	0

* In this case insurance with an Insurance Company is not carried out. The Club sets aside a sum annually to an insurance fund in order to cover loss. This figure has been obtained by dividing the sum set aside by the number of hours flown.

That is part of the list which I have purposely kept separate. The rest runs as follows :—

	Rs.	a.	p.
Cost of salaries, flying, engineering, and office staff, plus travelling expenses	30	6	0
Cost of depreciation of aircraft	5	0	0
Cost of depreciation and upkeep of hangars ..	2	0	0
Total ..	37	6	0

These figures are approximate to the nearest two or three annas. The remaining items consists of sundries such as audit fees, airworthiness certificates, rent and taxes, etc., and do not affect materially the issue from our point of view.

These figures are surely very striking. The cost of purely operating expenses is a mere flea bite when compared with the cost of the staff. The first list I have given provides some idea of the costs, if an organisation such as I suggest, could be assisted firstly, by granting permission for the co-operation of Royal Air Force, and secondly, by provision of the first machines and their replacement after normal depreciation. Assistance under the first point would cost virtually nothing. Assistance under second would only amount to a very small fraction of the annual grant to any civil Flying Club. If this was not forthcoming, the cost of depreciation would have to be added to the first list, which would then reach a total of about eighteen rupees. This figure of depreciation cannot be taken with much hope of accuracy without the test of experience. If the organisations flourished and a large number of hours were flown, the figure per hour flying would be much reduced. (If we take the case of a machine original value Rs. 8,500/- and allow it a normal life for depreciation of four years, and further allow it an average of one hour per day in the air, the average depreciation per flying hour would work out at approximately Rs. 6/-. Longer average hours or the allowance of a longer life would reduce this considerably. It is evident from the Club figures I have quoted that they do better than this instance).

I have not touched on the subject of maintenance. Lest it should be thought that maintenance of light aeroplanes such as the Gypsy Moth is a very heavy burden, and an insuperable objection to the ideas I put forward, it is necessary to touch on the question. The

figure quoted of Rs. 2/- per hour will illustrate the point that the problem is not a great one. " These machines require as little servicing and maintenance," has frequently been said, " as many cars." Actually they require a little more, or at any rate a little more inspection. The engine receives the largest share of attention, but it is interesting to note, as an indication of how little is necessary, that the Gypsy Major engine is now only considered as requiring complete overhaul after 750 hours' flying. Previously top overhaul was considered necessary after 150 hours, and complete overhaul after 450 hours. Now top overhaul is no longer considered necessary and the period between complete overhauls has reached quite an amazing figure. 750 hours at an average of two hours flying per day, means only one overhaul annually. Minor adjustments of the magnetos, valves and carburettor; inspection of the undercarriage and centre section fittings and occasionally of the rigging; inspection of the control cables and a little greasing, form most of the maintenance requirements of the Gypsy Moth. The only other thing we might add is an occasional replacement.

I do not intend these figures to be taken in any way arbitrarily. They do however represent those of a working concern and to that extent are valuable. They form at least a guide to what one might expect, and appear to indicate that a service organisation such as I have suggested might be able to provide flying at prices from Rs. 14/- to Rs. 20/- per hour, according to the nature of assistance afforded.

In contrast to the far more extended practice of flying in England, and the quite ordinary part it now takes in people's lives, there is still to be observed in the Army in India a queer and unexplained feeling that flying is the prerogative and peculiar " jadu " of the Royal Air Force. This is a pity. It is no more a prerogative of the Royal Air Force than yachting is of the Navy. The work and training of the Air Force, while it embraces ordinary flying, carries them far beyond it on a very special line.

It is possible that this attitude is in part due to the ban which still exists on civil flying in Frontier districts west of the Indus, where a large proportion of the Army is stationed. I believe I am correct in saying that this ban had its origin in the International Air Convention, under which these districts were classed as a prohibited area. A prohibited area is closed to all flying except certain categories.

Other areas are open to all flying including that of foreign machines. It is I suppose on these grounds that the desirability for the retention of the prohibition over such a large area has been considered necessary. Those in touch with civil flying will remember much comment there a year or two ago on this continued prohibition over the whole area.

The classes of machines which may use prohibited areas are roughly I think military, police, postal machines and civil aircraft "when commanded by a military officer detailed for that purpose" or words to this effect. It will be noticed that machines of the proposed type of service organisation need not be excluded from prohibited areas under the grounds of the Air Convention. They could be considered as training machines of the Royal Air Force to all intents and purposes, if there was any doubt in the matter. One may add that they would have their uses for service communication purposes, in addition to anything else, and by comparison, say with a Wapiti, their small consumption of oil and petrol would reveal considerable economy.

I have suggested above the establishment of such organisations "in any place where the Royal Air Force is stationed and later perhaps extend branches elsewhere." I was considering then branches where a number of pilots might be found, and where one machine might be kept from the parent organisation and called into headquarters for periodical inspection and repair. The fact too should not be lost sight of, that, although British instructors and ground engineers with civil clubs command high salaries, there may soon be available for these purposes Indians who in their home country will accept lower pay. It might be possible to employ an Indian ground engineer with such branches at no great cost. Many competent Indian pilots both "A" and "B" licenses, already exist, and some certificated ground engineers. It is not always accepted that Indians can become proficient in these things. One has heard the idea ridiculed on more than one occasion. Those who think thus, would do well to note that at the recent passing out of Flight Cadets from Cranwell, an Indian lad Aspy M. Engineer won the Groves Memorial prize for the best all round pilot. If one's memory does not err, Engineer was not without some previous experience. Still the fact is worthy of note.

Although the Guards Flying Club is the only service club in existence, the Army in India has several advantages over the rest of

the Service for the formation of clubs. Among these are the concentrated population of cantonments, the existence of suitable landing ground for light aeroplane operation immediately on the spot in each case, and the suitable climatic conditions, particularly in Northern India, compared with that of England.

The reason why clubs are necessary for the use of the aeroplane for pleasure, sport, or communication purposes, is that the aeroplane, as opposed to the horse, requires far more steady work for its economical operation than one individual can normally give it. It is far more economical to work one machine for four hours a day than two machines for two hours, or still more, four machines for one hour each daily. The aeroplane does not deteriorate or depreciate so much in the air as on the ground, and for economical operation, the longer it can be kept in the air the better. The horse is quite a different and an individual matter. Hence although we have encouraged riding and horsemanship in the past by facilities for purchase, by cavalry "Boarder" and similar systems, we have got to tackle the question on rather different lines when it comes to flying.

Nothing of this sort can be started all at once on a large scale, but I suggest it could be started with official approval, encouragement, and co-operation. I believe there are many who would learn and take up flying, if its possibilities could be made more directly available for them and the costs reduced. Would it be too much to ask the Royal Air Force for their assistance and co-operation in this matter? Without such assistance the proposition would be liable to fall to the ground on the score of expense. I am convinced that Brigadier Wavell's far seeing suggestion deserves a better fate than this.

COMMUNAL DISTURBANCES IN WALLED CITIES.

By Lieut.-Colonel H. M. Burrows.

The special feature, which I must emphasise about internal security duty in walled cities in the east is that owing to the congested conditions under which the inhabitants live, communal trouble spreads like wild fire, and as often as not by the time troops arrive, the Civil and Police authorities are reluctantly compelled to give the situation to the O. C. Troops, as far as they know it, and then give him a free hand to clear it up.

It is therefore imperative that any Army officer should be prepared as far as possible to take over this responsibility, and make every effort to understand the people, their characteristics, languages and problems, in the locality in which he finds himself.

Incidentally, the representative of His Majesty's Government in the House of Commons has recently defined the function of our Forces thus: "Not for continental warfare, but to maintain order within the Empire." More than ever, therefore, it is our duty to ensure that each of us is ready to give that assistance to the Civil Authorities to which they are entitled and which many of us seem so often incompetent of rendering.

Actually in post-war years I have had to interest myself in and take action in the City and *Sanjak* of Urfa in the Vilayat of Diarbekr in 1919, in Jerusalem, the capital of Palestine in 1920, and in Lahore, the capital of the Punjab in 1929—1932.

Attention is drawn deliberately to the provinces and country in which these cities are located to remind readers that every city is dependent on its province, and if he is to deal with one effectively, he must not only have studied its inhabitants, but also the inflammable elements around it, generally agricultural militant races, and sometimes nomadic tribes, including professional raiders and criminal classes of all kinds.

Conditions inside the walled cities.

The inhabitants in such cities live crowded together in an atmosphere of uncleanliness, poverty, rumour, crime, intrigue, mutual

distrust and often terror. Panic flies through the bazaars as if by wireless. Shutters can be flung up in front of shops for no apparent reason. This is always a squall signal, and that is why Indian agitators love proclaiming *hartals*.

A single example will be enough. One morning I saw mobs from all communities in Urfa, a town with an official population of 90,000, streaming into the country from every gate with their household effects on pack animals and carts. As soon as the inlying piquet of two platoons had reached the market square and persuaded the shops to open, the populace came back again.

The Armenians, Georgians and Assyrians said they had gone because a massacre had started. The Molsems stoutly maintained that the city had been captured by Arab tribes. I asked the local Government and Police to make enquiries and stop such nonsense. Twenty-four hours later the *Mutasarif* (Governor) submitted his report to the effect that a youth covered with blood had been seen running and screaming through the town; no one knew who he was or could find him. The *Mutasarif* and his Municipal Council were convinced that the youth was a Bolshevist agent trying to create disorder.

Thus on the flimsiest pretext any of the three cities I know will close their shops. One angry word or petty quarrel can then set the rival elements at each others throats in dead earnest. News soon spreads to the villages and tribes. If revenge or hope of loot does not bring them in, any professional agitator can. This is why the outer cordon (preferably of mobile troops) is so important to detail as soon as troops are called out.

There is never any love lost between the city folk and the countrymen. The former are terrified of the latter's martial propensities. The latter loathe the former for their business acumen and their superior education which gets them into higher places. Officers must therefore get local geography and politics well into their heads if they are really to help the civil authorities.

The relation between anti-government and communal disturbances.

These notes are headed "Communal Disturbances" because every soldier should understand how to deal with anti-Government activity. His actions must be based on his military training in

defensive tactics. Once communal trouble begins, I have been assured by Civil and Police authorities in India, that anti-Government activity will not break out.

Of this I am not so certain in other parts of the world, particularly in frontier towns, where the agents of other states or political organisations may try to seize the opportunity to overthrow the existing Government whilst its troops are engaged in quelling internal disorders. Be that as it may, anti-Government demonstrations often develop into communal attacks as in Cawnpore in 1931. In fact I believe that in Bombay every kind of public movement, even a strike, turns into a communal affray sooner or later.

Preparation and preliminary training for dealing with communal disturbances.

Nobody likes Internal Security duty, and in these busy days when a unit is exercised as to what part of its Collective and Individual Training, and heavy office work can be cut out, there is every temptation to sit down near a city and hope for the best. There is bound to be a local scheme for such emergencies and occasional T. E. W. Ts. on it may be held, but these are not nearly enough. Every time I have ever been called out I have found half the officers and most of the non-commissioned officers do not know the main streets and buildings and cannot find their way about at all.

(1). The first requisite is maps—good maps showing all the small streets, and the nationality of the inhabitants of the various quarters; also smaller scale maps of the district showing from which towns, villages and areas mobs of reinforcements of disturbing elements may be expected. It is essential that these maps should *not* be kept locked up only available in emergency, but be in the possession of everybody down to Troop, Platoon leaders and Armoured car subsection commanders.

(2). The local Civil authorities must be persuaded if possible to allow troops frequently to march round and through the city, during which junior commanders must show their men all points they require to identify.

It is extremely good both for the inhabitants and the troops to see each other. It creates a good sense of mutual confidence,

particularly as town populations are generally law-abiding, and get upset only by the activities of political firebrands.

If, however, the civil administration or higher military authorities consider this inadvisable for some perfectly good reason of their own, then regular reconnaissances by a few officers and non-commissioned officers in plain clothes must be constantly organised.

(3). The points which officers and non-commissioned officers must learn are :—

(*a*) Buildings that may require protection, *e.g.*, power houses, wireless and railway stations, aerodromes, telegraph and post offices and banks.

(*b*) Communal assembly places, *e.g.*, Political Meeting Grounds, places of Worship, Burial or Cremation Grounds.

(*c*) Storm centres, *e.g.*, cross roads where mobs may clash.

(4). Too much forethought cannot be spent on preliminary administrative arrangements for possible billets, horse lines, cooking places, latrines, aid posts, and communications.

Action when civil authorities require troops.

(1). The O. C. Troops proceeds at once to meet the Civil Authority wherever he requires him, gets the situation from him, makes his reconnaissance if necessary, and draws up his plan.

(2). At the same time such sub-units as may be required will stand to, and have transport sent to their lines, billets, or camps. In the above connection it is no use either :—

(*a*) Sending sub-units down to the city separately or collectively in case of trouble without a trained O. C. to handle them properly from the start. All that happens is they get committed piecemeal without being properly organised and without clear orders, which leads to confusion and perhaps regrettable incidents, or

(*b*) Ordering an unnecessarily large number of troops to " stand to " indefinitely in case of emergency, for the officers and men soon get bored guessing at what is going on, and might very well be better employed.

(3). The number of the sub-units required by the O. C. Troops depends very much upon what is available and what area has got

to be dealt with, but the most practical strength for the cities I know is :—

(*a*) 1 Squadron Cavalry to patrol the outer circular road, gates and public grounds.

(*b*) 1 Section Armoured Cars to make periodic reconnaissances of the main approaches for mobs or processions coming in from the outlying district.

(*c*) 2 Companys Infantry for piquetting and patrolling inside the city, including a reserve with lorries ready to meet any mob reported by the mobile troops.

This may seem a small force, but to my mind it is quite enough to carry on without relief for forty-eight hours.

(4). So long as the O. C. Troops is working "in aid of Civil Power" and not under martial law, his initial plans must include the request for a magistrate with each troop or platoon, and each subsection of cars, and a constable, mounted or dismounted as the case may be, with each patrol.

(5). The first thing he must do is to secure the gates; he must then take his main "shaft" of infantry through the city roughly on the line dividing the two belligerant communities, dropping piquets at cross-roads with orders to patrol systematically towards each other and outwards to the gates.

It is always surprising to me to find how small an area these walled cities cover, although they contain a labyrinth of narrow streets and alley-ways. Within a few minutes of getting the "shaft" through, any organised fighting has been found and stopped.

(6). It must be made clear to the troops in the initial orders that if any man tries to kill them they must be sure to kill him or bring him in prisoner. The best of troops need this word of encouragement and it is the surest way of suppressing riots with the minimum of force and all round casualties.

(7). Finally officers and non-commissioned officers need to be reminded to jot down at the earliest possible moment the names of their prisoners and details of the crime they have been committing.

It is most embarrassing to find oneself in court a few days later unable to remember whether a particular accused had been found committing murder, rape, larceny, merely theft or minor violence.

Illustrations of lessons learnt.

(1). *How the country population can be the cause of disturbance in the cities.*

On Easter Sunday morning in 1920 those of us, who had been to early service and had been breakfasting in the hotel by the Jaffa Gate of Jerusalem, saw a procession of fine-looking Moslems coming slowly up the hill chanting and dancing.

Enquiries elicited that this was a pilgrimage of Hebronites *en route* to Ain Musa, the tomb of Moses, to let off a little religious enthusiasm as a simultaneous celebration of a big Christian festival and holiday. I was assured that it was quite normal. The fact that they were all brandishing sticks and knives could be understood as part and parcel of a sound militant faith. They stopped at the big open space inside the gate and listened more or less attentively to an address by an elegant gentleman in a *tarbush*, mounted on a grey Arab pony. After the address the dancing and singing became even more energetic and vociferous when suddenly a number of whistle blasts were sounded. I cannot say how many of these came from Political leaders and how many from the Police. All I know is that the mob rushed down the main street into the city belabouring and knifing every Jew they met.

There was no telephone in the hotel, and I did not know that the Green Howards were at matins near by in the Armenian quarter. There was nothing to do but go straight through the mob with two brother officers to the nearest cab rank, and send them to order the battalion to "stand to," whilst I reported to the Brigade Commander.

This distinguished and capable officer took my report as all such reports should be taken. We discussed the boat race and other matters of moment until the inevitable telephone call came. The Military Governor gave him the situation in a few words, and the Brigade Commander then called up each of his Unit Commanders in turn and simply told them to put "Plan B" into effect. This plan meant that the 20th Punjabis were responsible for the outer cordon, the Green Howards for the gates, whilst my battalion were to take on the "ratting" inside the city itself.

When my two companies in readiness had arrived it did not take me long to get the main 'shaft' through Jaffa Gate—Muristan—main

cross roads—Turkish baths—Mosque of Omar. This, with patrolling outwards to the Gates, immediately cut the city into its four quarters, and by early afternoon the bulk of the Hebronites had been handed over in the Police station, the casualties had been collected, and the streets were quiet.

(2). Urfa in 1919 quite spoilt me for internal security duty elsewhere, for the local Turkish Government was in far too difficult a position not to have to rely on the British garrison for help. The *Mutasarif* was worried by the numerous instructions he got from Constantinople, which did not agree with those he was receiving from the British Government through me. Mustapha Kemal was organising nationally at Angora and the *Mutasarif* was possibly somewhat at sea. He had to try and maintain law and order in his *sanjak* with his gendarmerie considerably reduced, and his own Turkish 1st Lancers unavailable, as they had been pushed on by us to Severek.

He therefore had to come to me with most of his troubles, and I only had to keep my eyes skinned for any form of treachery, of which I had ample warning in G.H.Q. Intelligence summaries. These reports implied that Kurdish or Arab tribes with Turkish encouragement might try to push me back over the Euphrates, or besiege me in the same way as eighteen other British garrisons in Mesopotamia were besieged that year, and as my unfortunate French relief in November 1919 were treated. The latter capitulated after 60 days and were massacred.

The *Mutasarif* and his staff soon became very friendly especially after we had made attempts at conversation without interpreters present. I soon learnt that there were two stories to the local history, and although the town was noted for Armenian massacres, these had been greatly exaggerated, and the Moslems quite admitted that Christian business men were just as necessary to them as Hindus in the North of India or Jews all the world over, and they only felt incensed against them when economic conditions became too trying.

Prices had been high in the city and the *Mutasarif* attributed this not so much to profiteering but to the incessant raiding of market produce on its way to town.

I could not go scouring the country side for nomadic tribes so I had to wait until they gave me a chance. On the 15th June I saw the village of Chamouli in flames from my window, only eight miles away,

and the road to Urfa crowded with peasants followed by retreating gendarmerie. The *Mutasarif's* Secretary brought me an ideal report to the effect that the Jais Arabs advancing from the South East had now pillaged twelve villages, that the Gendarmerie could hold them no longer and would I, please, deal with the situation.

The inlying piquet, consisting of one armoured car—(I only had two)—and two platoons in lorries, was sufficient to drive the Arabs out of Chamouli that night, and put out the fire. At 02-00 hours on the 16th I moved with two small columns, one mobile (two L. A. M. B. cars and six lorries packed with M. G. and L. G. Secs.) and one of Infantry (six platoons) marching in support. We surprised the most forward Jais camp at day break, and bundled the Beni Muhammed Chief into a lorry. The further camps struck with amazing rapidity and were soon fighting a mounted rear guard action. I called off when my armoured cars were held by a defended stream, and an aeroplane, which I had asked for from Muslimiyah, came and helped me to disengage.

A "Claims office" was opened at once in Urfa, into which the inhabitants of the pillaged villages poured with extravagant bills. My adjutant and a flying officer picked up the location of the various chiefs from these visitors very quickly, and messages were dropped from the air at camps and villages warning individual sheikhs to come in to Urfa under penalty of bombing.

By 03-00 hours on the 19th the last of the five chiefs of the Jais was having coffee with me in my room, and explaining that he had no idea the British objected to local disputes, as he called them, and that he had £200 in Turkish gold and ten horses for me if I would like them. With the help of a political officer £1,800 Turkish gold was recovered from the five tribes for the twelve villages before the sheikhs were released.

Market prices then fell 30 per cent. and we had no more trouble, communal or otherwise, in the city or district, and were able to devote ourselves to the housing and feeding problems arising from the crowds of refugees of all classes who elected to make for sanctuary in Urfa.

The danger of prematurely withdrawing troops once the city is quiet.

If all goes well the first day on which troops help to restore order in a city, they should not be withdrawn entirely for some days,

possible for about a week. It takes time for tempers to recover. If the troops have done their work well, the inhabitants' initial fears change first into curiosity and then gratitude for the peaceful conditions they have brought. Naturally, it is very necessary for the civil and police authorities to take over control again as soon as matters are back to normal, but one fatal example of premature withdrawal will be given.

By 16-00 hours on Easter Sunday 1920, Jerusalem was quiet and our arrangements for enforcing curfew so complete that the Brigade Commander and I were able to visit the Military Governor and Minister for Public Security to ask them their opinion on danger points during the night. After considerable discussion of several aspects of the trouble we were told that nothing must stop the market produce coming in at day break. We were asked to withdraw all troops by 06-00 hours Monday, as they might frighten the farmers from coming in.

The Brigade Commander was very surprised, but complied. At 06-00 hours I telephoned him that the city was clear of troops, and he replied ordering me to hide a couple of platoons somewhere convenient as he was sure tempers would still be running high. I had not begun to shave in my billet before news reached me that the Hebronites under police escort had marched through the city, broken out, and were in full cry in the Jewish quarter. Martial law was proclaimed at once, we hurried to our original posts, and although we managed to stop all activities such as murders, incendiarism, rape and looting by Tuesday afternoon, we had to be much more drastic than on the Sunday and we could not even begin a gradual reduction of troops on duty for a fortnight.

Controversial topics in connection with internal security duty.

(1). No town and no situation is ever quite the same. The communal disturbance cannot take place unless some normal arrangement has gone wrong. It is only by learning your city and its authorities that you can hope to tackle it with confidence. It does not matter how many instructions or rulings are issued for guidance based on experiences elsewhere; you are pretty sure to bump into some situation which has not been legislated for.

These notes are only written in the hope that they may help others to remember that the trouble comes unexpectedly. It is no use

hesitating; and there is a general amnesty for all who have done their best quickly in good faith, using the minimum of force. There is a great tendency to make rather heavy weather of a simple job, especially if fellows let their initiative and common sense be submerged by cloudy recollections that they are going to do something that is not quite in accordance with something that has been laid down somewhere.

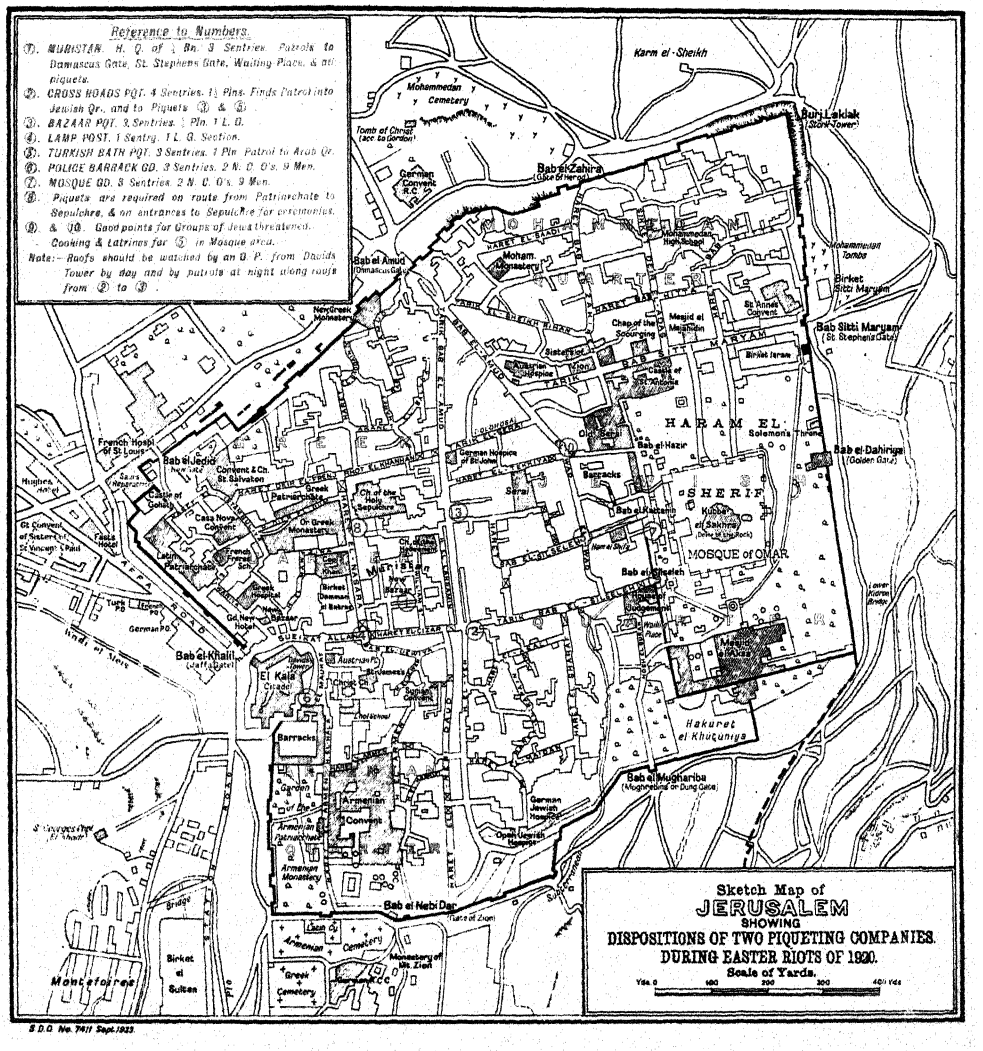
(2). I have been surprised to hear officers saying "Well I've told my men never to get within a hundred yards of a mob" or "I certainly won't distribute my battalion inside a city in smaller parties than a platoon." This merely shows they have not visualised what happens, and have not explained to all ranks not only their right to defend themselves, but their ordinary duty as citizens.

Patrols under an officer or N. C. O. from a good battalion are quite capable of stopping, (and often have stopped,) a roaring mob, or dealt with a house that has fired on them.

(3). It has been so strongly impressed that troops must be used as such in an entirely different way to police that many seem afraid to help the police out when they need it and ask for relief. My experience has been that by the time one has had to get busy in a walled city the police have been on their alarm posts for 48 hours or so and have had a rough time. They are tired men. The quickest way to get them fit for duty again is to respond at once when asked to relieve them of piquet and patrol duty, so that the majority can rest for a night or so, while only those necessary as guides, arresting authorities, and traffic control remain at their posts.

(3). Since the regrettable incident in Peshawar in 1930, when armoured cars were burned in the city, great hesitancy in using them prevails. The orders are that armoured cars are not to go into narrow streets, where they cannot manoeuvre, nor are they to get mixed-up with the crowd. In the light of these orders very thorough reconnaissance is necessary before armoured cars can be ordered into a walled city. Yet it is most desirable that they should be used down main arteries.

When troops have to enter the city either the streets are empty save for a few scurrying armed individuals and odd missiles, or packed with innocent persons through whom one must press without hurting them. Under both conditions a sub-section of armoured cars proceed-



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ing in low gear closely supported by the piquetting company is far the best formation in which to establish the "shaft." A mere hooting touring car is a poor substitute.

(4). British and Indian troops should not get mixed, but it is extremely easy to lose one's way inside cities and be out of touch with what is happening. This has led to discussions as to what is to happen when the Indian officer and the British sergeant find themselves together faced by a mob. The Indian officer can fire to disperse it, the sergeant can only fire in self-defence. An illiterate trans-border Indian officer's solution delighted me. His answer was "I should say 'Sergeant sahib, five rounds'!".

THE RECRUITMENT AND INITIAL TRAINING OF RATINGS FOR INDIA'S NAVAL SERVICE.

By " R. I. M. "

India's Naval Service to-day is the Royal Indian Marine. This Service, for a period of over three centuries under various names, has proved itself a very valuable asset to India and the British Empire in Eastern waters. The efficiency of any Navy must be gauged by the competency and morale of its personnel; no excellence of design, high speed or most modern armament can mitigate a lack of these two vital factors. It will therefore be of interest to examine by what means high tone and capability can be introduced and maintained in the Royal Indian Marine. There are many points which have an important bearing on this problem, all of which must be carefully examined; in the first place we must determine what material is available for our purpose; secondly, whether such material can be trained to fulfil that purpose.

In considering a sea service, it would be unwise to look for parallels on land. Though the Army is faced with a somewhat similar problem in obtaining its personnel, the environment of a soldier throughout his service is almost entirely spent on his natural element, the land, whereas a sailor must accustom himself to a life, limited to the confines of a ship, restricted and isolated by the sea. For service at sea, the personnel must be caught young as it is only by actually growing up in ships that men can be brought to look upon the sea as their calling, and their ship as their home; by being so brought up to ship life from their youth they will cheerfully undergo hardships and privations that would deter an older man.

It must therefore be the duty of any Maritime Nation, in order that there may be no lack of those willing to go to sea, to stimulate the interest of its population in sea life, and make such life attractive to its youth. Certain nations are more fortunate than others in this respect. Those who, through the centuries, have had large seagoing populations find no difficulty; others, who in the past, have neglected intercourse with the outer world or who have been content to use the facilities for trade offered by other seafaring nations, find the problem more difficult. For a Naval and fighting service, however, a nation must not only obtain youths who are willing to make the sea their

profession, but it must also find types which have martial instincts, who are able to receive technical instruction in the art of war and who will submit themselves cheerfully and loyally to rigorous discipline. Such material can only be produced if recruited young and given systematic and progressive training from the time of joining the Service.

How, then, is India placed in this respect? Can such material be found, and if so, where? Let us see how the problem has been tackled, and with what success.

Turning back to past history we find that when the ships of the John Company first visited Surat, their crews were entirely British, but it appears that soon after a permanent fighting Squadron was formed, a proportion of the crews were Indian. It is interesting to note that in the eighteenth century certain ships of the Royal Squadron in Eastern waters were partially manned by Indians. The "Monmouth" which fought so doggedly under Hughes in action with "Suffeen" off the Coromandel coast, carried a large percentage of Indian seamen, and small sailing craft of all sorts of the Bombay Marine were in many cases manned entirely by Indian personnel. Most of these men came from the Konkan and Surat Districts on the west coast of India where the best deep sea seamen were to be found. They were of a mixed strain—partly Maratha, partly Arab—and some claimed an Abyssinian descent. During the eighteenth and nineteenth centuries, men of these races were impressed for service by the Maratha pirates.

Up to the Great War, the supply and quality from these districts met the requirements of the Royal Indian Marine. During the War, the large calls made by the Indian Overseas Expedition, plus the increasing demand of the Mercantile Marine, caused the whole area to be heavily over recruited, as the result of which a rapid deterioration in physique and stamina of recruits caused a serious shortage in the personnel of the Royal Indian Marine. In 1928, when the re-institution of the Royal Indian Marine as a combatant service was in progress, a careful examination was made of the Indian seaboard with a view to finding a recruiting ground which would meet the more exacting requirements of the Service.

Ultimately it was decided to investigate the Northern Punjab with a view to recruiting a type well proved in military service. It

was considered that if boys from this District were entered young enough and given a thorough Naval education in the Training Ship at Bombay, it should be possible to produce excellent young seamen for Naval service. It was not intended to abandon entirely the west coast of India as a recruiting source, but it was made clear that, in future, recruits would have to comply with the new physical and educational standards which were necessarily high.

Considerable ' spade work ' was necessary, as outside the Konkan and maritime cities, the Indian Marine was very little known. As a beginning, a small batch of *Punjabi Mussulmans* of the average age of 16 years was recruited in Bombay, and proved to be excellent material, being of good physique, keen, and intelligent. Six months later, all parts of the Punjab were visited by an organised Recruiting Party from Bombay; the best response, however, was found in the extreme Northern Punjab where recruits came forward in large numbers. Great assistance was given by the Civil and Military authorities. Since then, recruiting tours have been carried out by Indian Marine Officers in accordance with the requirements of the Service, with the most encouraging results. The boys themselves, returning home on leave have proved to be the best recruiting agents; their rapid development, both mental and physical, has demonstrated to the people of the Northern Punjab that the Royal Indian Marine training produces a type of which parents may reasonably be proud.

The method of recruiting differs somewhat to that of the Army. The Recruiting Officer is always one of the officers of the Training Ship; he, with his staff, personally visits specified places in the area, varying his itinerary slightly from time to time. This has proved very valuable as it has the great advantage of acquainting officers with the general conditions and home life of the boys and men joining the Service. Furthermore, the selection of recruits, subject to prescribed standards, is in the hands of the officers who not only will have to instruct them in the Training Ship, but who, later, will be serving with them afloat. By this means a strong bond of mutual trust and confidence is formed, generating a spirit essential to Naval life.

In the Royal Indian Marine, the first 18 months of a boy's training is spent on board the harbour training ship "Dalhousie"; during this time short sea cruises are carried out in the seagoing tender "Baluchi". A boy's general education is given prominence in

recruitment and during the whole of his early service. Since the reorganisation of the Service in 1928, it has been found that an illiterate rating suffers a very severe handicap, and the standard of education demanded of recruits is therefore high.

It may be of interest to follow briefly the order of events in the Service life of a boy from the time he is recruited until he is rated Ordinary Seaman, or its equivalent in other branches.

The Recruiting Officer, having notified the Civil and Military authorities in advance, on arriving at a village carries out a preliminary inspection of all applicants, a large percentage of whom are usually of the required standard. He selects a number for the medical and educational test, which is carried out on the spot by the Recruiting Staff, and addresses them on the life at sea in a Naval Service, stressing the more unpleasant features. He then proceeds to select the required quota. Those who are finally selected, having produced their parents' consent, take the Oath of Allegiance, and are enrolled for a period of six years from the age of 18. When on duty the entire Recruiting Party invariably wear uniform.

At the end of the Recruiting Party's tour, all successful boys muster at a central point, such as Jhelum, whence they are despatched to Bombay in charge of the Recruiting Staff. On arrival on board the "Dalhousie" in Bombay, they receive a nucleus uniform kit. The "Dalhousie" carries an instructional and scholastic staff, and boys are organised into terms named after famous British Admirals. The terms are usually 30 to 40 strong, and each term is a self contained unit under its own officer.

The total period of boys' service is two years, the last six months being at sea with the squadron. The initial six months in the training ship are devoted to general training, the elements of seamanship and discipline. A regular curriculum of education in general subjects, including English, is carried out during the whole period in the training ship. All training, both technical and educational is co-ordinated by the Training Officer under the direction of the Captain.

The environment at first is naturally strange to the boys from up country as many have never before seen the sea. The process of settling down, however, does not take long, and before two months are over, with the rarest exceptions, all are making good progress. Each term has its own boy "Petty Officer" and "Leading" boys, so that a sense of responsibility and power of command are learnt at an early age. After six months' general training, the boys are called

upon to volunteer for the branch of the Service,—Seaman, Stoker or Communications—which will be theirs for the whole period of their service. They, then, though remaining in the Training Ship's general organisation, receive instruction in the various training schools situated in the Dockyard. Seamen boys go to the Gunnery School; Stoker boys to the Stokers' Training School or Dockyard Workshops, and the Communication Branch to the Signal School for instruction in Signals or Wireless Telegraphy. Physical training and games play an important part in the general training. Rations are good, the development of boys is rapid, and the first seeds of morale are sown.

Boys who have made good progress, are, on completion of one year in the Training Ship, granted one month's special leave to their homes; this concession is very much appreciated as short leave in Bombay is necessarily rare. It is a great pleasure to meet these boys in their villages and to note their bearing and conduct. They are one and all proud of their Service and their uniform.

The final six months in the Training Ship are of great importance as they are terminated by examinations in which boys qualify for their rating as Ordinary Seamen, or its equivalent in other branches. Many of those about to leave hold unofficial rates as Boy Petty Officer or Leading Boy, and the general tone of the Training Ship is largely in these picked boys' hands.

At last the great day comes when they are to be drafted to their first seagoing ship afloat. Their uniform is now complete, finally inspected and their kit bags are ready to be passed over the side into the waiting cutter. They are fallen in on the Quarter Deck to hear what the Captain will say regarding their past 18 months' training, and their future. He does not dwell much on the past, but does show them that they have been trained with one object in view and that is, to go to sea in India's ships as boys of whom India and the Empire may be proud. He points out that only by unswerving loyalty to their King and Service and high sense of discipline can they prove themselves worthy to serve under the White Ensign.

It is a ceremony which I have had the privilege of witnessing on several occasions and one which I feel sure would breed confidence and pride in any onlooker. The bearing of the boys is alert, they are in the pink of condition, eager, bright-eyed; they have passed the threshold now and are about to enter upon a life in which they will be tried to the utmost, their morale and stamina put to the test,

THE PERIMETER WALL.

By Lt.-Col. H. S. I. Pearson.

Much has been suggested and experimented with in order to obtain greater mobiliy on the Frontier. The main conclusion reached as a result of experiment last year is that the best method of increasing the mobility of the soldier in order to enable him to compete on more equal terms with that most mobile enemy, the trans-border tribesmen, is to adopt the policy of " move light and sit heavy." The two main objects of this policy are to lighten the load carried on the man, and to dock the tail of a column by decreasing the amount of transport hitherto considered essential. Both of these objects have undoubtedly to a considerable extent been achieved, and increased mobility is apparent both in the case of the soldier on the hills and the speed of the column in the valley.

This article is wirtten with the intention of considering whether it is not possible to utilize the two degrees of mobility mentioned above in order to obtain yet a third degree, the lengthening of the day's march. The normal day's march off a main road unopposed or against mild opposition has been proved by experience to be from 8 to 10 miles.

The two main factors, apart from hostile opposition, which restrict the length of a march are :—

(*a*) Piquetting, and

(*b*) The necessity of arriving in Camp with sufficient hours of daylight in hand to build a perimeter.

(*a*) Piquetting will be with us as long as Frontier Warfare exists and need not be considered except in so far as to mention that the lightening of the load carried by the soldier has undoubtedly speeded up piquetting to a marked degree.

(*b*) The construction of a perimeter camp has been a feature of Frontier Warfare since the early days of this form of warfare. That it was absolutely essential in the past goes without saying. It is suggested that the time has come to consider whether the continuance of this form of defence is worth the loss of mobility, labour, and fatigue to the soldier involved.

Why do we build a perimeter camp ?

The answer seems to lie under three headings for protection :—

(*a*) Against an assault on the camp.

(*b*) Against the Sniper.

(*c*) Against the rifle thief.

Enquiries from individuals experienced in Frontier Warfare have disclosed a doubt as to whether the tribesmen will ever again carry out an assault on a column camp. That he adopted this method on occasions in the past was due in the main to the paucity and inferiority of his firearms, and a consequent tendency on his part to come to grips with the sword and knife in the use of which he was an expert. Other factors which encouraged him to attempt to close were the lack on our part of automatic weapons and means of illumination, and the inefficacy of rifle fire in the dark. Analogous situations were the charge of the Zulu Impis at Isalndwana and the Dervishes at Omdurman, armed with the spear, whose only chance of victory was to close and fight on equal terms.

The increase in efficiency and number of rifles in the hands of the tribesmen (which tends to make him fight at a greater distance), and the increased stopping power of the modern column due to Automatic Weapons, Very Lights and Grenades make it doubtful whether the tribesmen will again stake his all on a night assault on a column in Camp. But the possibility remains that he may do so, and we have now to consider whether the perimeter camp is the most efficient method of protection against this form of attack, or whether another form of protection may not be equally or more efficacious without possessing the disadvantage of expenditure of time in construction and consequent loss of mobility.

The night assault depends almost entirely on surprise and the ability to approach within assaulting distance of the perimeter undetected. Once this is achieved it seems to matter very little whether a perimeter exists or not as the latter offers practically no obstacle to an able bodied man. The very nature of the perimeter, with no outlying defences apart from the camp piquets, facilitates an advance covered in many cases from the view of the sentries; while the enemy is emboldened by the knowledge that, once his job is done, he can make his ' get away ' with no fear of encountering further opposition on his line of retreat. If these arguments are accepted, then it follows

that the perimeter is of very little use against a night assault and from this point of view seems not worth the time sacrificed in erecting it.

On the other hand the construction of a ring of small posts round the camp, the strength and numbers depending on the ground and size of the camp, appears to offer adequate protection against surprise. If these posts are further strengthened by night lines of machine gun fire the attacker would be confronted with a formidable barrier on his line of advance and also on his retreat, supposing his assault had penetrated the defence. The erection of these posts and the construction of lying down head cover immediately round the camp, if considered necessary against any shooting by the enemy before his assault or to demarcate a line of defence, would occupy a very small portion of the time necessary to build an efficient perimeter wall.

It may be taken that the construction of an adequate perimeter seldom takes less than four hours. The construction of the defences suggested instead of a perimeter wall would take an hour to an hour and a half. This means an increase in the time at the disposal of the Commander of a Column of from 2½ to 3 hours, or an increase in the day's march of about five miles, a substantial increase in mobility.

It should be clearly understood that these suggestions are only intended to apply to camps of a column engaged in active operations, not to permanent camps on lines of communication where the perimeter and wire enable a smaller garrison to be maintained and into which the question of mobility does not enter.

(2) and (3) *The Sniper and the rifle thief.*

I think it will be agreed that the perimeter wall affords very little, if any, protection against the sniper. He delights to drop his bullet at as great an angle as possible into the camp and therefore snipes at a reasonably long range in order to attain his object. The method of digging down within the camp has been found to be the most adequate form of protection against this annoyance.

To the rifle thief, the perimeter affords little obstacle, but the fact that he has to surmount it undoubtedly increases his chances of being observed and it therefore affords considerable protection against his ingress.

To sum up briefly the points for consideration are :—

(*a*) Are the advantages derived from the construction of perimeter camps in the present form sufficiently strong to warrant their further retention in the future ? or

(*b*) Are the advantages of enhanced mobility and the saving of fatigue to the troops, which will be derived from the discontinuance of the perimeter wall, sufficient to outweigh such virtues of passive defence as it possesses ?

THE LEGEND OF BARIDZAI.

By " Jamshed ".

In the days of The Great Heartsearching the King's heart was troubled, therefore he summoned the Pirs to assemble unto him at Ihled, the Great City of Roads, and the King commanded,—

" Give Ear. Are not my young men of War apt in all the exercises of the Arena ? Have I not spent much treasure even to all the treasure in mine house that their panoplies should be of The Latest, yea all those things which The Wisemen of The West declare are proper thereto ? Yet now The Civilites mock, saying The Young men of Thy Household ! They cannot talk in our gates with the young men of Kohistan. Resolve me therefore ye wise ones if this be so how this reproach may be removed."

Then the Pir of Baridzai, and he was an old man whose years were long in the land, made answer,—

" Oh, Great Lord of War, it is so and chiefly becos' the youngmen's minds are darkened with false suppositions and perverse practices. Verily this reproach shall not be removed until thou hast endued them with a new faith. Now therefore I pray thee purge their minds of all reverence for the burnt offerings of The Westernfront and all seekings after The Fleshpots of Flanders, yea even those of Syria and The Later Mesopotamia, and make for them a doctrine such as our fathers believed. As the creed for this doctrine teach to them : We Believe,—The soldiery which cannot on a basis of equality outmanœuvre and outfight the Wildmen, yea, even in their own mountains, deserts or forests, lacketh training.

The Wildmen be wily and fierce yet it is ever their country which to us is more formidable than their men.

Whosoever endeavoureth to cover his lack of skill in the use of material by increasing its mass, he shall waste his substance to little profit ; such prevail not against the Wildmen.

The Presence of Superfluous Power, yea even at the Decisive Point, is proof not of Wisdom but of Waste.

If the strength of our foe be geographically dispersed, and he be naturally prone to individualistic objectives, then must the power

which we devise to meet him be capable of The Maximum of Dispersion. Since none but The Almighty Spirit can be in two places at the same time the essence of Dispersion is Numbers. The limitation of Numbers is Cost.

When the young men draw together in leaguers, or otherwise congregate for a period, then is much care required lest they be smitten with pestilences, particular so if the period be long and the watching devoid of profit.

When however the young men move daily over the mountains to fresh ground, then can they, and the Elders of the Tribes drink of the streams thereof, even quench their thirst at the ponds and very cesspools of the country, and their bowels shall not be troubled, save there be natural salts in the waters of the land ; so also will they take no harm if for a period they have no canopy by day or night except that of Heaven. If they have by daily measure two pounds of flesh and flour and of drink sufficiency in accordance with the temperatures then shall we find men, Fighting Fit even at the end of thirty days, though they move many leagues daily over the mountains. These things be true for all the Tribes of Atkinses, as for the tribes of the Outer Realm they will think they have fared sumptuously.

The Underestimate of an Enemy cometh from folly but his Undue Exaltation out of ignorance and cowardice.

Conforming to The Enemy is Weakness but in Learning from The Enemy is Wisdom.

From the offering of Battle may come profit but from The Forcing thereof cometh Success."

Having hearkened patiently to the words of the Pir, The King's Majesty decreed :—

" Belike whosoever shall rightly and faithfully believe this Creed to him shall riddles such as this riddle of Kohistan be no riddle and his slumbers shall not be vexed by visions wherein The Dogs of War are wagged by their tails. Nevertheless to the further confirming of faith and for the edification of the young shall the Pir of Baridzai write for me thereon a catechism, which shall pertain peculiarly to this matter of Kohistan."

The Pir of Baridzai made obeisance and answer saying " Great King I am Thy servant ". Having returned home and pondered awhile he wrote :—

The Catechism for Kohistan.

Q. 1 What understand ye by Mobility ? A matter of diverse forms but in essence Ability in War to reach all necessary places. Among mountains therefore is the mule more mobile than the motor and man more mobile than the mule. Note how the hill folk when they would move secretly and swiftly, as in war, use for porterage not their oxen, asses or camels, tho' they often be many and very apt in the passage of steep and rough places, but their elder women and boys.

Q. 2. What know ye of vallies and ridges ?

A. I know that every ridge commands two vallies, while each valley is dominated by two ridges. Further that in hill country the shortest approach between two points lies commonly along the crest of ridges ; therefore do the hill folk make thereon the highways of daily life and do, naturally, use the same in war.

Q. 3. There be some who believe that the men of Kohistan are possessed of Devils, and so can ascend more swiftly than birds from the valley bottoms to the hill tops, and thus they are able to smite our soldiers grievously in the rear. Do you believe this ?

A. Nay, they are mortals and this is but a seeming ; sometimes it is that they have lain hidden close below knowing our young men will not go down beyond the crest line ; more commonly because in steep and winding glens one strolling along a contour can appear suddenly far above one who has run fast along the winding stream line and this seemeth to the runner a miraculous climb from his level, the more so since the short contour lines are often for a long space dead to both Piqueteer above and Rearguarder beneath.

Q. 4. What think ye about Fire and Movement in Kohistan ?

A. When a foe is weak in material there is no profit in dawdling around collecting superfluous fire power while he expends such amount of his material as appears good to him before moving off. The text then proper to the heart of everyman is " Gallop 'em.' Gallop ' em ".

If a foe be wily and agile then must we be quicker or cleverer than he to get value for material expended.

Fire one round at a Kohistan before he see thee, then even though thou miss him and inwardly he is glad, blessing Fate, yet will he respect thee greatly; plain for all the world to see plaster the hill sides prophylactically with a ton of lead, then even though by Fortune ye slay one or two will the whole parish laugh and the tale of thy ineffectiveness spread across the hills.

Q. 5. It hath been written that the warriors of Kohistan will slay a foe at five furlongs if he show but his head, moreover, if their foe deviate by a fraction from Perfection then will every Kohistani within reach instantly and collectively take advantage thereof. What think ye?

A. Things difficult to believe.

We know that we have eyes, not dissimilar to theirs and ears to listen to the Voice of Instruction, together with much time and material for practice, and yet the most skilled of us find it difficult to "Keep on The Bullseye" at half the distance on a Faire Butte, and that Intelligence, Initiative and Co-operation are things hard of attainment. How then should the ill-provided, untutored, and ill-organised attain to such skill unless indeed there be some in Kohistan with a power as wonderful as that of any Wizard in Our Fairy Tales. It would be worth the while of any King to pay a King's Ransom for the Secret, yet no Kohistani has been known ever to profess to such power, and they are an avaricious folk. It is therefore easier to believe that the alleged facts are the illusions of those too blind to see from whence they are really being Shot up or too careless to recognise how often it was a case of A Gift but, No Takers.

Q. 6. It has been taught that since the forces of Kohistan have no Lines of Communication they cannot be forced to Battle.

Do you deem this truth?

A. Nay, though it is a plausible heresay.

It is true that their Ordinance is so meagre that often individuals carry all their echelons thereof upon the man,

and their Supply Service so embryonic that it is impossible for them to concentrate for long any great proportion of their fighting strength. Natheless Kohistanis have bellies to be filled and bodies to be kept warm, therefore the observant may note even within sight of the Camp Picquets, the torches of the women's convoy, the hearths still warm, and the furrow turned against the next sowing, the Bold and Inquisitive may find the grain, and even the ammunition box cached beneath the floor, or in the side nullah, and they be permitted to move more rapidly and less formally than The Lord-Mayor's Show, the flocks and herds just round the corner. Touch such things effectively and if ye get not your bellyfull of fighting ye will, as elsewhere, win quick surrender.

Q. 7. There be many who hold that with these Chariots of Fire that move swiftly over the ground crawling like caterpillars through the uneven places we may so girdle the Hill Folk that the realm have peace, and many of our youth, saved from the risk of sweat and wounds, live productively. Do ye so hope?

A. Truly these with those which fly like falcons be engines of great power, and have their uses, but for diverse reasons we think they will not alone 'Fill the Bill.'

Take heed particularly they are costly. The Hill Folk are weak in material but numerous and elusive, therefore in the concentrated power of these engines is ever inherent the risk of Superfluous Power at some places, while in their Cost through Limitations of Numbers, and consequent low Power of Dispersion that of the lack of adequate strength at another, results contrary to our Creed.

Q. 8. What then would you make the basis of the Ordering of Batailles in Kohistan?

A. Firstly that there be a sufficiency of footmen, and they mentally and physically capable of operating on Their Own; equipped with such things only as can be carried readily by man across the mountains.

Secondly that when the expediency of joining ought else to them is considered the matter be determined strictly on the principle that it addeth to the Offensive Power

of the footmen in a measure necessary to their task. That a thing increases protection to the Footmen shall be deemed of small account; that it must be protected by the footmen one of much moment.

Q. 9. What deem ye the Moral Graces which should sustain the soldier for Kohistan?

A. He is not mentally oppressed by the Mountains.

He desireth to act justly on his own not craving the constant countenance of overseers.

He feareth not the Darkness believing that though Daylight favoureth the more skilled at arms, Night helpeth the stouter-heart.

He feeleth that the warrior who in aught hath sufficiency hath abundance.

He believeth that the Kohistani attacking is A Gift to Skill at Arms, but the Kohistani attacked unprepared is indeed Easy Meat.

Q. 10. By what outward signs may ye know of this moral Grace in the Young man.

Assigned a task he moveth with alacrity and pursueth it without constant direction by the centurions.

In the dark he handleth his equipment with precision and moveth silently.

He noteth all that moveth within four furlongs of him.

He expendeth not his missiles until he seeth his enemy, or is otherwise assured of his position, and then useth them justly.

In ascending and descending of hills he choseth readily the fittest way.

Though starting before dawn he has moved over the hills until the tenth hour of the day, he still with zeal will ascend a thousand cubits to clear The Wildmen from a hill top, and directed to lie out thereon he merely grouseth in the proper measure.

So long as there be fighting he craveth of meat and drink only sufficient to keeping him going.

Q. 11. Though Moral Grace will prevail over material difficulties, by what material aids would you seek to increase his efficiency ?

A. We should so endeavour that,—

He is shod with cotton or with crepe and not like our draught bullocks with iron, lest more clumsily than a bullock he stumble on the hills by day and crash along the nullah at night.

Naught in his equipment, swinging lose impede him ascending, descending, or crawling among rocks, or constrict ankle, knee or chest.

His vestments be woven of the hair of sheep or goats and not of cotton, so that he chill not on the hill tops, also in the days of rain a surcoat which will keep those vestments dry.

He carry an arme blanche wherewith he may meet a skin coated six foot man, wielding a three foot knife on fair terms.

Q. 12. What Hopes have ye for those who believe and practice our Faith ?

A. Surely they shall toy with the young men of Kohistan, and if we need them elsewhere then shall we still find our Young men Bold and Inquisitive, and our Elders apt in applying material truly to The Offensive.

LETTERS TO THE EDITOR.

Battalion Reorganization.

Sir,

It is suggested that the present tendency is for a battalion to become increasingly overloaded with a multiplicity of weapons and specialists, and as the responsibilities of a battalion commander, both for training in peace and fighting in war, are of greater complexity now than ever before, it is for consideration whether some simplified form of organization could not be evolved.

It is thought by some that " support " battalions might be introduced, and that the infantry battalion should consist only of rifles and light automatics, but this is open to two major objections. In the first place decentralisation would be necessary during operations, and consequently the infantry battalion commander would have to deal with just as many subordinate commanders—who would attend conferences and receive verbal orders—as under the present organization. The problem of command would not therefore be simplified; it would in fact be complicated by lack of mutual knowledge and combined training. Secondly, in order to meet the difficulties inherent in trooping and drafts, it might be necessary for both battalions of the same regiment to be converted simultaneously into " support " battalions. Further this organisation would not suit conditions of service abroad in that " support " battalions might have to remain permanently at home, with the consequent disadvantage that a class of soldier would develop without experience of foreign service.

Under the present organisation an infantry battalion commander may be accompanied by as many as three rifle company commanders, a machine gun company commander, the anti-tank and mortar platoon commanders, the intelligence and signal officers, possibly attached R. A. and Tank officers, and his adjutant. Each of these would in turn be followed by an orderly or runner and, as six subordinates is the accepted maximum with whom a commander should have to deal direct, some measure of reorganisation seems indicated.

It is, therefore, suggested that an infantry battalion should consist of three main divisions consisting of Rifle, Support, and Headquarter Wings. The first two would be commanded by field officers and the latter by a captain. Under this organisation, which is shewn in the attached diagram, the position of an infantry battalion commander would be analogous to that of an artillery brigade commander. He would train, administer and command his battalion through his wing commanders, whose powers and responsibilities should be proportionately increased. Under such an organisation the battalion is capable of any degree of centralised or decentralised employment that may be necessary. It has, moreover, the great advantage that the various arms composing a battalion can train and work together, while the battalion commander would be relieved of much administrative detail and would thus be free to concentrate on training and fighting.

A periodical turn-over is essential in order to ensure the maintenance of at least a partially trained reserve. A permanent fixed minimum could be decided upon and such personnel would remain throughout their service in the support wing, the remainder being turned over periodically. A certain number of soldiers, for one reason or another, would never serve in the support wing, and their numbers could easily be made to balance the permanent fixed minimum referred to above.

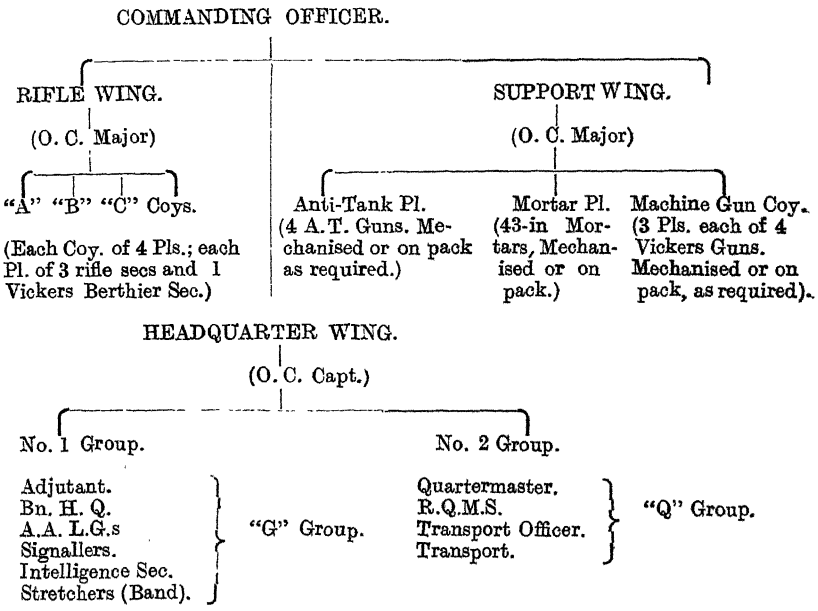
It remains for consideration whether this organisation would add to the present difficulties of the trooping question. Vickers Guns and Mortars, which at present only exist in theory, would certainly be required abroad, and with slight modification these could be carried on pack. As regards anti-tank guns these may or may not be required and, if not, then the personnel manning this weapon at home could serve abroad in the rifle wing. In peace they could be made to represent these weapons on training, and on mobilisation they could form part of the first reinforcements left at the base. Should it be necessary for A. T. Guns to be employed, the personnel and organisation to receive them is available.

The Cardwell system remains unaffected by these changes and drafts of soldiers from both the rifle and support wings would continue to be sent abroad and could serve in either wing as required, subject to the permanent fixed minimum and periodical turn-over.

In conclusion, it is realised that no scheme can be ideal in all respects and, if it is agreed generally that the present organisation is not satisfactory, then the above suggestions are put forward, in bare outline, with the object of stimulating thought on this subject. It is claimed that the scheme has the advantage of lessening the difficulties of command from the infantry battalion point of view in regard to training, fighting, and administration. It should simplify tactical handling, and at the same time tend to maintain a reasonable standard of efficiency in the personnel of the specialist weapons.

Yours faithfully,
"SUBALTERN, D.L.I."

Diagram showing the suggested battalion reorganisation.



NOTE.—The majority of the transport animals and vehicles would be under the command of their respective coys. and wings. Hd. Qrs. tpt. would carry Bn. S. A. A. reserve, etc., as decided by the Bn. Comdr.

MILITARY NOTES.

FRANCE.

Reduction of 5,000 *Officers.*

As one of the measures of economy, the Government recently decided on a reduction of 5,000 army officers, and with this end in view offered special inducements to officers to retire prematurely. Some reluctance on the part of eligible officers to avail themselves of the special conditions for retirement has now become apparent, and the Government has had to circularise G.O.C's. Regions requesting them to draw the attention of officers to the facilities offered for their premature retirement. The circular further states that if the facilities offered do not attract a sufficient number of officers in the time specified, *i.e.*, within 6 months from the promulgation of the Law of 31st May, 1933, other means will have to be found to bring about the necessary reductions. These measures will be applicable to those officers whose military qualifications are not of a high standard.

Military Commands.

By a recent decree a new military command has been created in the territory on the borders of southern Algeria and Morocco.

The commander, who is to be a general or field officer with the title of Military Commander of the Morocco-Algerian Border, will be responsible for security and order over an area in Morocco to be fixed by the Resident General, and over the Ain Sefra territory of Algeria which comprises the " annexe " of Saura and part of the " annexe " of Touat.

It is reported that Colonel Trinquier, at present commanding the *cercle* of Colomb-Béchar, will be appointed to the new command.

FRENCH SOMALILAND.

Military Forces.

The formation at Djibouti of a company of *tirailleurs indigénes* 135 strong has been authorized and, together with the aviation detachment (4 machines), will form an independent group no longer, as hitherto, under the command of G.O.C., Madagascar.

The existing native gendarmerie has also been reorganized and now comprises a " foot brigade " and a " camel troop " with a total

strength of 2 officers, 7 European warrant officers and non-commissioned officers and 230 natives.

It will be responsible for policing the interior and frontiers, the protection of communications, and providing escorts and guards for government buildings.

It will be normally directly under the Governor, but in case of emergency will be placed at the disposal of the military authorities.

ITALY.

Pre-military Training.

Under the provisions of a law passed in December, 1930, pre-military training is compulsory for all Italian citizens between the ages of 18 and 21. The complete programme of pre-military training covers two years. The 1st year course occupies 24 days and the 2nd year course 16 days. At the end of each course an examination is held under instructions issued by the Ministry of War, and those who pass out successfully at the end of the second year become entitled to certain alleviations of their term of conscript service.

A recently published manual gives detailed instructions regarding the training to be carried out. Each day's work normally occupies three hours, of which approximately one hour is devoted to physical training and one hour each to theoretical and practical military instruction. Physical training includes the normal types of exercises, elementary gymnastics, running, jumping, hurdling, climbing and various games. Theoretical military instruction is given in the elements of military organization and duties, special attention being devoted to the inculcation of discipline, obedience and morale. Hygiene, personal cleanliness, food and drink, clothing and exercise receive careful consideration with particular reference to the demands made by long marches. Practical military instruction is limited to close order squad and platoon drill, rifle exercises, and marches up to a maximum of 20 miles in length by the end of the 2nd year course. Musketry is voluntary in places where range accommodation is available, but consists only of two practices on a miniature range followed by the firing of 12 rounds at 100 yards.

Reserve Officers from the University Militia.

A recent Army Order deals with last year's courses for cadets of the University Militia who are candidates for appointment to the Reserve of Officers.

First year courses take place between the months of December and April at the Universities and consist of about 30 lectures on military subjects together with a small amount of practical military instruction. Subsequently cadets go through a second year course from July to October at special military cadet schools, during which theoretical and practical instruction is given, including a period of about 40 days spent in camp. On the conclusion of these courses examinations are held and successful candidates are gazetted as Second Lieutenants of Reserve (*di Complimento*).

Civil Mobilization—Food Stuffs.

A recently published Royal Decree announces the formation of a special department charged with the duty of organizing the supply and distribution of food stuffs in time of war. The " Civil Mobilization Section of Alimentary Organization," as the new department is called, is to comprise a central office situated at the Ministry of Agriculture and provincial offices located in 12 of the principal cities in the country. The central office will work in close co-operation with the Committee of Civil Mobilization and with other bodies concerned in the organization of the nation in time of war. All offices will be under the direction of invalided officers of the fighting services and personnel will be partly military and partly civil. The expenditure incurred will be borne by the budget of the Ministry of Agriculture.

New Summer Uniform for Officers.

A new white drill undress uniform is to be adopted for officers of the Italian Army. The jacket is of similar pattern to that in use in the British Army and is to be worn with a white shirt with turned down collar and black tie. This uniform may apparently be worn on all occasions except when parading with troops.

Italo-Russian Pact.

A pact between Italy and the U. S. S. R. was signed at Rome on 2nd September. The pact sets out the intention of the two governments to remain neutral in a conflict into which either state may be drawn and pledges them not to act as aggressors against each other;

the term aggressor is, however, not defined. The pact also provides against economic discrimination between the two states and binds each other not to participate in commercial or political agreements calculated to prejudice the other.

PORTUGAL.

Military Commissions.

Two Commissions, composed of senior officers of the different arms, have been appointed to study the question of the purchase of material for the instruction of the army, and to revise the existing laws regulating promotion and retirement in the army.

Budget for 1933-34.

The details of the budget for the financial year 1933-1934 have just been published. This is the sixth annual budget prepared by Dr. Salazar since he took over the reorganisation of the country's finances in 1928, and he appears to have had some difficulty in balancing revenue and expenditure, both of which are increased by 79 million escudos (£767,000), though he has succeeded in obtaining a small surplus of nearly 2 million escudos.

As regards expenditure, the largest increase goes to public works, the vote for this ministry having been raised by 60 million escudos while the Ministry of Marine has also been given a considerable increase of 15 million.

Though there is a small increase of 300,000 escudos in the Military Vote, the amount expended under this heading has shown practically no alteration during the last six years.

Details of the principal items in comparison with 1932-33 are tabulated below :—

Expenditure.

—	1933–34.	1932–33.
Ordinary.	Escudos.	Escudos.
Ministry of War	318,737,736	318,435,601
Ministry of Marine	157,090,478	152,998,397
Ministry of Public Works and Communications	292,814,378	236,533,154
Ministry of the Colonies	28,254,918	26,569,833
Extraordinary.		
Ministry of Marine	119,700,000	108,000,000
Ministry of the Colonies	..	1,200,000
Total	916,597,510	843,736,985
	£8,898,000	£8,191,600

NOTE.—Current rate of exchange=103 escudos to £1.

TURKEY.

Defence against air attack.

The Turkish Government has recently issued instructions to the local authorities in the principal towns that the protection of inhabitants against gas attack from the air is to be provided by the issue of gas masks and by the construction of underground gas-proof chambers.

Turco-Greek pact.

A Turco-Greek pact was signed at Angora on 14th September. By the terms of the pact Greece and Turkey mutually guarantee the inviolability of their common frontiers, and agree to consult together in all international questions which affect them in order to secure a common line of action. It is also provided that at international conferences at which only one of the two countries is represented the delegate of that country shall defend the common and individual interests of both. The official announcement lays emphasis upon the essentially peaceful motives which underlie the signature of the pact and expresses the hope that it will be extended to include other countries and thus further enduring peace in the Near East.

JAPAN.

General.

The negotiations which have been in progress in Tokio since the end of June for the sale to Manchukuo of Soviet Russia's interest in the Chinese Eastern Railway appear to have reached a deadlock. The chief difficulty seems to be in regard to the price demanded by Russia. This was originally 250 million gold roubles, and subsequently reduced to 200 million. The Manchukuo delegates, on the other hand, have not agreed to raise their suggested purchase price of 50 million yen, which at the present rates of exchange is only about one-tenth of the Soviet's figure.

U. S. A.

Civilian Conservation Corps.

President Roosevelt's plan for employing 275,000 unemployed youths in forestry camps throughout the United States, has now been successfully put into operation by the Army.

Some idea can be formed of the magnitude of the task confronting the Army when it is realised that these 275,000 young men have been enrolled, given physical training to fit them for work, and despatched to 1,500 forest camps established throughout the United States, all within a period of three months. The number of men enrolled in the Corps was later increased to 310,000, including 14,000 Indians.

3,000 Army officers, including a number of reserve officers, have been directly employed with the Civilian Conservation Corps and have received excellent training in handling men.

The task with which the company commander in this Corps was confronted was not an easy one. Though the men had joined the Corps for a period of six months they were free to leave it at any time, they were not subject to military discipline, in fact any form of militarism was expressly excluded in order to avoid offending the feelings of pacifists, and, at first, no provision was made for extra pay for men selected to take charge of squads. The company commanders got over these difficulties by bluff and a discreet disregard of orders. One of them said that he treated his men as soldiers as " the youngsters don't know the difference, and some who are old soldiers realise that it is the best method for all concerned." The power to dismiss men for misconduct enabled the company commanders to get rid of bad characters.

The regular army cooks attached to the corps seem to have been a potent factor in making the scheme a success. Many of the men had been out of employment and under-nourished for months. This fact, aided by physical training and open-air life, gave them enormous appetites. One company commander said " As to the Chow situation, there has never been assembled any group of 200 men who could eat more than a Civilian Conservation Corps Company . . . they started eating on 17th April and are still eating."

The establishment of the forest camps gave the companies a test of endurance. They moved by rail or road from the military stations, where they had been undergoing physical training to condition them for work, to the camp sites in the forests, where they had to do everything for themselves, starting with clearing the camp site of undergrowth in many cases. Overcoming these initial difficulties helped to instil discipline and gave the companies an *esprit de corps*, and the scheme appears now to be running well.

The success with which the scheme is operating is a great credit to the United States Army, and under the care of the Army the young men seem to have adapted themselves readily to new conditions and have settled down to work and discipline.

The original plan was that the corps should only be formed for six months, at the end of which time it was hoped that industry would be ready to absorb its members in regular employment. This plan has now been modified and orders have been issued for its continuance for a further six months from October. All men who can find civilian employment will be discharged and their places taken by new enrolments. As many as possible of the regular officers on duty with the corps will be returned to ordinary duties and replaced by reserve officers.

Owing to severe winter weather 450 of the forest camps will have to be abandoned and new camps established in warmer parts of the country; at other places wooden huts will have to be built and heating apparatus installed.

The cost of running the Civilian Conservation Corps has been enormous and preparations for the winter will involve further heavy expenditure.

SPAIN.

Recruiting.

A Bill is shortly to be laid before Parliament proposing the amendment of the Recruiting Regulations. It will be based upon the following principles:

(*i*) Abolition of the *Cuota* (privileged) class.

(*ii*) Compulsory service of 6 months for every male Spaniard.

(*iii*) All recruits to take part in the ballot for service in Morocco.

Note.—The *Cuota* class, the numbers of which are limited to 40 per cent. of the total contingent, consists of men who pay a premium and can prove that they have already received instruction at a military school. They are allowed to reduce or postpone their service and are granted numerous other privileges, one of which is exemption from service in Morocco. They numbered 12,124 in 1932.

Industrial Mobilization.

With a view to preparing specialized technical personnel for industrial mobilization, and order authorizes the War Minister to appoint:—

1. Such artillery officers as he considers advisable to gain experience in the various military factories which form the *Consorcio de Industrias Militares* (a group of seven armament and explosive factories).
2. Civil industrial engineers (at the proposal of the Minister of Agriculture, Commerce and Industry) up to 50 per cent. of the technical workshop personnel of these factories.

SYRIA.

Development of Port of Beyrouth.

Plans for the enlargement of the Port of Beyrouth, together with the establishment of a free zone for the transport of goods to Iraq and Persia, are rapidly being put into execution so as to be able to compete with the superior facilities which will be offered at the Palestinian port of Haifa when the new port there is opened.

Over three and a half million francs have already been allotted for the work, which includes lengthening the landing quay by 200 metres and establishing a free zone.

NORWAY.

Notes on the Army Reorganization Scheme.

The proposals outlined below have been passed by the "Storting" and are to come into force in the summer of 1934.

Liability for Service.

A.—Old Organization.

Hitherto the periods of liability have been as follows:—

Age 18—20 in the "Landstorm."
,, 20—32 ,, "Line."
,, 32—44 ,, "Landvern" (militia).
,, 44—55 ,, "Landstorm."

The "Landvern" cannot be employed outside Norway without the consent of the "Storting."

The "Landstorm" can only be mobilized in the event of war or menace of war.

B.—New Organization.

Under the new proposals conscripts will do 16 years in the Line and 8 in the "Landvern."

Service with the Colours.

A.—Old Organization.

At present conscripts do—

(1) *Recruit training.*—60 to 90 days (according to arm of service) in the Recruit Schools.

(2) *Regimental training.*—Repetition courses of 24 days each with units in the 1st and 3rd or 2nd and 4th years of Line service.

B.—New Organization.

Under the new organization men of all arms alike will do a single period of 84 days' training, except that—

(1) Men in anti-aircraft artillery units will do 70 days in the first year and 14 days in the second.

(2) Men in the Air Service will do 30 days' recruit training and three repetition trainings of 30 days each.

(3) Men in the Guards, the Garrison Company at Kirkenes, and the garrison of the Fossum defences will do 6 months' continuous service.

(4) The obligation for men of higher educational standards to serve for 6 months is to be extended so far as necessary to provide sufficient junior non-commissioned officers.

Under this system the Recruit Schools will be taken over by regimental staffs, who will thus train the conscript throughout his 84 days' service, commencing with recruit training and concluding with field training.

Small winter Recruit Schools (30 men per regiment called up for service in the winter) are to be run to provide troops for demonstration purposes for training officers and non-commissioned officers.

No fixed liability for repetition courses is laid down, but the "Storting" can always authorize the calling up of annual classes to be specified at the time, for 24 days' repetition training or for manœuvres or for both, whenever the necessary financial provision can be made in the Budget.

Officers and Non-commissioned Officers.

A.—Old Organization.

The officers and non-commissioned officers, together styled "Befal," consist at present of the following categories:—

1. *Regular "Befal."*

(*a*) *Garrison "Befal"—i.e.*, regular whole-time personnel consisting of—

(*i*) *Officers.*—Recruited from the Cadet School (a 3-years' course).

(*ii*) *Non-commissioned officers.*—Recruited as boys and trained at the Non-commissioned Officers' Schools of their respective arms (3 years' training).

(*b*) *District "Befal."*—Personnel recruited and trained in the same way as the Garrison "Befal," but employed and paid only during training periods, with an annual retaining fee in addition. Captains and subalterns are constantly changed from "Garrison" to "District" appointments and *vice versâ*, but all above the rank of captain are "Garrison" officers: Garrison and District non-commissioned officers are similarly interchangeable.

2. *Reserve "Befal."*

(*a*) *Officers.*—One year at the Cadet School, followed by the ordinary recruits' training and seven regimental trainings: appointed as serjeants for the recruits' training and first regimental training, commissioned as second lieutenants during second regimental training.

(*b*) *Non-commissioned officers.*—Three years at Non-commissioned Officers' Schools (these schools give a good civil, as well as a military, education), followed by two recruits' trainings and two or three regimental trainings according to arm of service.

Reserve "Befal" are paid only whilst actually on training.

3. *Enlisted "Befal."*

Junior non-commissioned officers selected from the ordinary conscripts. Men of higher educational qualifications may by law be

retained for 180 days with the Colours, but at present this obligation is only imposed on students of the Technical High School and medical, dental and veterinary students.

B.—New Organization.

1. Under the new organization the number of "Garrison" officers will be reduced and the category of "District Befal" is to be abolished. The additional officers and non-commissioned officers required during training periods correspond to the present Reserve "Befal" and will be known as Conscript Paid "Befal." The training of officers and non-commissioned officers is to be assimilated, both Garrison and Conscript Paid "Befal" commencing their careers in the "Befal" Schools (the present non-commissioned officers' schools of the various arms). The Garrison "Befal" will consist of officers only. In order to provide for the requirements in non-commissioned officers for repetition training, manœuvres, or on mobilization, the number of Enlisted "Befal" is to be increased.

2. "*Befal*" *Schools.*—Every candidate for the Garrison or Conscript Paid "Befal" will spend a year at a "Befal" School, during which he is to attend recruit and regimental training. Those of a lower standard of education will spend 3 years in all at the "Befal" School, during the first two of which they receive a civil education.

There are :—

6 Infantry "Befal" Schools (1 per division).

1 Cavalry "Befal" School.

1 Artillery "Befal" School.

1 Engineer "Befal" School.

3. *Categories of "Befal."*

(*a*) *Garrison "Befal."*—On passing out of the "Befal" School, the candidate for the Garrison "Befal" will spend two years as a cadet at the Military Cadet School. He will leave this with the rank of ensign, from which he will be promoted in due course to lieutenant. Candidates for regular administrative appointments who are normally men of a different class, will leave the "Befal" Schools as serjeant-majors and go to the Administrative School, from which they will receive commissions as subalterns.

The number of Garrison "Befal" is to be 668.

(*b*) *Conscript Paid "Befal."*—Members of the Conscript Paid "Befal" will leave the "Befal" Schools as serjeants. They are to receive subsequent promotion up to, but not beyond, the rank of major. They are to be called to the Colours every year for the training periods, during which they will receive a daily rate of pay : in addition they are to be given an annual retaining fee.

The number of Conscript Paid "Befal" is to be 1,159.

(*c*) *Enlisted "Befal."*—In order to provide for requirements on repetition training, manœuvres and mobilization, the legal obligation for better educated men to serve for 180 days is to be applied to individuals additional to those specified in paragraph A. 3 above, who are fitted to receive training as non-commissioned officers.

Normally those individuals will do 60 days in each of the first and second years of their service, and the remaining 60 days will be divided up as may be found expedient. Personnel in the Guards, in the Kirkenes Company, and in the garrison of the Fossum Defences will do their 180 days in one continuous period, while those in the Commissariat will do 84 days in the first year and 96 days in the second.

Army Organization and Mobilization.

The army consists in peace of 6 divisions, but the only units permanently in being are the Guards Battalion, the Garrison Company in Kirkenes, and the garrison of the Fossum Defences. All coast defences are in future to be manned by the Navy.

The system may be illustrated by an explanation of the infantry organization : it applies also to the other arms. An infantry regiment comprises three Line battalions, which however normally only exist on paper, the permanent cadre of the regiment consisting only of 9 Garrison "Befal." During the annual recruits' training, the regiment receives an addition of 34 Conscript Paid "Befal," and the recruits are formed into a specially constituted training battalion, though each man is nominally posted to one or another of the three Line battalions.

Mobilization can then if necessary take place in two phases :—

1. *Mobilization of the Neutrality Guard.*—A covering force comprising army troops and six mixed brigades (one formed by each division) composed each of three battalions, a field artillery group and other units. The Neutrality Guard

consists of the training battalions, &c., which are brought up to strength by the most recent annual classes of trained men and are converted into service battalions. Thus the personnel of these units do not mobilize with the Line battalions, &c., to which they nominally belong.

2. *Mobilization of the six divisions.*—These are mobilized entirely independently of and in addition to the Neutrality Guard, the Line battalions, &c., being formed from the remaining classes of trained men in the Line. The increase from 12 to 16 years' service in the Line is designed to provide the necessary personnel for this expansion.

It is clear that the preliminary mobilization of the Neutrality Guard is not an essential part of the scheme. The six divisions can be mobilized alone; in that case personnel serving at the time with the training units, &c., would be mobilized with the Line battalions, &c., to which they belong. Presumably only 12 of the 16 annual classes in the Line would then be required to bring the Line units up to strength.

Similarly for manœuvres or repetition training the training battalion would not be constituted as a unit, but recruits would go to such of the Line battalions as were called out.

REVIEWS.

The Military Engineer in India, Volume I.

By Lt.-Col. E. W. C. Sandes, D.S.O., M.C., R.E. (retd.).

(*The Institution of Royal Engineers, Chatham*, 1933) *s.* 25/-.

For many years there has existed amongst students of India generally, and amongst engineers in particular, a widespread feeling that some account should be available of the part which the military engineer has played in the building up of India. The opening up of great continents, such as North America and India, has inevitably depended much upon Army engineers for the gradual absorption of such lands into the zone of settled civilization. This phase has had to follow military conquest with the result that engineering has had to be undertaken in conditions unsuitable to the civil engineer. The activities and characteristics of British military engineers have thus had a great influence in the moulding of modern India just as those of the American Army have had upon the development of the U.S.A. The possession of an account of such activities and characteristics is a matter of some historical importance and it is this want which Colonel Sandes has attempted to meet.

The author has divided his history into two volumes, the first, which is reviewed here, dealing with the purely military aspect of engineering in the last three centuries, while Volume II, to appear in due course, will cover the civil activities of the military engineer in India.

The present volume contains 25 photographic illustrations, including portraits of famous men and pictures of famous incidents from the storming of the Kabul Gate at Ghazni to the crossing of the Shumran Band in 1916. It also contains 18 maps and plans of considerable interest and value.

The author claims to have produced " a readable story rather than a precise and exhausting record. " The book is certainly readable and nowhere exhausting but the amount of ground to be covered was so vast that even in the 555 pages available here it was impossible for the account *not* to read more as a record than a story. Nevertheless it is a work of the greatest value, and officers should feel thankful that some one was willing to undertake the immense amount of reading and research entailed in the production of such a record.

There is inevitably considerable space allotted to general Indian military history, into which the account of the doings of engineers is skilfully woven. The author commences by tracing the earliest efforts at military engineering in the beginnings of Madras, Calcutta and Bombay in the 17th and early 18th centuries. He tells of the first formation of the Sapper and Pioneer Corps and follows their activities through the Mysore and Mahratta wars (1780 to 1819). He records faithfully their expansions and their influence upon the course of the Burma, Chinese, Sikh and 1st Afghan wars. The operations at Delhi in the Mutiny come in for special treatment because in these operations engineers had the lion's share and bore much responsibility. Continuing through the 2nd Afghan and Burmese wars, Colonel Sandes comes to the Great War period, of which an excellent summary of India's engineering effort in all theatres is given. Ending with the recent Khajuri and Burma operations and the reorganization of the Sapper and Miner Corps, the book is right up to date.

This volume will prove an invaluable book of reference which should find a home in every Library.

B. C. D.

Armaments Year Book, 1933.

(League of Nations, Geneva).

(*Thacker & Co., Ltd., Bombay, Rs.* 15/-.)

This is the ninth edition of the Armaments Year Book, compiled by the Secretariat and published under the authority of the Council of the League of Nations. It contains monographs on sixty-four countries—members and non-members of the League, and it is claimed for the present volume that account has been taken of all important changes in the military organization of the different countries up till May 1933.

The heading to each monograph contains figures relating to the area, population, density and railway systems of the country dealt with, followed by chapters on the Army, Air Force, Navy and Expenditure on National Defence. The chapter on the Army furnishes useful information regarding the main characteristics of the land forces, including the general organization, control, composition, system of recruitment, territorial areas, and the number of effectives. For the Air Force, in cases where it is organized as an independent arm, the arrangement follows that for the army, while the Naval

chapter refers to the various categories of warships possessed or building, the names of ships, their displacement, armament, motive power, age, etc., together with information regarding naval ports, arsenals, bases and effectives. Each monograph closes with a table purporting to show the expenditure on national defence during the past five or six years, but as the figures are based on different systems of calculation it is not possible to compare the relative budget expenditure for the different powers.

The book has two appendices : the first relates to the Conventions, Treaties and Agreements concluded between the different countries from 1817 to 1931 : the second contains statistical tables and graphs showing the male population of each country by age groups, world expenditure on armaments, etc. At the end of the volume the reader will find a bibliography indicating the various documents consulted in its preparation.

The Year Book is an improvement on the previous editions and in spite of its size—1,048 pages—the military student, especially officers studying for the Staff College Examinations, will find it to be a most useful reference book containing in a single volume information and figures relating to the armed forces of the world not readily accessible elsewhere.

L. H.

The Staff College Examination Lecture Series.

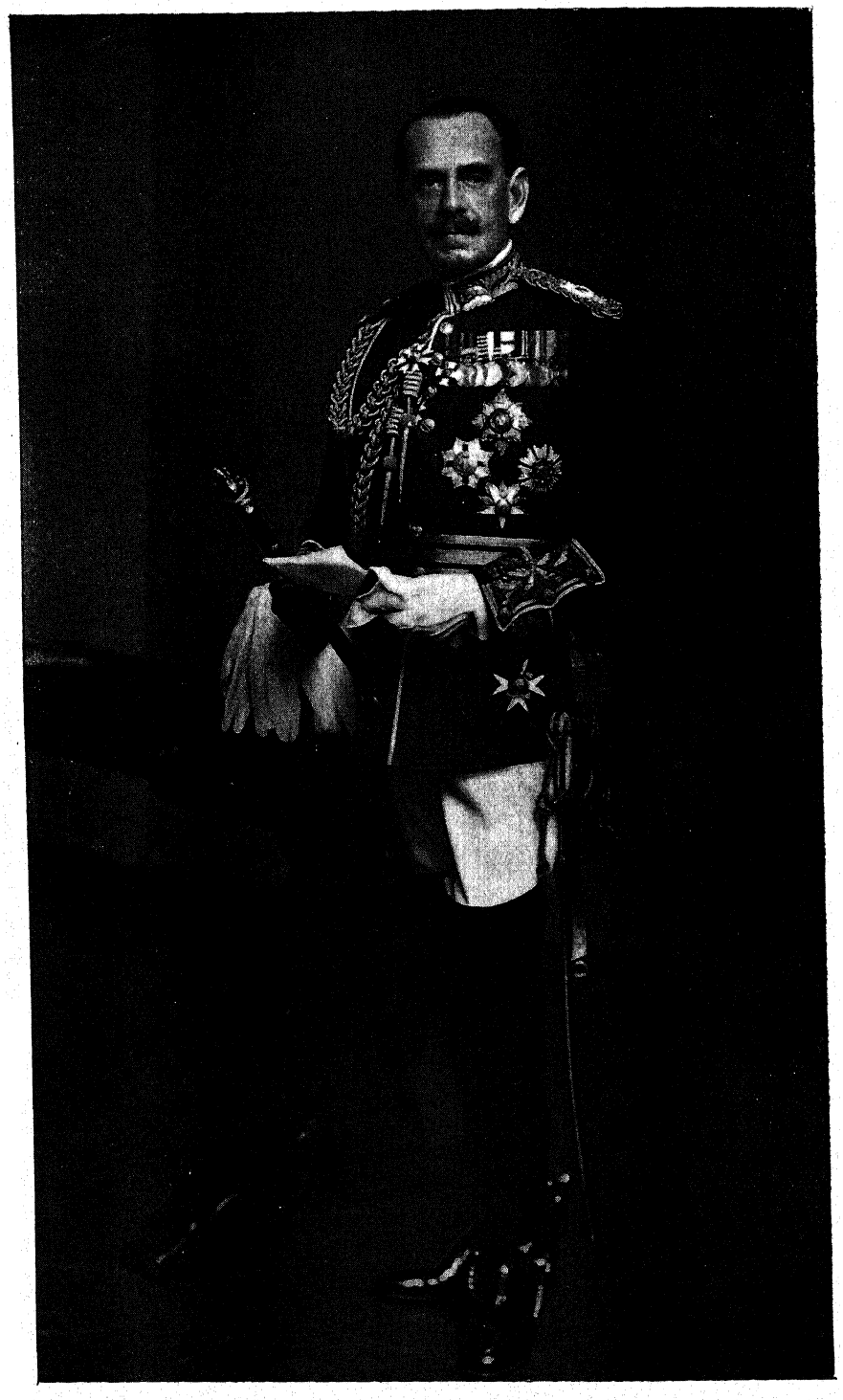
By Brev. Lt.-Col. B. C. Dening, M.C., R.E., P.S.C.

(*Published by the* Civil and Military Gazette Ltd., *Lahore*, 1933, Rs. 6).

In Staff College Examination Lectures, Lt.-Col. B. C. Dening has added a new and useful book to the already large collection of works designed to help the student to pass into the Staff Colleges. As Lt.-Col. Dening himself says " such a series of lectures as this cannot cover perhaps one-hundredth part of the ground " ; but, one thing the book can do is to indicate the lines on which to study and herein, perhaps, lies its greatest value.

To be successful in this highly competitive examination, the student must have knowledge, and this will only come as a result of diligent study. He must also be thoroughly up-to-date in thought and in actual facts ; for the examination is not a mere test of knowledge, it is a test of the ability to apply knowledge. There is, in fact, no short cut to success : if this is borne in mind and the fact that, unlike the manuals, which are constantly amended, these lectures quickly get out of date, Lt.-Col. Dening's little book should be very helpful to those who intend to study for the Staff College Examination.

R. G.



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Commander-in-Chief in India.