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ROYAL ARMY
SERVICE CORPS
REVIEW 1951

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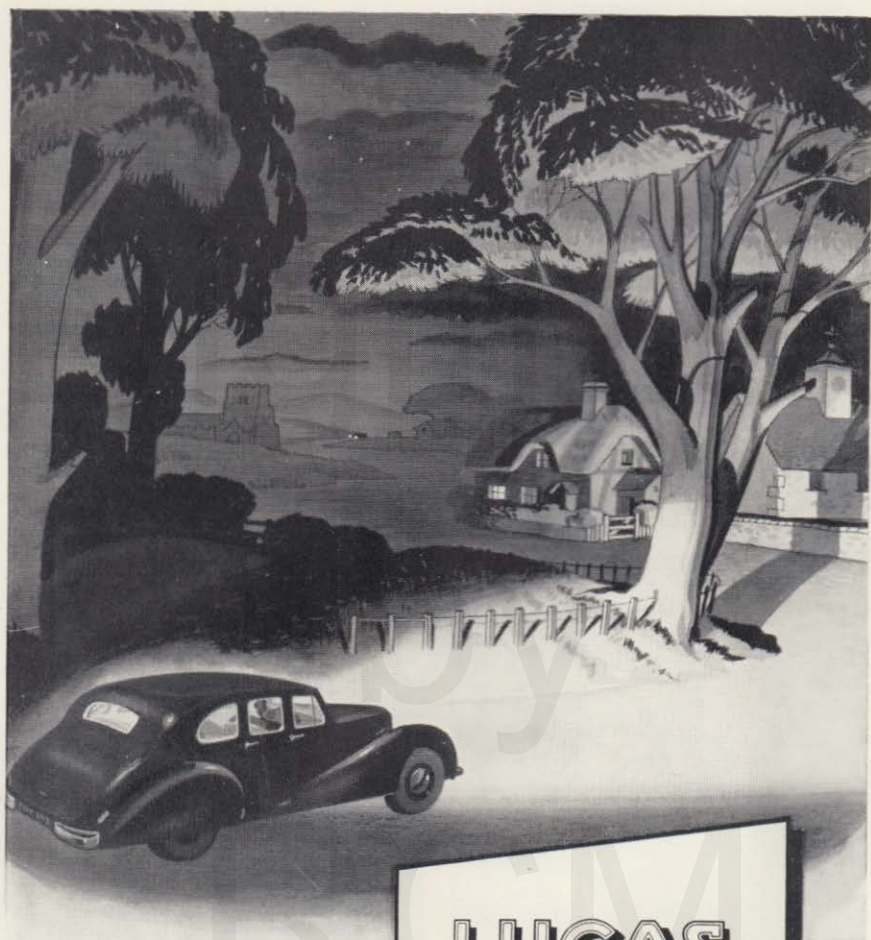


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FOREWORD

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CONTENTS

	PAGE
ADMINISTRATIVE PLANNING FOR AN OVERSEAS OPERATION. By Brigadier R. T. Cooke, C.B.E.	5
THE R.A.S.C. IN THE KOREAN BASE, OCTOBER, 1950—MAY, 1951. By Major A. O. Powell, R.A.S.C.	12
THE R.A.S.C. REGIMENT. By Brigadier S. T. Divers, C.B.E., D.S.O., T.D.	17
THE ROYAL MILITARY ACADEMY, SANDHURST. By Major H. C. Palmer, M.B.E., R.A.S.C.	29
RESPONSIBILITIES AND DUTIES OF THE OFFICERS OF THE HEAD- QUARTERS OF AN INFANTRY DIVISIONAL COLUMN, R.A.S.C. By Colonel W. O. Phillips, O.B.E.	34
THE CAPTURE OF DIEGO SUAREZ. By Brigadier A. F. J. Elmslie.	45
THE IMPROVISATION OF JUNGLE RATION PACKS IN MALAYAN OPERATIONS. By Major H. O. Lukes, R.A.S.C and Major E. V. Hawkins, R.A.S.C.	51
THE R.A.S.C. WITH THE 6TH ARMOURED DIVISION IN ITALY, APRIL, 1944 TO SEPTEMBER, 1944. By Major B. C. Vaughan, R.A.S.C.	57
ROAD TRANSPORT COLUMNS. By Lieutenant-Colonel A. H. C. T. P. Houchin, R.A.S.C.	62
MAN MANAGEMENT. By Lieutenant-Colonel J. P. Moore, R.A.S.C.	68
USE OF TANKER AIRCRAFT IN OPERATION "PLAINFARE." By Lieutenant-Colonel K. W. McQueen, O.B.E., R.A.S.C.	72
R.A.S.C. WATER TRANSPORT IN CENTRAL MEDITERRANEAN FORCES, 1943-1945. By Major B. MacManaway, R.A.S.C.	77
DISTRIBUTION LIST	83

ADMINISTRATIVE PLANNING FOR AN OVERSEAS OPERATION

by Brigadier R. T. COOKE, C.B.E.

THE CONDUCT OF OVERSEAS OPERATIONS is so essential an element of British Imperial Strategy that it becomes a matter which merits all possible study. As one who was fortunate enough to play a part in the planning, launching, and conduct of many overseas operations during the 1939-45 War, I have been asked to record my views on the processes by which the administrative planning of a typical expedition of this kind is evolved. I have taken as an example the British invasion of French North Africa in November 1942, known as Operation "Torch."

It should be obvious that in deciding to launch an operation of such magnitude as "Torch," much preliminary planning is required and an outline plan must be made in sufficient detail to ensure the availability, not only of the fighting force required for the task, but also of the administrative units required to maintain them; also an adequate stock of war stores of the natures needed, and, most essentially, requisite shipping to transport the formations and units agreed upon, together with all their war equipment and stores, to the right place at the right time.

Such an outline plan demands much careful preliminary forethought and discussion between the various Services and Ministries concerned before the real process of detailed planning can start. This discussion produces a datum line from which the actual business of preparation begins. This may well take a varying period of months, dependent upon the size and complexity of the operation envisaged, and is the process of events which is to be reviewed in this article.

The high level decisions to undertake Operation "Torch" and the proposals put forward by the Joint Chiefs of Staff do not fall within the scope of this article. Suffice it to say that the outline plan, as handed to Allied Force Headquarters in London, envisaged the British element of the operation as being commanded by H.Q. First Army, with an initial assault force of two infantry divisions (one British and one American) reinforced by armoured units. The size of the assault force was governed by the limited amount of shipping and assault craft available, and the rate of the later build-up of the force, to its ultimate strength of two Corps, was governed entirely by the turn round of shipping and the replacement of shipping casualties.

Command in the initial stages of the assault, and until such time as Allied Force Headquarters could be established in the theatre in sufficient strength to assume overall control, was vested in H.Q. First Army. The planning element of this Army H.Q. was established in London early in August 1942 with the task of completing the detailed plan for the operation through the assault stage and up to six weeks after the initial landing. It was assumed that by the latter date

Allied Force H.Q. would be sufficiently well established to have assumed overall control.

At this stage the real theatre of operations was known to no more than half a dozen of the most senior officers. A system of code names was introduced forthwith and the whole procedure was carried out on a cover plan and code names until less than a month before the expedition was due to sail. Even then the real plan was only divulged to those more senior officers to whom the knowledge of the true facts was deemed essential. The vast majority of the assault force had no idea of their destination until they were told twenty-four hours before the actual landing.

The main elements of the strategical plan, as presented to H.Q. First Army, were:

- (a) A rapid seizure of an adequate beach-head west of Algiers in which the assault force of one British and one American division could be landed and maintained.
- (b) The speedy capture of Algiers port and neighbouring aerodromes, in which area the American division was to be dropped as local defence troops, and which was to be developed as rapidly as possible as the main base from which the whole force must, ultimately, be maintained.
- (c) The British division was to advance eastward with all speed to capture Tunis before German units could be brought from Italy and Sicily in sufficient strength to withstand the British advance.
- (d) In its move forward the British division was to clear up enemy resistance in the ports of Bougie, Phillipeville and Bone; in order that they might be opened up as subsidiary bases from which the forward troops could be maintained.

The major factors militating against this plan were the unknown degree of resistance of the French under the direction of the Vichy Government; the known strength of German and Italian submarines operating in the Mediterranean; and the formidable fact that the further east the advance progressed the shorter became the range of operation of the German and Italian air forces, based in Sardinia, Sicily and Italy. Furthermore, it was obvious that the first news of the landing in the Algiers area would set in motion all the available enemy air transport in Southern Europe for the movement of troops into Tunisia.

On the face of it, it was indeed a formidable problem.

From the administrative point of view it was essential that the port of Algiers should be captured intact and as speedily as possible, in order that it could be used to discharge stores and personnel ships and so curtail the period of beach maintenance to the absolute minimum. In the same way, the ports of Bougie, Phillipeville and Bone must also be secured and developed. Full information was available of the port facilities and capacities of all these ports.

The distance from Algiers to Tunis is approximately 500 miles. The land communications between the two were by rail and road. The railway was a single line track, with passing places and double track at major stations only. It was known that little or no maintenance had been effected during the war years and the condition of the permanent way, rolling stock and locomotives was known to be very bad. Best capacity estimate—two trains per day. As so much of the

forward maintenance would depend upon rail lift it was clear that railway construction and operating units must have a high priority with an early follow-up of locomotives and waggons. Coal was very short—almost non-existent—and would have to be shipped in from the U.K.

A good road ran eastward from Algiers, over the Atlas mountains, on to the high plateau on which stand Setif and Constantine. Eastward of Constantine the road deteriorated as far as the frontier between Algeria and Tunisia but improved again on the Tunisian side. Minor lateral roads connected with Bougie, Phillipeville and Bone but these were not up to continuous heavy traffic. It was obvious that, on account of the uncertainty of the railway, the initial advance must be supported by road maintenance. This demanded sufficient 3rd line transport to maintain the forward units from Algiers until subsidiary base ports could be opened up and stocked, or until rail capacity could prove sufficient.

One of the items to be settled in the earliest stages of planning is the Order of Battle. It must be remembered that the Army is responsible for the maintenance of all Naval units ashore as well as for all R.A.F. units. In the latter case, the Army is responsible for the delivery of all "common user" items and aviation fuels up to the radius of R.A.F. squadron, or station, transport. The delivery of R.A.F. technical equipment and aircraft is an R.A.F. responsibility and is effected through R.A.F. Stores Parks. Full details must therefore be available to the Army of the Naval and Air Force units and strengths.

The process of arriving at the overall final Order of Battle develops into a series of "bidding" conferences which start with the General Staff estimate of the strength of fighting formations and associated Corps and Army Troops fighting units requisite for the task in view. It is then the responsibility of the Administrative Staff, bearing in mind the tactical plan, the length of the L. of C. and local conditions, to decide upon the number and variety of administrative units which will be essential to maintain the nominated strength of fighting troops in complete readiness to fight and at whatever range is envisaged.

A preliminary figure of strengths, in men, vehicles, unit equipment and stores, is thus reached. To this must be added the demands of the Navy and Air Force. It has been found by experience that the preliminary figures for the Order of Battle invariably exceed the capacity of the shipping available. The result is a series of inter-Service "bidding" conferences at which the differing Services' demands have to be scaled down until a reasonably firm "build-up" of the Order of Battle, allotted shipping space in successive convoys, is reached. This process entails considerable inter-Service discussion and may well occupy weeks of argument and require decision by the highest authority as to the relative importance of this or that unit in the programme.

Conferences between the War Office and Board of Trade about Operation "Torch" were daily affairs at which attempts to obtain additional shipping, or shipping especially adapted to particular requirements, were constantly made.

Finally, the absolute limits of shipping availability are clarified and convoys are made firm on the dates on which they will be available to load and sail. It is then a question of fitting the Order of Battle most suitably into the shipping available for any particular convoy.

The loading of convoys differs in accordance with their place in the programme. Initial convoys, carrying formations and units taking part in the

assault landing, have to be "assault-loaded" i.e. unit transport and equipment must be loaded with units. There must be sufficient store ships to carry an adequate stock of war stores of all natures required and sufficient immediate reserves. "Follow-up" convoys may be more economically loaded. Personnel are loaded in personnel ships with their unit baggage and essential equipment to the utmost capacity of the shipping. Unit vehicles and heavy fighting equipment, e.g. guns and tanks, are loaded in M.T. and store ships which may not arrive at the port of discharge until some time after the personnel ships have been discharged. Early provision of Base and Transit camps, where units may be accommodated until their vehicles and heavy equipment arrive, must be made.

An accurate knowledge of the strength of the whole Force in the overseas theatre is very helpful for the calculation of the daily consumption of most of the items necessary to the Force. If the actual strength is not known, an approximate estimate can be made by using the "divisional slice" yardstick, i.e. a comprehensive figure of the number of men normally to be found in a theatre, for every infantry or armoured division. This figure is of course, considerably greater than the strength of the division itself, since it contains elements of Corps, Army and Communications Zone troops.

As an example, the weight of supplies consumed per man per day can be calculated, and experience has provided a similar figure for P.O.L. Hence the daily theatre consumption per man can be computed. Use of the divisional slice yardstick converts this into theatre consumption, in tons per day.

Use of a different yardstick gives the daily consumption of forward formations only, and hence the maximum forward daily lift can be calculated. In addition, allowance must be made for the needs of the R.A.F., daily maintenance of all Communications Zone units, and for the accumulation of forward reserves. These are essential as local reserves for forward formations and as an insurance against any interruption in communications.

Every overseas expedition must build up its own Theatre Reserves as speedily as possible. Theatre Reserves are expressed in terms of a given number of days of complete maintenance for the whole force in the theatre. They are decided by "G" Branch, and depend on a number of factors which need not be examined here. As they form a reserve against the worst contingencies, they will not be eaten into without the approval of "G" Branch, nor then if such action can possibly be avoided.

Over and above Theatre Reserves come Maintenance Stocks. These form a working stock to cover the interval between the arrival of one stores convoy and the next. They are decided by "Q" Branch and depend on the length of shipping cycle, and the time taken to load and unload at the docks. Allowance must be made for delays due to bad weather and similar causes. Port congestion may well necessitate ships lying at moorings for several days awaiting vacant quay space. Mechanical breakdown and losses by enemy action must also be remembered. Taking all these factors into account, a turnround may work out at, say, fifty days. On the other hand, if sufficient shipping is available for different vessels to make alternate convoys the turnround will be halved.

The turnround of ships is, however, but one of the factors in the calculation. Stores landed on the quays of the base are a very long way—in terms of time—from the fighting troops to whom they must be delivered. All stores must be

cleared from the port area as quickly as possible. If port congestion is to be avoided the clearance from quays must keep pace with discharge from ships. Experience has shown that stores are never discharged from ships by natures and sorted ready for acceptance by depots. In the experience of the writer, a base sorting area, adjacent to the port area but sufficiently removed from the "Reserved Transportation Area" not to interfere with it, is essential.

Into such an area all stores are cleared as quickly as they can be moved and there they are sorted by parties found by the Services concerned and moved into the appropriate Base Depots. In the Base Depots all stores are again sorted out and stacked into their appropriate shed or hangar. Any attempt to avoid the proper sorting of stores in Base Depots will only result in complete confusion and will ultimately render that particular depot incapable of operating.

Similarly, the despatch of stores from depots must proceed in an orderly process. The loading of trains, or lorries, must be organised on a system of bulk loading of waggons, or lorries, at particular sheds and, subsequently, the loaded vehicles must be marshalled into train loads, or convoys, before being handed over to Movement Control for despatch to their destination.

All these processes take time, and allowance for this time, plus the length of the carry to the forward destination, must be made in all calculations.

An allowance of three days should suffice for port clearance, movement to depots and depot sorting. One day should suffice for depot loading of stores for despatch and a second day, to be reasonably safe, for marshalling and despatch. Add a hypothetical two day rail journey to the forward railheads and one arrives at an additional factor of seven days.

Assuming sufficient shipping for alternate convoys one therefore reaches a figure of thirty-two days. At first sight, this figure may appear large but it makes no allowance for the sinking of a convoy and the consequent requirement for its complete replacement. Such an eventuality would require the collection of additional shipping—which may well be otherwise employed and have to be discharged and diverted to suitable loading ports—and its minimum loading time. Here is an additional factor of, say, ten days.

One therefore arrives at a minimum time factor of forty-two days which, for reasonable safety, should be rounded off at fifty days.

From the foregoing it will be seen that in a given set of circumstances it may be necessary to hold a minimum of fifty days maintenance stocks. A scale of seventy-five days would provide proper margin of security.

The daily consumption of P.O.L. in any modern force is prodigious. In the initial assault stage, and until such time as bulk petroleum can be discharged and R.A.S.C. petroleum transport companies landed to handle it, reliance must be placed upon containers.

Beach Maintenance all but dictates loads which can be manhandled and this limitation applied to petroleum rules out, in the earliest stages, all containers other than the can. In "Torch" the 4-gallon flimsy tin was still the only container in use. It proved most fragile and extravagant as the losses of petroleum on account of punctured tins and bad stowage were immense. One store ship arrived in Algiers with nine feet depth of loose petroleum in one hold owing to flimsies being stacked too high and crushing the lowest layers.

The Jerrican was much more satisfactory and robust but had the disadvantage

of being attractive for other purposes and great difficulty was encountered in having empties returned.

Calculations for petroleum requirements were at that time based on a yardstick of 4 gallons daily per carburettor for all wheeled road vehicles in the Order of Battle. It is essential to pass from packed to bulk supply as early as possible. Packed petroleum will always be required in the forward areas but as many units as possible in the Communications Zone should be based upon R.A.S.C. Petroleum Points, served by petroleum transport coys, as soon as may be.

Before bulk petroleum may be accepted, however, adequate bulk tankage must be available, either as existing installations taken over from civil oil companies, or erected, where no such civilian tankage exists.

The laying of petroleum pipelines to centres where heavy consumption may be expected, e.g. aerodromes, must also be planned.

In the initial stages of any overseas operation the primary limiting factor is shipping space. It is therefore imperative to cut down stores shipments to essentials in the opening stages and to ensure that these essential shipments are reduced in bulk to the minimum. Examples of reduction in bulk are the R.A.S.C. Compo Ration and the R.A.O.C. Beach Maintenance Pack. Both these items are relatively expensive in terms of finance but possess the merit of producing the essential requirements of the consumer in the minimum bulk. Here, again, it is highly desirable to put the force on normal ration scale—including bread—and normal Ordnance supply as early as can be arranged.

In the planning for the maintenance of any force, the Administrative Staff is continually pursued by limitations of various media of transport. The limits of shipping space are followed by those of rail. In "Torch" the very definite limits of the one railway line—accentuated as they were by lack of maintenance and repair to track, rolling stock and locomotives—presented a continuous problem throughout the campaign which demanded the constant investigation of alternative means of conveying stores forward to supplement the rail lift.

One expedient adopted from the outset was the use of what were colloquially known as "Woolworth Coasters." These were small coastal ships of under 1,000 tons, a fleet of which were convoyed out from England to Gibraltar where they were "garaged" until required. These little ships were filled with a variety of stores of all kinds and worked forward to the subsidiary ports of Bougie, Phillipeville and Bone. They were able to creep along the African coast during hours of darkness and elude the watchful enemy submarines and aircraft. They were of shallow draught and so could be discharged alongside shallow quays quickly. As soon as discharged they returned to Algiers where they reloaded and so maintained a shuttle service between the main base and the forward ports which afforded considerable relief to the railway.

Similarly, apart from transport units whose primary role was bulk carriage of stores, every unit moving forward from the Base area had its load carrying vehicles filled to capacity with stores for delivery at dumps in the forward area.

In a brief article of this description it is possible only to indicate in general terms the lines upon which the planning of the administration of a campaign is carried out and to mention one or two examples of salient interest by way of illustration.

There is a multiplicity of subjects which must be studied in detail—

ammunition, Engineer stores, medical arrangements, organisation of the Communications Zone, the Administrative Project and First Key Plan for the layout of bases, Aerodrome Construction Units and Engineer Quarrying Units, Road Construction Companies and Signals Stores Parks—the list is endless.

In principle, however, it must be remembered that the Administrative Staff produce the plan and initiate the maintenance policy; it is the responsibility of the provision Services to produce all the detailed data required by the Administrative Staff for the plan.

It is the responsibility of the Administrative Staff to ensure that the needs of the forward troops are met and that a balance between the demands of the different Services is maintained. There is no point, for example, in building up an attractive reserve of petroleum at a forward dump if the process is at the expense of some other essential store.

As a wide generalisation, it is safe to say that all Services, with a most laudable intention of avoiding any possibility of shortage of their own items of supply, tend to over-insure. It is for the Administrative Staff to be the watch dog which sees that a proper balance is maintained and that the invariably limited capacity of the transport agencies available is used to the best advantage according to the requirements of the moment.

In Operation "Torch" grave limitations were imposed upon the maintenance organisation by reason of lack of rail capacity, long lines of communication, indifferent roads which broke up very early in the campaign under the undue load placed upon them and had, in many cases, to be entirely re-made, a marked shortage of 3rd line transport units, and many other factors.

In retrospect it is probably fair to say that the operations of the First Army in Tunisia presented one of the greatest administrative problems of the war. The facts have already been dealt with in official despatches and several books but, as an exercise in administrative staff work, "Torch" was decidedly a severe test and—it succeeded.

THE R.A.S.C. IN THE KOREAN BASE OCTOBER, 1950—MAY, 1951

by Major A. O. POWELL, R.A.S.C.

IN SEPTEMBER 1950 we joined, rather secretly, the British Element Korean Base in Mill Hill—North West London—secretly, because the size of the British Element contribution to the U.N. Forces had not, at this time, been made known. The world had been staggered by the fact that the North Korean forces were sweeping down towards Taegu and Pusan, and although United Nations troops, bravely spearheaded by Americans, hurriedly despatched from their occupational duties in Japan, were contesting every inch of the ground, the surge to the South was inexorable. Britain had already contributed to the Force by sending two battalions euphemistically designated the 27th Brigade, from Hong Kong, and these were joined by an Australian battalion from Japan. All were fighting magnificently—and now they were to be reinforced with the 29th Independent Brigade Group from the United Kingdom. There would be a co-ordinating administrative headquarters—The British Element Korean Base—commanded by a full Colonel, which, of course, would not be tactically involved.

The commitment was unknown, the war might be over before we arrived—no one knew the conditions on the other side of the world, but what we did know was that it was sure to be cold when we arrived, and that the Americans had plenty of food, except combat pack rations, and plenty of transport; but would they still be in Korea, or would they be back in Japan? It was decided to organise the Base Headquarters into two echelons, one for Korea and one for Japan—two D.A.A.G.s, two D.A.Q.M.G.s, two D.A.D.S.T.s, etc. The Korea echelon left by air early in October and arrived in Pusan on October 18th.

There is only one port of any size and usefulness in South Korea and that is Pusan, which, not unnaturally, by this time was extremely busy and congested, and likely to get more so. It was therefore decided, that there would be no room for the British contingent in the port area and so the British Commonwealth Korean Base was set up in Taegu, a fairly large city about 100 miles North of Pusan. The word "Element" was dropped from the original title and "Commonwealth" substituted.

A further surprise was in store for us, for, although the war was going extremely well in our favour by this time and everyone imagined it would be over by Christmas, hardly had 29 Brigade, with all their Centurion tanks and guns, arrived by sea in November, before the Chinese intervened in the far North, and the situation took on a completely different aspect.

It had been envisaged that we would make use of the existing facilities provided by the U.S. Army for port clearance and all movement up the Communications Zone. We also expected to get all our P.O.L. and food requirements—other than combat pack rations—from the Americans. Hence, we only had in our order of

battle, one supply section consisting of one officer and thirteen other ranks, and one motor ambulance company. It had been tentatively planned that the supply section would be attached to the American Quartermaster Corps, and would identify and hold our British compo rations which would be issued through American supply channels. 27 Brigade had no R.A.S.C. representative other than a Brigade R.A.S.C. Officer.

During the fly-out of the Base H.Q., it was ruled that owing to restrictions on the use of dollars, no items of food other than fresh bread were to be obtained from the Americans. We had compo and biscuits—enough for 105 days—already on the sea coming to us, and we therefore had to make do as best we could.

It must be remembered that 27 Brigade were expected to be relieved on the arrival of 29 Brigade, but owing to the Chinese intervention it could not be spared. It had no Brigade transport of its own and so, reluctantly, we had to turn the motor ambulance company—at least partly—into a load carrying company. One platoon handed in their ambulances and drew three tonners as and when they arrived in the theatre. Our reserves were already committed! All Base H.Q. transport, other than about five jeeps and one three tonner, was impressed into service with 27 Brigade. We did not hand over our compo rations to the U.S. Q.M. Corps, but set up our own system of supply—operated by the supply section.

Meanwhile the Korean winter was descending on us with frightful speed, and compo—while an excellent ration for a short time—was beginning to pall, and lacked the necessary bulk for arctic conditions. We had signalled for extra supply units—a H.Q. company and two platoons—and asked for a cold climate scale of rations with tinned equivalents. These requests were approved and the supply personnel arrived by air in February and married up with the supplies that had been despatched earlier. We kept up a steady plea to be allowed to draw fresh items of the ration scale from American sources as the cold storage facilities in Pusan and up the Communications Zone were fully committed and no space could be made available for us. Treasury approval was given eventually in February.

We obtained most of our P.O.L. supplies from the Americans who were at all times most helpful. The only items for which we were responsible were Oil C.600 for use in the gear boxes of Centurion tanks, and at a later stage, those special oils and greases which we took over from the R.A.O.C., such as buffer oil. The Americans also provided Ethylene Glycol Anti-Freeze, but this was always in short supply, and the very strictest control had to be exercised in its use. Rumours that a mixture of anti-freeze and orange juice, when taken internally, provided a considerable lift and helped to ward off the rigours of the arctic winter, came to the ears of the writer, but no personal experience could verify the efficacy of the draught.

There was no P.O.L. pipeline in use, and there were virtually no storage tanks in the country. All P.O.L. was railed up forward in American 55 gallon drums, reputed to contain 53 gallons and actually holding 52 gallons—the fact that these quantities had to be translated into Imperial Gallons for the purpose of returns to the War Office meant another headache for the clerks. The different nomenclature of the various oils and greases also meant the production of a small pamphlet for all drivers to ensure that the necessary translations were effected.

All drivers and quartermasters were soon bi-lingual, especially where P.O.L. was concerned.

P.O.L. was delivered direct into Brigade Areas by the Americans, where it was taken over by the Composite Platoon of the G.T. Company in 29 Brigade. 27 Brigade drew their P.O.L. direct from the nearest Eighth Army Class III Supply Point, and a weekly return was rendered by both Brigades to Base H.Q., showing the amounts drawn.

As far as ammunition was concerned, the R.A.O.C. had, originally, a main Ammunition Depot not far from Pusan and Taegu. The expenditure, particularly of 25 pounder and 20 pounder, was extremely heavy and ammunition was railed forward to the Maintenance Area and taken into the Ordnance Parks, whence the Brigades drew their requirements.

The first few months from October to February were hectic ones for the R.A.S.C. behind the Brigades, not only because we were so few in number, but the climate was quite appalling. The roads—or perhaps I should say, the road—the only main supply route—was in an extremely poor condition, being unmetalled for over 150 miles from Pusan, and having had so many vehicles, tracked and wheeled, pass over it. The ice and snow made driving very dangerous and tiring, and it was remarkable that there were so few mishaps. Road movement up the Communications Zone was restricted to the minimum, and the maximum use was made of the railways, operated by South Koreans under American control.

Because we were operating our own system of supplies, and because our Base Supply Depot was situated in Taegu, we were posed quite a number of intricate problems. The bitter cold weather dictated that considerable transport space had to be taken up with sleeping bags and blankets. Consequently, with no extra transport to call upon for this commitment, we had to be most careful not to bog the Brigades down with rations and other stores when a move was impending, and yet we had to ensure that they got everything they wanted when they wanted it. We had to operate the transit depot at the port, while supplies were awaiting shipment by road and railway up country, and also the main Base Depot in Taegu, as well as sending up balanced box-car loads of rations, cigarettes, rum and miscellaneous items to the Maintenance Area, and in some cases direct to the Brigades, a hundred or more miles to the North. We had only one small supply section to cope with this task—one officer and thirteen men, nearly all reservists.

In addition to these facts, we had to keep accurate accounts of all stores, supplies and P.O.L. obtained from American sources, and of our own issues to other nationalities, such as the New Zealanders, Canadians, Australians and Indians. Every month returns had to be made not only to the War Office direct but to the Financial Adviser in Base Headquarters. This imposed quite a strain on our clerical personnel, but they rose to the task with commendable efficiency.

An advance party from the Canadian Brigade had arrived in Pusan in November. We were fortunate enough to get some very keen members of the R.C.A.S.C. into service, and they did very well indeed. Nine drivers, under a subaltern, volunteered for supply work, and were sent to the Maintenance Area to receive supplies and issue to the Brigades. We were also able to reinforce our base transport with a few G.M.C.s—the standard three tonner of the American

Army—also run by the Canadians. They were invaluable for looking after their own Princess Patricia's Light Infantry who were the advance guard of the Brigade, and who were forming up, during January, in the Miryang area, south of Taegu, before joining 27 Brigade.

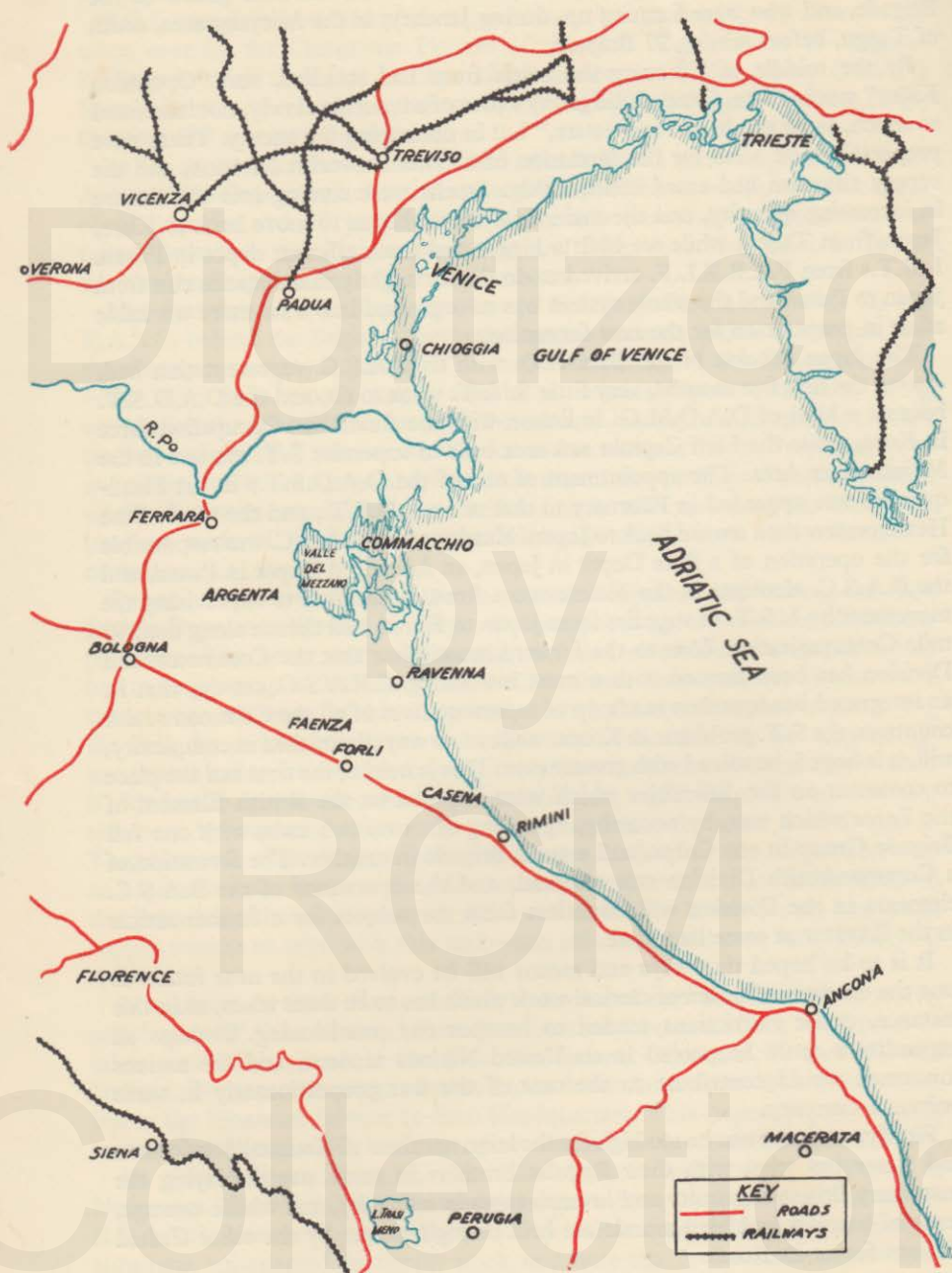
By the middle of February the battle front had steadied, and "Operation Killer" was in force, General Ridgeway's plan of advancing slowly, not interested so much, as he put it, in "real estate," but in destroying the enemy. There were preparations on hand for the formation of a Commonwealth Division, and the supply situation had eased considerably. Stocks were coming into the theatre in increasing quantity, and the main Base Depot began to move back to Kure, Japan, from Taegu, while we built a bigger and more efficient depot in Pusan. L.S.T.s from F.A.R.E.L.F. arrived to do the fortnightly maintenance run from Japan to Pusan and the whole system was re-organised into a far more workable affair in preparation for the new formation.

The Japan echelon of the Base H.Q. with its R.A.S.C. representation had, during the first five months, very little S. & T. work to do, and the D.A.D.S.T. became a kind of D.A.Q.M.G. in liaison with the Australian Occupation force in Kure, while the Staff Captain was sent over to supervise S.T. matters in the Maintenance Area. The appointment of one of the D.A.D.S.T.s in the Headquarters was upgraded in February to that of an A.D.S.T., and the whole Base Headquarters then moved back to Japan. Headquarters R.A.S.C. was responsible for the operation of a Base Depot in Japan, an Advanced Depot in Pusan, and the R.A.S.C. elements in the Maintenance Area, in addition to supervising the movement by L.S.T. of supplies from Japan to Korea, and thence along the 250 mile Communication Zone to the forward areas. Now that the Commonwealth Division has been formed with a most interesting C.R.A.S.C. set-up, that is, an integrated headquarters made up of representatives of all the Commonwealth countries, the S.T. problems in Korea, while in no way diminished in complexity, will, it is hoped, be solved with greater ease. This is neither the time nor the place to comment on the difficulties which were imposed on the British Element of the Force which was, by necessity, operating often on two axes, with one full Brigade Group in one Corps, and a small Brigade in another. The formation of a Commonwealth Division was essential, and the operations of the R.A.S.C. elements in the Division will doubtless form the subject for a further article in the REVIEW at some later date.

It is to be hoped that ways and means will be evolved in the near future to ease the enormous burden of clerical work which has to be done when, as in this instance, dollar restrictions tended to hamper our provisioning. Perhaps all expenditure could be pooled in an United Nations account, and the nations concerned would contribute to the cost of the war proportionately in some universal currency.

Finally, no praise can be too high for the large numbers of National Servicemen and Reservists who, with their Regular brothers in arms, are displaying the customary British ingenuity and inventiveness in adversity, and whose courage, sense of humour and high morale are held in high esteem by the other United Nations forces in Korea.

THE ROYAL ARMY SERVICE CORPS REVIEW



THE R.A.S.C. REGIMENT

by Brigadier S. T. DIVERS, C.B.E., D.S.O., T.D.

FOREWORD

I have read with great interest this story of the training and exploits of the R.A.S.C. Regiment which was formed in Italy for a special task early in 1945. There is no doubt the exploits of this Regiment bring out many of the good qualities of the British soldier, his adaptability, his enterprise, and his good team work. The task which was carried out by the Regiment was a race against time and it is extraordinary how rapidly the Regiment was trained for this special role. The success achieved would not have been possible but for the excellent standard of mechanical training reached by R.A.S.C. units in Italy.

I am sure that, if the occasion arises in the future, men of this famous Corps will again display the enterprise and fighting spirit which they all did in the Po plains in April 1945.

R. L. MCCREERY,

General.

AFTER THE CAPTURE OF ROME, and the advance to the Gothic line, the Italian campaign of 1944 had proved one of slow, steady advance by the Allies against a skilful enemy determined to yield no ground until an adequate price had been exacted and withdrawal became unavoidable.

The close of the year found the Allies on a line running west to east from the coast a little north of Pisa, through the Appenines and south of Bologna, to the coast just north of Ravenna.

The American Fifth Army, including some British and Dominion divisions, had for months been engaged in a slugging match through the Appenines north of Florence. The British Eighth Army on the right had also fought a series of tough battles of a different nature. Their right was in the Po plains, flat, but with visibility generally restricted by the vineyards. Rivers with high flood banks barred the advance every few miles. Eighth Army's left was working along the foothills of the Appenines, more open, but the hills often had precipitous slopes impassable to tanks.

The extreme left of the German line was protected by Lake Comacchio, a large shallow lake with swampy surroundings constituting a formidable natural obstacle.

The close of the year also found the Allies, short of manpower, tired and with ammunition stocks extremely low.* A further setback was caused by the move of the first class Canadian Corps from Italy to the Western Europe theatre;

*Very heavy expenditure in Italy and Western Europe in 1944 had coincided with a realignment of production in the U.K., with the result that replacement of ammunition into Italy dwindled to a trickle and expenditure by the fighting formations had to be severely controlled.

the serious step of forming four Italian "divisions" for service in a holding capacity had to be taken.

However, the prospect of an offensive which would annihilate the German forces in Italy was apparent. It was also clear that such initial success must be secured as would prevent a new defensive line being established behind the formidable River Po some miles to the north.

Between Lake Comacchio and large flooded areas along the River Reno to the west was a narrow avenue about 4,000 yards wide, termed the Argenta Gap. If this heavily mined and well-defended position could be forced, it would be possible to outflank the enemy and facilitate his destruction.

At this stage, an offer was received of new equipment in the form of L.V.T.4 ("Buffaloes"). This was a roofless lightly armoured amphibian vehicle, armed with heavy machine guns, and capable of carrying infantry, or of being fitted with a 25 pounder gun; it was propelled over land or in water by its tracks. They had been used recently in Holland with success. A few could be made available for training fairly soon, but the bulk could not arrive until mid-March. A total of 182 L.V.T.'s could be allotted to Eighth Army.

Approximately the same number of vehicles were to be made available to the U.S. Fifth Army.

It was appreciated that if these new vehicles could be used successfully it might be possible to make a surprise crossing of Lake Comacchio with infantry supported by considerable fire power, turn the enemy's left flank and thus facilitate the capture of the main Argenta positions. Rapid exploitation of success could mean the River Po being crossed swiftly, and lead to the complete collapse of the enemy in northern Italy.

Time, however, was an enemy. It was essential to launch an offensive by the early part of April; it was now January, and not one of the vehicles was then available for training. Moreover, men were scarce. The first proposition was to re-equip two armoured car regiments, but two could not be spared. A suggestion was then made to use some R.A.S.C. personnel to augment one armoured car regiment. The D.D.S.T. suggested that it would be a pity to immobilise an armoured car regiment since, if the operation were a success, exploitation would provide opportunities for its normal role and its loss might then prove regrettable. He further suggested that a regiment be formed entirely from R.A.S.C., thereby increasing the fighting strength of Eighth Army instead of reducing it. There was strong opposition on the grounds that the lack of available training time made it essential to use men from units already trained on armoured vehicles. The reply to these arguments was that R.A.S.C. personnel were mechanically minded, all would be picked men, and that there would be a strong nucleus of men experienced in assault and amphibious operations through the inclusion of a D.U.K.W. company as part of the regiment. The D.D.S.T. guaranteed that preliminary training could start within a few days in wireless and in driving "Honey" tanks, which were available and had similar engines and controls to the L.V.T.4's.

A decision was deferred, and a small party was flown from Army H.Q. to Holland to examine on the spot these new vehicles and their performance. On the return of this party, opposition to using R.A.S.C. personnel alone remained strong, but the Army Commander (Lieut.-General Sir Richard L.

McCreery, K.C.B., K.B.E., D.S.O., M.C.), decided the task should be given to the R.A.S.C. and that the new unit be designated the R.A.S.C. Regiment.

On the 7th February, 1945, orders were issued for the formation of the Regiment.* The foundation of the Regiment was Headquarters of 15 Army Transport Column, 385 Coy (D.U.K.W.S.), and 931 Coy (G.T.); personnel to complete were drawn from forty-one miscellaneous R.A.S.C. units with a very valuable contribution from A.F.H.Q. of 150 other ranks. The R.A.S.C. workshops were organised to function as a L.A.D., and R.E.M.E. co-operated to provide a R.E.M.E. workshop in support. Lieut.-Colonel D. McQ. Forbes was given command.

Secrecy became of paramount importance. An area on the shores of Lake Trasimeno was placed under special security control and reserved for training. The Regiment assembled and training began on 14th February under control of 9 Armoured Brigade.

It was necessary to carry out the different phases of training simultaneously. Thus, training of wireless operators proceeded at the same time as training in driving and maintenance (using about fifty "Honey" tanks and instructors provided by 9 Armoured Brigade). M.G. training (.5 and .3 Browning) and semaphore signalling were fitted in. Meantime, R.A.S.C. workshops received intensive training by R.E.M.E. in tank maintenance, recovery and repair. Three officers and a dozen N.C.O.s with experience of L.V.T.4's were flown from England and on 8th March training on Lake Trasimeno started, with a few L.V.T.s which had arrived. Time was so short that each driver could have only three days' training on the Lake followed by two days on the River Tiber, where banks were steep and the current strong. In practice, this amounted to a total of 3½ hours driving for each first driver and two hours for L.V.T. commanders and reserve drivers (who, incidentally, were also the machine gunners)—absurdly small judged by normal standards.

One of the squadrons was to be fitted with 25 pounder guns; although the guns were to be operated by R.A. gunners, R.A.S.C. personnel had to learn sufficient about the guns to assist in action.

It is impossible to describe adequately the terrific enthusiasm which permeated all ranks; one hour's training became worth four or five under ordinary conditions; every man was determined to learn as much in as short a time, as possible. Above all, they meant to make R.A.S.C. history. At this time, the very rare luck of leave to England came the way of one driver after four years overseas and he refused it because he would miss the "show." This spirit was fostered by the knowledge that in the U.S. Fifth Army, their counterpart was an orthodox tank battalion reinforced (755 Tank Battalion).

Incredibly rapidly the Regiment became trained and organised; equipment arrived to equip squadron by squadron and a R.N. officer joined each squadron for navigation duties. The first squadron began troop training on 20th March; regimental day and night exercises followed from 29th-31st March in co-operation with the U.S. 755 Tank Battalion, 27th Lancers, and troops of 56 (London) Division, with whom the assault operations would be made. These exercises were successful and silenced any doubts which might remain about the efficiency

*As a matter of interest, a copy of the order is reproduced at the end of this story.

of the Regiment, and also inspired confidence in all troops who were to participate in the operations. The Regiment was concentrated forward early in April. When the writer inspected them there, he found the same enthusiasm present which had characterised training.

Within about six weeks a miscellaneous body of men had been welded into a fighting formation, with highly specialised equipment with which they had no previous experience whatsoever; above all, they possessed confidence and the determination to succeed.

Whilst progress in this enterprise was being made, another special need arose. A considerable number of "storm" boats (a shallow draught, unarmoured craft driven by an outboard motor and capable of carrying several infantrymen) became available. As usual, there were insufficient men to take full advantage of these. R.A.S.C. units were again pruned, and about a hundred drivers were provided to man these craft in sub-units organised under Royal Engineers. Training needed was negligible compared with that for the L.V.Ts, wireless and gunnery training for example being unnecessary. The result, however, was a welcome addition to the number of troops which could be used for assaults over water obstacles and likely to be invaluable when the River Po was reached.

It was decided to launch a preliminary attack, using one squadron of the Regiment, during night 1st-2nd April, to secure objectives on the narrow spit of land separating Lake Comacchio from the sea, and which would also test the R.A.S.C. Regiment, the L.V.Ts., and the storm boats under battle conditions. The attack was made with troops of 2, 9 and 43 (R.M.) Commandos in two groups; one group in L.V.Ts. attempting to cross the south-eastern corner of the lake, and the other group, a few hours later, attacking on land along the "Spit" and crossing the river Reno near the mouth. The L.V.Ts. failed to progress through the thick mud near the southern edge of the lake, and some stuck fast; the Commandos were transferred to storm boats and the operation proceeded. The attack succeeded with almost negligible casualties. Recovery of the L.V.Ts. stuck fast in the mud went on throughout the night and was not completed until well after dawn and then under enemy observation. Meanwhile the attack along the coast was completely successful, where L.V.Ts. gave supporting fire from Browning guns and silenced at least two Spandau positions; one L.V.T. was knocked out by anti-tank fire.

Valuable lessons had been learned. "The Regiment" was sound and the R.A.S.C. drivers good offensive fighters; limitations of the new equipment had been discovered. Further trials on the lake on April 3rd confirmed these limitations. As a result, the original plans for the main assault were revised. A new plan to land the 24 Guards Brigade from the sea well behind the enemy had to be abandoned on news of considerable enemy reinforcements to his left (Adriatic) sector and it was then decided to find more suitable starting points and to commit a smaller force of L.V.Ts. initially. The next few days were spent in intensive reconnaissance of the southern approaches to the lake and satisfactory starting points for L.V.Ts. were established.

On April 6th the C. in C., Field Marshal the Hon. Sir Harold B. L. C. Alexander, G.C.B., G.S.I., D.S.O., M.C., A.D.C., visited the forward concentration area; he inspected the Squadron of the Regiment, witnessed a small landing demonstration on the seashore with the troops from 1st Buffs,

and met all the officers of the Regiment and those of the U.S. 755 Tank Battalion.

On April 1st at 0700 hours the main attack was launched with two squadrons from 755 U.S. Tank Battalion and one squadron plus several sections of R.A.S.C. Regiment carrying 2/5 Queens and 2/6 Queens of 169 Brigade; one of the R.A.S.C. sections was used to establish smoke posts. The starting point was Umana and by 0930 hours the objective Menate Gap was reached. Complete surprise was achieved and success was up to the highest expectations. During the night a small detachment of the R.A.S.C. Regiment carrying some troops of the 24 Guards Brigade carried out a successful diversionary attack on the Spit, helping the troops already established there forward. During April 12th the Regiment was used for a maintenance build up and one squadron moved a battery of 113 Field Regiment to join the forward troops in advance of Menate.

A further outflanking operation with the Commandos and 56 (London) Division was carried out on April 13th at very short notice, preceded by a recon party using four L.V.Ts. to test the possibility of crossing the Canale Bando, and six L.V.Ts. for laying smoke. The remainder of the available L.V.Ts. of this Regiment (about squadron strength) including L.V.Ts. carrying one battery of 25 pdrs in a S.P. role and two squadrons of the U.S. 755 Tank Battalion followed. The Canale Bando was found to be impassable and an objective was selected well to the south-east. The wind was off shore and smoke parties had to go right into the beach to be of any use. Even so the smoke cover was inadequate; consequently the 25 pdrs were used mainly to fire smoke. One squadron leader found himself acting as O.P. for the 25 pdrs and with the command of the squadron, had a busy time. Success was again achieved but with more appreciable casualties—three L.V.Ts. “brewed up,” two drivers killed, two missing believed killed, and three wounded.

Following this operation there were a number of diversionary raids; all valuable and demoralising to the enemy.

All these operations caused the enemy considerable losses and disorganisation. The main Eighth Army land assault through the Argenta Gap, thus assisted, was completely successful, and soon all reports from the Fifth and Eighth Armies were of outstanding success and the rapid disintegration of the enemy's forces.

The Regiment moved forward, always looking ahead to the major task of crossing the River Po and carrying out incidental tasks on the way; one bound was entirely on tracks involving $4\frac{1}{2}$ hours over reasonable ground and $3\frac{1}{2}$ hours over flooded fields. During this phase the Regiment became split into a number of detachments, but by April 25th it had regrouped just south of the River Po as follows:

One squadron north of Copparo for 169 Brigade.

R.H.Q. and two squadrons, plus remains of one squadron, north-west of Ferrara for 8 Indian Division.

One squadron, less detachment (8 L.V.Ts.), a little further west for 6 Armoured Division.

A detachment of 8 L.V.Ts. for 2 N.Z. Division in the same general area.

The crossing of the River Po was made on 25th and 26th April with no serious resistance, just a little M.G. fire and sniping. The main task completed, the story thereafter was one of movement and ferrying tasks with little or no rest, but there were some interesting features. For example, R.H.Q. and two squadrons

"sailed" a distance of twenty miles down the River Po to San Antonio on a dark night, with a minor setback when the leader ran into a hawser stretched across the river at Ferrara which catapulted the adjutant into the water when he attempted to release it; four vehicles travelled on their tracks towing four 25 pdrs across the River Adige to Venice, a distance of fifty miles.

By the end of the month, the Regiment was again concentrated and still enthusiastic though exhausted. All vehicles had exceeded 100 hours running and many 200 hours; ninety per cent were still fit for service but needed maintenance badly.

The final capitulation of the enemy soon after is now history.

The operations proved the adaptability and common sense of the ordinary R.A.S.C. driver, for which credit must go to his basic training and the initiative deliberately encouraged in him when carrying out ordinary duties; this is worth remembering now, and in the future. It was seen particularly in those chosen to be individual L.V.T. commanders, a large proportion of whom were ordinary drivers appointed unpaid lance corporals. Each had to learn to drive a L.V.T., and all about its capabilities over country, water and other obstacles, how to use a No. 19 wireless set including R.T. procedure and netting, semaphore signalling and visual signalling peculiar to the Regiment. In action they displayed confidence and initiative, the value of which cannot be over-estimated when it is remembered that each was in complete control of a L.V.T. often carrying an infantry platoon with its officer.

The considerable fire power of the Regiment is worth recording. Each L.V.T. had a .5 Browning and a .3 Browning; in each troop (7 to 9 L.V.Ts.) two of the L.V.Ts. had 20 mm Oerlikons in place of .5 Brownings (a small number of L.A.A. gunners were attached to the Regiment to man these Oerlikons).

The following messages from the Army Commander provide a fitting conclusion and, it is thought, make military history so far as the R.A.S.C. is concerned:

1. From: Main EIGHTH ARMY

For action: 9 Armd Bde (for RASC Regt)

AC/109 (.) SECRET (.) Personal for Col FORBES RASC Regt from Army Cmd.(.) My best congratulations to you and all ranks on the splendid way you are carrying out your special task.(.) The special equipment which you are commanding has played a big part in getting the right wing of Eighth Army through the formidable ARGENTA positions which was a decisive phase in our present offensive.(.) You have all worked against time from the start and all ranks have shown a splendid fighting spirit and a determination to surmount all difficulties and a striking success has been the result.(.) You have all played a key part in Eighth Army operations and will continue to do so.(.) Well done indeed.

THE R.A.S.C. REGIMENT

2. From Headquarters, Eighth Army, C.M.F.

20th April, 1945

Dear Joe,

I enclose a copy of a message I have sent to Forbes. Your chaps have done splendidly, and they can all feel that they have played a decisive part in breaking through the key ARGENTA positions.

I do not think this would have been possible without the successful outflanking movements along the lakeside. I know too that they will again be to the forefront in our crossings of the River Po ahead.

Well done.

Yours ever,

(Sgd) R. L. McCreery

COPY

TOP SECRET

Copy No. 21

ST EIGHTH ARMY OP INSTR NO. 1

7th February, 1945

INFORMATION

1. Regts equipped with LVT 4 are to be formed for a limited period for operations in this theatre.

INTENTION

2. To form one RASC regt equipped accordingly to participate in such operation.

METHOD

Preliminary moves

3. (a) 385 Coy RASC (DUKWS) and 931 Coy RASC (GT) pass to comd Eighth Army with effect 8 Feb. 45.
(b) All DUKWS on charge to 385 Coy RASC (DUKWS) are being handed over to 239 Coy RASC (DUKWS) for care and maint.
(c) Care and maint of task vehs of 931 Coy RASC (GT) plus vehs of half Wksps Pl are being arranged by Fifth Army (Br Inc).
4. On assembly in training area unit will be known as RASC Regt and will consist of H.Q. and five sqns "A", "B", "C", "D" and "E" respectively.

These titles will not be used for private correspondence or documentation.

ORGANISATION

5. Diagrammatic Org is shown at Appendix "A".
6. RASC Regt will be comd by Lt Col. D. McQ. FORBES, CRASC, 15 Army Tpt Coln.
7. (a) H.Q. RASC 15 Army Tpt Coln will form HQ Regt and "E" Sqn.
(b) 385 Coy RASC (DUKWS) will form "A" and "B" Sqns.
(c) HQ and each Sqn will be domestically self-contained.

PERSONNEL

8. (a) Provisional strengths are given at Appendix "B" and will be subject to amendment by Comd RASC Regt in the light of experience.
- (b) Units from which personnel will be found are given at Appendix "C".
9. To simplify documentation and maintain reinforcements the following special procedure has been agreed "A" Branch and will operate :—
 - (a) All personnel for HQ and "E" Sqns will be carried on posted strength of HQ 15 Army Tpt Coln.
 - (b) All personnel for "A" and "B" Sqns plus wksp personnel of 385 Coy RASC (DUKWS) will be on posted strength of latter.
 - (c) All personnel for "C" and "D" Sqns plus wksp personnel 931 Coy RASC (GT) will be on posted strength of latter.
 - (d) This will mean each unit will be in excess of normal WE. When assembly is completed, a record will be prepared by 15 Army Tpt Coln for each unit, and submitted to this Branch. On approval the overall strength will be regarded as a provisional WE for purposes of reinforcements, promotions, etc.
10. On assembly under orders issued by this Branch, comd passes to 9 Armd Bde.

TRAINING

11. Training will be carried out in accordance with orders of 9 Armd Bde. Pending detailed orders, following immediate training has been arranged:—
 - (a) Signal operators at present location of 385 Coy RASC (DUKWS) by C.S.O.
 - (b) Training on repair of armd vehicles by one sec wksp 385 RASC (DUKWS) in a wksp to be named by DDME.

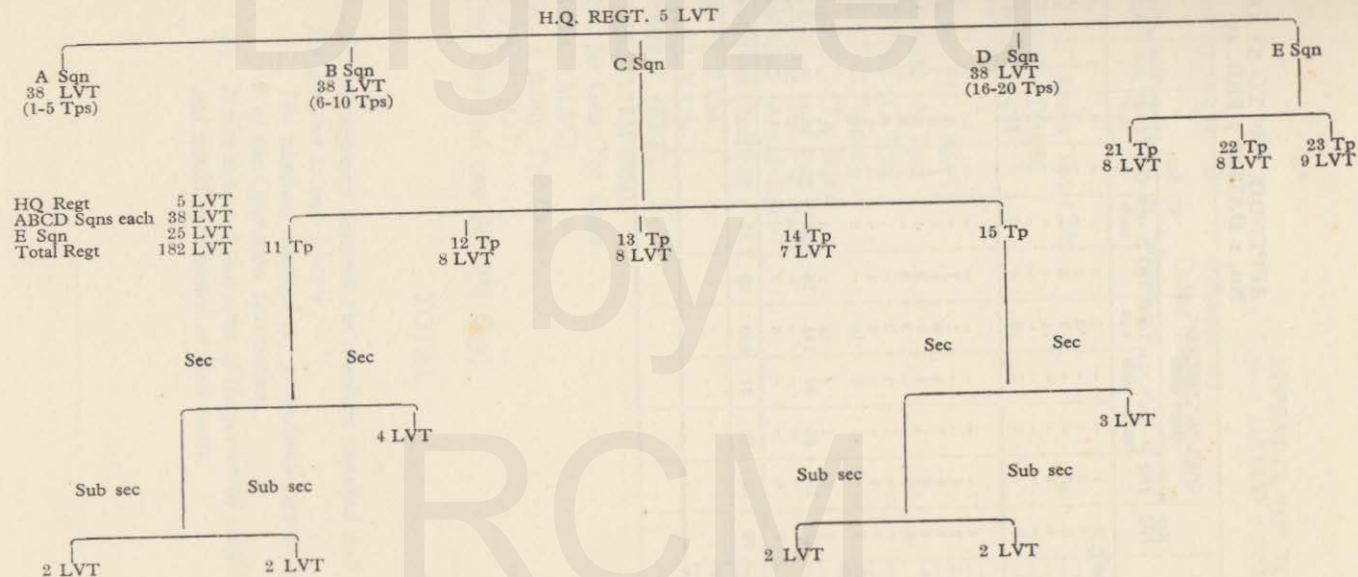
ACK

(Sgd) S. T. DIVERS
Brigadier, DDST.

Distribution

	<i>Copy No.</i>		<i>Copy No.</i>
HQ 15 Army Tpt Coln ..	1	C.S.O.	9
385 Coy RASC (DUKWS)	2	Brig AFV	10
931 Coy RASC (GT) ..	3	DDME	11
9 Armd Bde	4—5	"A"	12
Chief of Staff	6	"Q"	13
B.G.S.	7	War Diary	14—15
D.S.T.	8	File	16
		Spares	17—22

APPENDIX "A" TO ST OP INSTR
No. 1 DATED 7 FEB. 1945



Note: The squadrons were later re-designated.

A became W Sqn
B " X " "
C " Y " "
D " Z " "
E " S (Support) Sqn

THE R.A.S.C. REGIMENT

APPENDIX "B" TO ST OP INSTR
No. 1 DATED 7 FEB. 45

Transport	Rgt HQ	"A", "B", "C", "D" Sqns each				"E" Sqn				Wk- sps	Total Regt	10% for wast- age
		HQ	3 tps each	2 tps each	Total sqn	HQ	2 tps each	One tp	Total sqn			
Car 4 str, 15 cwt, bantam	8	7	—	—	7	6	—	—	6	5	47	
Lorries, 3 ton ...	5	3	—	—	3	2	—	—	2	1	20	
Water truck or trailer ...	2	2	—	—	2	2	—	—	2	1	13	
Motor Cycles ...	6	4	—	—	4	4	—	—	4	2	28	
Tech vehs ...	—	—	—	—	—	—	—	—	—	8	8	
LVT ...	5	—	8	7	38	—	8	9	25	—	182	
Personnel												
Lieut-Col ...	1	—	—	—	—	—	—	—	—	—	1	
Majors... ..	2	1	—	—	1	1	—	—	1	—	7	
Cpts or Lieuts	2	1	1	1	6	1	1	1	4	1	31	4
CSM, CQMS or Sgt	1	2	1	1	7	2	1	1	5	1(a)	35	3
Clerks (T) ...	6	3	—	—	3	3	—	—	3	2	23	
Adm Cpls ...	—	—	1	1	5	—	1	1	3	1	24	
Sqn Fitters ...	3	1	—	—	1	1	—	—	1	—	8	
Sgts or Cpls (Sec cmd)	1	—	2	2	10	—	2	2	6	—	47	4
Cpls or L/Cpls (Sub Sec cmd) ...	2	2	4	4	22	2	4	4	14	—	104	10
Drivers ...	45	19	26	22	141	16	26	30	98	3	710	71
Wksp tech personnel	—	—	—	—	—	—	—	—	—	78	78	
Cooks ACC ...	3	4	—	—	4	4	—	—	4	2	25	
	66	32	35	31	200	30	35	39	139	88	1093	92
10 per cent for wastage during training ...											92	
TOTAL ...											1185	

NOTE—(a) MSM

APPENDIX "C" TO ST OP INSTR
No 1 DATED 7 FEB. 45

Total from Appendix "B" Officers: 43
 Other Ranks: 1,142*

Personnel to be provided as follows :—

	Officers	Other Ranks
HQ RASC 15 Army Tpt Coln	7	34
385 Coy RASC (Dukw)	9	331
931 Coy RASC GT	7	340
AFHQ	—	150
DDST EIGHTH ARMY	11	—
142 Coy RASC (A Tpt)	—	35
393 Coy RASC (C Tpt)	—	35
99 Coy RASC (Tipper)	—	35
107 Coy RASC (Tk Bde)	1	14
491 Coy RASC (Inf Div Tps)	—	14
925 Coy RASC (Armd Bde)	1	14
347 Coy RASC (A Tpt)	—	35
1537 Arty P1 RASC	—	10
1565 Arty P1 RASC	—	10
216 Coy RASC (BPT)	—	13
513 Coy RASC (Inf Bde)	1	—
HQ RASC 10 Gen Tpt Coln	1	—
2 Coy RASC (MAC)	1	—
HQ RASC 1 Army Tpt Coln	3	—
239 Coy RASC (GT)	—	50
Wksps (385 Coy and one Sec 931 Coy)	1	87
TOTAL	43	1,207*

*NOTE—The discrepancy between the numbers required and the numbers asked for are due to two factors :

- The numbers required are provisional figures only—see paragraph 8 of the Operation Instruction.
- It was expected that some of the personnel would be found unsuitable and would be returned to their units.



Adjutant riding up Old College Steps

THE ROYAL MILITARY ACADEMY SANDHURST

by Major H. C. PALMER, M.B.E., R.A.S.C.

THE ROYAL MILITARY ACADEMY, SANDHURST, which came into being in January 1947, is the direct descendant of those two famous institutions, the Royal Military Academy, Woolwich and the Royal Military College, Sandhurst. It had been the intention for some time prior to the 1939-45 War to amalgamate the R.M.A. and R.M.C. but it was not until 1939 that the final decision to do so was made.

The War made the proposed amalgamation impossible until 1946, and the first intake to the new establishment arrived in January 1947. Since that time there has been a steady flow of Regular Officers to the Arms and Services from the newly constituted R.M.A.S.

THE AIM OF THE R.M.A.S.

The essence of all training at the R.M.A.S. is to provide a solid foundation on which the Officer Cadet can build his career as a Regular Officer. The eighteen months course is designed to develop character and leadership qualities, and to provide a basic military and general education common to all Arms. No specialist training is undertaken at the R.M.A.S., this is carried out at the various Arms Schools after the Officer Cadet has received his commission. In the R.A.S.C., the special to Arm training takes place at the R.A.S.C. Training Centre by means of Junior Officer Courses.

THE ORGANISATION OF THE R.M.A.S.

The R.M.A.S. is organised into three Colleges, Old, New and Victory. Each College is commanded by a Lieut.-Colonel, with an Adjutant and R.S.M. There are four Companies in each College, each consisting of three platoons. The Companies are named after famous battle honours, the Companies of Old College being "Blenheim", "Dettingen", "Waterloo" and "Inkerman";—New College: "Marne", "Ypres", "Somme" and "Gaza";—Victory College: "Alamein", "Normandy", "Rhine" and "Burma". A cadet's life at the R.M.A.S. centres mainly around his Company, for it is from his Company Officers that he receives most of his military instruction, such as Tactics, Administration, Military Law and Map Reading; and his games too are organised on a Company basis. There are six R.A.S.C. officers at the R.M.A.S., five of whom are Company Instructors. There are four specialist Wings, the Driving and Maintenance Wing, the Signal Communications Wing, the Drill and Weapon Training Wing, and the Fitness Training Wing. These Wings are quite separate from the Colleges and carry out, as their names imply, the more specialised training. The Adjutant of the R.M.A.S. is responsible for Drill and Weapon Training which is carried out on a Company and College basis by Warrant Officers and Serjeants of the Brigade of Guards and Serjeants of the Infantry of the Line, who are

affiliated to Companies. The Signal Communications Wing is commanded by an Officer of the Royal Corps of Signals and is composed of instructors of various Arms, while the Fitness Training Wing consists almost entirely of Army Physical Training Corps Instructors. The Driving and Maintenance Wing has instructors of various arms, among whom there is the sixth R.A.S.C. Officer.

THE CURRICULUM

The Course at the R.M.A.S. lasts eighteen months. It comprises three terms—Junior, Intermediate and Senior, each of approximately five months' duration; new intakes arrive in March and September each year. The time allotted to Academic instruction and Military instruction is very nearly equal, as will be seen from the table showing the allocation of periods to the various subjects during the three terms.

ALLOCATION OF PERIODS TO SUBJECTS

Type of Instruction	Subject	Term			Total
		Junior	Inter-mediate	Senior	
Company Instruction	Basic Military Instruction (Organisation of units in Infantry Division, Foundations of Administration, etc.)	65	3	—	68
	Map Reading	37	—	—	37
	Tactics	—	58	53	111
	Administration	—	56	26	82
	Military History	—	35	20	55
	Military Law	—	—	23	23
	Hygiene	—	—	4	4
	Company Camps	16	16	16	48
	Morale, Leadership	—	—	19	19
	College Commander's Hours	9	9	9	27
	Padre's Hours	5	5	5	15
	Spare	2	2	2	6
Wing Instruction	Drill	83	49	42	174
	Weapon Training	11	12	—	23
	Fitness Training	25	18	16	59
	Signals Communications	—	38	3	41
	Driving and Maintenance	60	—	—	60
	Total Military Instruction	313	301	238	852
Academic Instruction		258	263	292	813
	Grand Total	571	564	530	1,665

THE ACADEMIC SIDE

Closely integrated with military instruction is academic instruction, which is the responsibility of the Director of Studies, who is a civilian and who supervises the four departments of Science, Mathematics, Modern Subjects and Languages. These departments are staffed by civilian lecturers, who are affiliated to

*The Old Building*

Companies throughout the Academy, and who play an important part in the life of Sandhurst although they do not instruct on a Company basis. This is due to the fact that the standard of knowledge varies between cadets, and academic instruction is therefore carried out on a 'set' basis, designed to suit the ability of the individual cadet.

The academic side is primarily concerned with giving Officer Cadets an academic education which is related to their professional requirements and to encourage the further study of languages or subjects of a literary, historical or scientific nature as the individual cadet may select, after his Junior Term. The academic side is also concerned with remedying such weaknesses in basic education as may be found to exist among cadets on arrival.

One result of combining the "Shop" and the R.M.C. has been the necessity to arrange, within the syllabus, different courses. These include a special course in preparation for the University of London Intermediate Examination in Engineering or Science, and meets the present day requirements of having a few officers with a scientific training in all Arms, as well as the particular demands of the Royal Engineers, Royal Signals and R.E.M.E. Candidates for the R.A. must also attain a definite standard of proficiency in mathematics; if they fail to do this, they are put into a category known as N.Q.R.A. (not qualified Royal Artillery) at the end of their Intermediate Term, although they are given a final opportunity of qualifying in their Senior Term.

As a result of these considerations, each cadet is interviewed soon after his

arrival, and he is selected for the course of study best suited to his ability. Those cadets who show most ability on the scientific and mathematical side are selected for the special course (mentioned above), known as Course A. The remainder complete a common course in their Junior Term, consisting of Modern Subjects, a Language, Science and Mathematics. For his second and third terms each Officer Cadet has a choice of three courses of study. All these courses include one foreign language, two of them include a second language. Modern Subjects including Economics and a study of the British Commonwealth are common to all, while varying amounts of time are devoted to Mathematics and Science.

No special course of study is required for the R.A.S.C., which accepts candidates from all Courses.

LEADERSHIP TRAINING

Very great attention is paid to leadership qualities in the Officer Cadet whilst he is at the R.M.A.S., and these qualities are developed and encouraged in a variety of ways. In each Senior Intake in each company, one Senior and three Junior Under Officers and a Senior Serjeant are selected. These cadets are responsible to the Company Commander for the daily routine administration in the Company and have a certain authority over the other cadets. All other Seniors wear special insignia, and have some duty within the Company to perform, such as running Company games and commanding sections within the Platoons.

In addition to games, in which all cadets take part, and to encourage initiative and leadership qualities, there are a large number of clubs and societies, which are run on an Academy basis; the Beagles, Mountaineering Club, Sailing Club, Photographic Society, Highland Dancing Club and Dramatic Society, to list only a few. These all offer interesting and instructive recreation and are run, in the main, by the cadets themselves under the supervision of a member of the military or civilian staff.

CHOICE OF ARM

This, from the cadet's point of view, is obviously one of the most important things that he must consider during his time at the R.M.A.S. Every Corps or Regiment in the Army has a regimental representative among the Officers of the instructional staff who will advise a cadet on any problem that he may have. In addition to these regimental representatives, very full information is given to the cadets during their course about the type of career offered in the various Corps and Regiments to-day, including their role in the Army and their organisation.

About half way through his Junior Term, a cadet makes a provisional choice of Arm, which is in no way binding. It gives Corps and Regimental representatives an opportunity to interview potential candidates, assess their chances and advise them accordingly. He makes his final choice of Arm during his Senior Term.

The cadet may express three preferences. If one of these is R.A.C., he is allowed to state three choices of Regiment within that Arm, the first and second choices being definite Regiments, and the third choice being either a definite Regiment or "any R.A.C. vacancy." In the case of Infantry, the cadet is also

allowed three choices within that Arm, but the first choice only may be a specific Regiment, the second and third choices must be stated as a Group, or alternatively, "any Infantry vacancy."

Thus a cadet's final choice might be:

1st, R.A.S.C.; 2nd, East Surreys; 3rd, Home Counties Bde; 4th, Inf vacancy; 5th, R.A.

1st, 11th Hussars; 2nd, 9th Lancers; 3rd, Any cavalry vacancy; 4th, R.A.S.C.; 5th, R. Sigs.

1st, R.A.; 2nd, R.E.; 3rd, R.E.M.E.

The ultimate selection of cadets into Corps and Regiments is carried out by the War Office Commissions Board, which does all it can to place cadets according to their choice, but vacancies do not always coincide with requirements. Great weight is placed on the cadet's position in the final Order of Merit, but a strong family claim for a particular Regiment may influence the final selection.

ORDER OF MERIT

The two things which decide a cadet's place in the final Order of Merit are his Character Grade and Educational Grade. The former is based on his qualities of leadership, loyalty, determination and the part he has played in all aspects of R.M.A.S. life; the latter by means of examinations in both military and academic subjects. When these two grades are combined, a very real picture is obtained of the cadet's performance at the R.M.A.S., his ability and his probable value as a future officer. The Officer Cadet who is first in the Order of Merit receives the King's Medal. The cadet who puts up the best all round performance receives the Sword of Honour. These two awards are presented at the Sovereign's Parade at the end of each term.

CONCLUSION

It is hoped that this article may help to give Commanding Officers and others some idea of the background of an officer who has been commissioned from the R.M.A.S.

It will be apparent that the young officer joining the R.A.S.C. from the R.M.A.S. will have received a general military and academic education only, and will not have more than a broad picture of the organisation and duties of the R.A.S.C. His detailed knowledge of the Corps must come from training after joining. After completing his J.O.C., the young officer is likely to be posted abroad and it is there that he will assume his first responsibilities and lay the foundations for his future career.

So far 197 cadets have been commissioned into the R.A.S.C. from the Royal Military Academy Sandhurst, and it is estimated that approximately thirty each term will continue to pass into the Corps.

RESPONSIBILITIES AND DUTIES OF THE OFFICERS OF THE HEADQUARTERS OF AN INFANTRY DIVISIONAL COLUMN R.A.S.C.

by Colonel W. O. PHILLIPS, O.B.E.

THERE IS, IN SOME QUARTERS, a tendency to regard a Divisional Column as a collection of independent, self-contained units, loosely grouped for tactical reasons under the control of a mysterious formation known to them as C.R.A.S.C., a term used by them to describe the whole headquarters of the Commander in question.

This tendency may in part be due to the "brick system," excellent in itself, under which our War Establishments are published, since by this system the Headquarters of a Commander R.A.S.C. may perhaps appear to the uninitiated as being a separate unit brought in from outside to officiate in command of a varying number of companies.

This, of course, is an entirely erroneous conception, and nothing could be further from the truth. A Divisional Column must be regarded as one formation, subdivided for reasons of tactical and administrative expediency, into a certain number of companies, but having one entity and one "esprit de Corps."

The Staff of the Commander of the Column, like the Commander himself, has a dual role. Its members form the Regimental Headquarters of the Column, and since the Commander must regard himself primarily as a normal regimental commander, comparable with any other regimental commander responsible for the training, discipline, administration, technical efficiency and tactical handling of the units under his command, so must his staff regard themselves as his assistants in these matters, each in his own particular sphere. This does not, however, complete the picture, since in addition to his duties as a Commander, C.R.A.S.C. is also the adviser to the Divisional Commander and his staff on all S. & T. matters. It thus follows, although he is a regimental and not a staff officer, that both he and the members of his Headquarters must at all times fully realise that their jobs have definite staff tendencies demanding the fullest possible liaison and co-operation with the members of the Divisional Staff.

Just as there are more ways of killing a cat than by drowning it, so there are more ways than one of handling a Divisional Column and its Headquarters, any of which may prove equally successful according both to the tactical situation and to the personality of the Commander and his officers. That there can be no one solitary hard and fast rule is platitudinous, and it is therefore my intention in this article, to describe the methods employed in one particular Infantry Division. These methods were successful; and it is hoped that for this reason my remarks may be of some assistance to others who may, in the future, find themselves lucky enough to command a Divisional Column in action,

surely the most inspiring job open to a Lieutenant-Colonel of the Royal Army Service Corps.

Before attempting to describe in detail the duties of the various members of the Column Headquarters, there are two further points which it is considered should be stressed at the outset.

Firstly, although this may not be feasible on immediate mobilization at the outbreak of war, all officers serving with headquarters of a column should have previous experience as officers of divisional companies; the two majors moreover should if possible have served as company commanders.

I am convinced that the best results can be obtained by the posting to Column Headquarters of officers personally chosen by the Commander from the companies already serving under his command. Such officers know the column, know the officers serving in its companies, know the situation confronting the division and should know officers of other units serving within the division. They are in fact already part of the family and their appointment causes less break in continuity than does the arrival of an officer from outside; moreover since they are already known to the officers of the column, they do not find themselves forced to break down that barrier of initial suspicion invariably confronting an unknown newcomer issuing instructions to the old hands in the name of his Commander.

Secondly, it must be impressed on all officers of Column Headquarters that it is their duty to get out and about. It is quite essential that they should maintain the friendliest personal relations not only with the officers of the companies forming the column but with their opposite numbers at both Corps and Divisional levels and with officers of the units which the column is serving.

These officers must, at all times, be in a position to keep their Commander informed of the S.T. situation within the division, in so far as their own particular interests are concerned, not only from returns and statistics, although these are of course essential, but from their own personal knowledge. They must, in short, act not only from "information received" but from personal observation.

A diagrammatic layout of the suggested duties of the officers of the Column Headquarters is given as an appendix to this paper: fuller notes will now follow.

C.R.A.S.C.

Like the D.D.S.T. of a Corps, the Commander has a dual role to play, in that he is firstly a regimental commander, and secondly a staff adviser, who must be at pains to ensure that one side of his work is not allowed to suffer to the benefit of the other. This adjustment is sometimes difficult but it is essential that the C.R.A.S.C. should curb his natural inclinations towards one particular aspect of his work.

Two attributes are necessary if he is to carry out his duties with real success. First he must have developed his powers of leadership to their fullest extent, and secondly, he must possess the gift of picking the right men to fill the appointments in his Headquarters. Individual technical brilliance will be of little avail if he lacks leadership and is not backed by the strongest possible team.

As a commander, his most important duty is S.T. planning and in order that this task may be carried out effectively, it is essential that he should maintain the closest possible liaison with the staff of the division. He must at all times

possess the vary latest information concerning the tactical situation affecting the division and must ensure that he is kept au fait as far as is possible with the future intentions of the divisional commander, since without this information, intelligent anticipation, upon which the value of the services rendered to the division by the column depends, will not be possible. It goes without saying that it is also his duty to ensure that every member of his staff, and all company commanders, are kept fully aware of the situation in order that they, in their turn, may be in a position to look ahead and to make the necessary plans in so far as their own duties are concerned.

Liaison with Divisional Headquarters alone is insufficient. It is essential that he should achieve the most intimate relationship with the S.T. Staff at Corps Headquarters, the members of which must invariably be kept fully informed as to the situation within his column. To put it bluntly, how can they be expected to help him, if they don't know what he wants? He must also take the most stringent precautions to prevent any tendency on the part of his own officers to "play off" Corps S.T. against Division, and vice versa, a state of affairs which has been known to exist where liaison was incomplete.

Frequent visits should also be made to the headquarters of the brigades forming the division. If he is to carry out his duties efficiently C.R.A.S.C. must know all brigade commanders and their staffs personally; he must also maintain close relations with H.Q. R.A.

Since he is simultaneously both a commander and an adviser to the staff, C.R.A.S.C. must site his own headquarters in such a position that he can carry out both duties freely. I fully realise that I am embarking on a controversial matter and that my own views may be shared by the minority, but nevertheless my own experiences confirm my contention that, unless the immediate tactical situation demands it, this should not be within the actual perimeter of the divisional headquarters camp, although it should be within ten minutes travelling time of that camp. I submit that the headquarters of a Column Commander being, as it is, a Regimental Headquarters and not a Staff Branch, should retain its own independence as such, and should be so placed that it is immediately accessible by night or day, to officers of the column who should be able to visit it at any time without having to undergo the delays incurred by travelling round Divisional H.Q. traffic circuits into distant car parks.

In addition to liaison with the staff and with higher formations it is quite essential the C.R.A.S.C. should spend the maximum possible time in visiting the companies under his command, commodity points and detachments, although he should be careful not to undermine the authority of his company commanders by interfering unnecessarily in the domestic matters of their companies, or by attempting to enforce too rigid a uniformity in matters which could better be left to their own discretion.

It is right and proper that companies should be permitted to practise within reason their own particular idiosyncrasies, so long as they never forget they are not independent units but members of one corporate body.

Finally, I regard it as quite imperative that the Commander should know personally every officer and warrant officer under his command; he should also know to a lesser degree all senior N.C.O.s, and should have a working knowledge of the junior ranks. It is equally important that he should be known to them. A

distant figure to be seen vaguely from time to time in conversation with the company commander is of no use as a commander to the troops, but a man who may appear among them at any odd time no matter where they may be, a man who knows them, realises their difficulties and offers encouragement will gain their confidence, and without the confidence of both his officers and his men no column commander can hope to run a really efficient formation.

THE SECOND IN COMMAND

According to the War Establishment, two majors are held on the strength of Column Headquarters, one to supervise Transport and the other to concern himself with Supplies, Ammunition and P.O.L. Whichever is the senior fills the appointment of Second in Command. Most Commanders have, however, found it more satisfactory to combine the duties of Major (Transport) with those of Second in Command, leaving the second major completely free to concentrate on commodities and have arranged their postings accordingly. For that reason, I am assuming in this paper, that the Second in Command is also carrying out the duties of Major (Transport).

The Second in Command should have had practical experience as the company commander of a divisional company, if possible within the Column itself, and should be capable of assuming command at a moment's notice should the Commander become a casualty. To be successful he must have complete confidence in the Commander, to whose policy he must adhere at all times, and must in his turn possess the complete confidence of the Commander.

I am convinced that the relationship between the Commander and his Second in Command must be far closer than that of duty associates. They must in fact be personal friends working continually together for the good of the Column, understanding each other's personal peculiarities, and supporting each other at every turn of events. Friction between these two officers will have repercussions which may take months to obliterate.

The job of Second in Command is difficult; in some respects more difficult than that of the Commander himself, for although he must be capable of assuming command without warning and must therefore possess the personal attributes of a commander, he must, until that time comes, be content to play second fiddle, loyally implementing the policy of another even though his own views may differ. Many a brilliant company commander makes a poor second in command yet goes on to make a first class commander—it is a matter of personality, yet no commander dare appoint as his second in command a man who lacks the drive to command, no matter how loyal and efficient he may prove in a subordinate role.

It goes without saying that the Second in Command must at all times be in the complete confidence of the Commander both as regards the current situation and future intentions. He must be in the position to give authoritative rulings in the name of his Commander during that officer's absence from his headquarters and must also be prepared to visit both higher and lower formations speaking on behalf of his own Commander and implementing his policy. It follows therefore that he must at all times know as much about the general situation as the Commander himself.

As the Major (Transport) his first duty is similar to that of the D.A.D.S.T.

(Transport) at Corps Headquarters. He must be continually in a position to produce, for the information of C.R.A.S.C., the fullest details concerning the transport situation within the Column. It is on this information that C.R.A.S.C. will make his plans, the implementation of which will fall to the Major in charge of Transport. He should also, as far as possible, keep the company commanders forewarned of future transport requirements, in order that they may the more easily comply with them. The detailed arrangements necessitated by a special dumping programme or a heavy troop carrying detail invariably fall to the lot of the Major (Transport).

It is essential that this officer should maintain the closest possible liaison with the D.A.D.S.T. (Transport) at Corps Headquarters who is in a position to render him very considerable assistance if kept fully informed of the situation within the Column. Cordial personal relations must be established with both the D.A.A.G. and D.A.Q.M.G. at Divisional Headquarters.

The Major (Transport) must know from his personal observation the state of vehicle maintenance within the companies, their spare parts difficulties and their vehicle replacement difficulties: this necessitates frequent visits to all the companies under command. As a result of the implementation of the second phase of R.E.M.E. maintenance, he will find it more necessary than ever before to keep in close touch with the C.R.E.M.E. of the division and his staff.

THE MAJOR (SUPPLIES, AMMUNITION AND P.O.L.)

The work of this officer has much in common with that of the D.A.D.S.T. (Supplies) at Corps Headquarters. Like him, he is responsible for provision, holdings, and issues; and like him he must maintain the closest touch with the staff of his own division and with the transport side of his own headquarters. He must also maintain constant liaison both with the D.A.D.S.T. (Supplies) at Corps and with the relevant officers of the Corps Maintenance Area.

A very considerable part of his time must be devoted to planning, and for this reason he must be kept fully informed by his Commander of the present tactical situation and future possibilities. Given the necessary information, he should by intelligent anticipation be able to ensure that the division is never short of those R.A.S.C. commodities necessary for its maintenance and operational efficiency. An officer who carries out these duties with real efficiency will do much to gain for his Column that reputation for reliability which alone will prevent "over insurance" on the part of those units which it serves, a state of affairs brought about mainly by lack of confidence in the supplying formation.

Like the C.R.A.S.C. and the Second in Command, this officer must also get out and about. He must frequently visit the headquarters of the brigades forming the division and must know personally the D.A.A. & Q.M.G. of each brigade, he must also keep in the closest touch with H.Q. R.A. over questions of ammunition supply. During these visits he should always be prepared to consider suggestions on any point affecting his job, and should in particular keep his ears open for any complaints regarding delays in the provision of commodities demanded or the condition of stores on their arrival in the lines of the consumer units.

The Major (Supplies, etc.) should make it a rule to visit at least one of the divisional commodity points daily, more if possible, for it is by being present

when stores are handed over that he can really keep his finger on the pulse of the division, and know whether or not his efforts are proving successful. Much can be learned from conversations with unit quartermasters and quartermaster serjeants; moreover it is at these points that he should meet brigade R.A.S.C. officers.

The brigade R.A.S.C. officers should, in my opinion, maintain closer liaison with the Major (Supplies, etc.) than with any other officer of Column Headquarters; the very nature of their work, involving as it does the provision of R.A.S.C. commodities to the brigades with which they are serving, renders this essential. The assistance of the Major (Transport) will be required when any particular troop carrying project is envisaged, but the Major (Supplies, etc.) should be regarded as their "father confessor" at all times; he must be available to them at any hour of the day or night and must ensure that as a matter of routine they visit him at Column Headquarters at frequent and regular intervals and are also present to meet him at commodity points.

It may well occur in action, particularly in mountainous country in which the final stages of supply are by means of pack animals, that forward dumps have, of necessity, to be established. Sites will be finally decided upon by C.R.A.S.C. on the advice of the Major (Supplies, etc.) but the stocking, supervision of stacking and storage, and overall control will certainly be the responsibility of the latter. He is also heavily involved when any forward dumping into consumer unit lines becomes necessary. The Major (Transport) arranges the provision of vehicles and details of vehicle control, but arrangements concerning the contents of the vehicles are in the hands of the Major (Supplies, etc.), a task involving the closest liaison with both Divisional and Corps staffs.

THE ADJUTANT

The Adjutant is the most important junior member of the team, and should in my opinion most certainly have served as a company officer within the Column before appointment to the position of Adjutant, which should be regarded as a form of promotion. He is the Commander's personal assistant, frequently his mouthpiece, and the link through whom his orders are put into effect. He must command the respect of every officer in the Column, and can only do so if his own turnout, bearing and general behaviour are beyond criticism.

He must at all times be in the fullest confidence of his Commander, whose policy he must implement with complete loyalty and without the slightest deviation. As a junior officer he will frequently find himself in possession of information denied to some of his superiors serving outside Column Headquarters; his reliability must therefore be unquestionable.

As the personal staff officer to C.R.A.S.C. he will be required to pass on that officer's instructions to officers senior to himself, and when implementing his Commander's policy he will find himself called upon daily to speak as one in authority to his superiors. Considerable tact as well as a strong personality is necessary on these occasions since great harm can be done by an officer who fails in this respect.

The Adjutant is responsible for running the Headquarters office, for the compilation and rendition of regimental returns and statistics and for the maintenance of the War Diary. He is also usually responsible for all communications

within the Column, and must have a particularly thorough knowledge of R.T. procedure since he will normally man the S.T. control set. It is obvious that the Adjutant should have a good knowledge of staff duties and be capable of drafting orders and instructions in a concise and accurate manner, since he will frequently be called upon to reproduce on paper the verbal instructions of his Commander.

It is quite essential that he should know personally every officer, warrant officer and senior N.C.O. within the Column, and he must be prepared to advise his C.O. on all questions of inter-company postings and promotions. During those periods when the Division is at rest he will be responsible for the compilation of training programmes and for the organisation and supervision, with the assistance of the R.S.M., of refresher courses for junior officers and N.C.O.s.

He must maintain a close liaison with the Divisional Headquarters staff, more particularly the D.A.A.G., and should establish the most cordial relations with the S.T. Staff Captain (Personnel) at Corps Headquarters.

Essentially a disciplinarian and possessed of unbounded energy, he must keep himself so informed, from his own observation, that he can at any time provide for his C.O. a true picture of the state of morale, health and discipline throughout the Column, yet must never be branded with the reputation of being a "snooper". To be effective as an Adjutant it is essential that he should retain the confidence, respect and affection of all with whom he works.

THE CAPTAIN (AMMUNITION).

This officer, frequently referred to as the Divisional Ammunition Officer, has an important and responsible role. He works directly under the supervision of the Major (Supplies, etc.) and is assisted by the attached artillery officer, whose duties will also be described in this section.

The Captain (Ammunition) is responsible for the provision, storage and issue of all types of ammunition and explosives and his task is greatly facilitated when the Column is working on the commodity basis as opposed to the composite system, since this enables him to work through one company only. It was this factor, which, perhaps above all others, caused most Column Commanders, during the last war, to operate as a general rule on these lines, reverting to the brigade composite company system only when the tactical situation rendered it unavoidable.

Intelligent anticipation is essential if this job is to be carried out successfully; thus the Ammunition Officer must be kept fully informed of the tactical situation and particular care must be taken to ensure that future operational intentions are made known to him at the earliest possible moment.

In common with other members of Column Headquarters, he cannot afford too much time to sit in his office, although he must maintain absolute accuracy in his paper work, particularly stock holdings and expenditure returns, and must be in a position at any time to produce a reliable Ammunition State showing the complete ammunition situation within the division. He must maintain the closest liaison with the Staff Captain R.A. at the divisional level, with the divisional company responsible for ammunition duties, and with the Corps Maintenance Area, which he should frequently visit when divisional

stocks are being drawn. He should also establish personal relations with the Artillery Regiments and Engineers of the division, and should visit Ammunition Points frequently, being prepared to offer suggestions as to the opening, closing and location of such points.

When the Column is engaged on an ammunition dumping programme, the Ammunition Officer should normally be found at the Regulating Centre where he will work in close co-operation with the attached artillery officer and possibly the Staff Captain "Q" from Division, ensuring the smooth running of the programme.

A captain from the Royal Artillery is held on the attached strength of Column Headquarters as a permanent liaison officer between that headquarters and H.Q. R.A. He works at all times in the closest co-operation with the Ammunition Officer.

This artillery officer can be of the greatest assistance in advance planning since, being fully trained in the technicalities of gunnery, he should, when kept fully informed of the tactical situation and future artillery operations, be capable of giving considered advice on ammunition requirements with special reference to different types likely to be demanded for particular tasks. Like the Ammunition Officer he visits artillery units and Ammunition Points as well as H.Q. R.A., and keeps C.R.A.S.C. fully informed of the ammunition situation from the artillery point of view.

THE CAPTAIN (SUPPLIES AND P.O.L.)

This officer works under the direct supervision of the Major (Supplies, etc.) and is regarded as his personal assistant, in so far as supplies and P.O.L. are concerned. He also performs duties similar to those of a brigade R.A.S.C. officer for the benefit of divisional troops and is, in fact, often referred to as the Divisional Troops Supply Officer.

In the former role he carries out a considerable amount of routine paper work, returns, stock states, etc., in the Headquarters office, thus freeing the major for outside duties, but he must never be allowed to consider that his appointment is a static one.

It is necessary that he should spend a considerable part of his time in visiting units of divisional troops, and he must also be present at Supply and P.O.L. Points partly in the role of assistant to the Major (Supplies), but taking a special personal interest in the maintenance of divisional troops.

Like all other members of Column Headquarters, he must maintain the closest personal liaison with the members of both the Divisional and Corps staffs, particularly the D.A.Q.M.G. and his Staff Captain at divisional level, and the D.A.D.S.T. (Supplies) and Staff Captain (Petroleum) at Corps. He will also find that it will prove of the highest value to be on the friendliest terms with the appropriate officers of the Corps Maintenance Area, and should frequently arrange to be present at the C.M.A. when bulk items are being drawn.

THE HEADQUARTERS CAPTAIN

In my opinion the third captain on the strength of Column Headquarters can best be employed in a regimental capacity. In an armoured division there is probably a need for his whole-time services on petroleum duties but I do not

consider this to be the case in an infantry division. I suggest that he is best used under the direct supervision of the Second in Command to act as Camp Commandant of the Column Headquarters.

In this role he is responsible for the administration and discipline of all troops on the strength of Headquarters, and exercises restricted disciplinary powers. He is in charge of rations and messing, responsible for all stores and equipment on charge to H.Q., acts as P.M.C. of the officers' mess and as P.R.I. He also supervises the maintenance of all vehicles of Column Headquarters.

He is in charge of the advance party when H.Q. moves and is responsible for the setting up, concealment and protection of the camp site when in the field.

He also provides a most useful reserve when it is necessary to appoint an officer to any *ad hoc* organisation temporarily formed to carry out some particular task.

In addition he acts as welfare officer to troops of Column H.Q. and when the division is at rest, acts as Column sports officer, organising both regimental teams and inter-company competitions.

I regard this as an excellent vacancy in which to employ an officer earmarked for specific employment on Column Headquarters at a future date, in order that he may prove his acceptability, learn H.Q. routine, and get to know the staff of Divisional Headquarters before finally undertaking such an appointment.

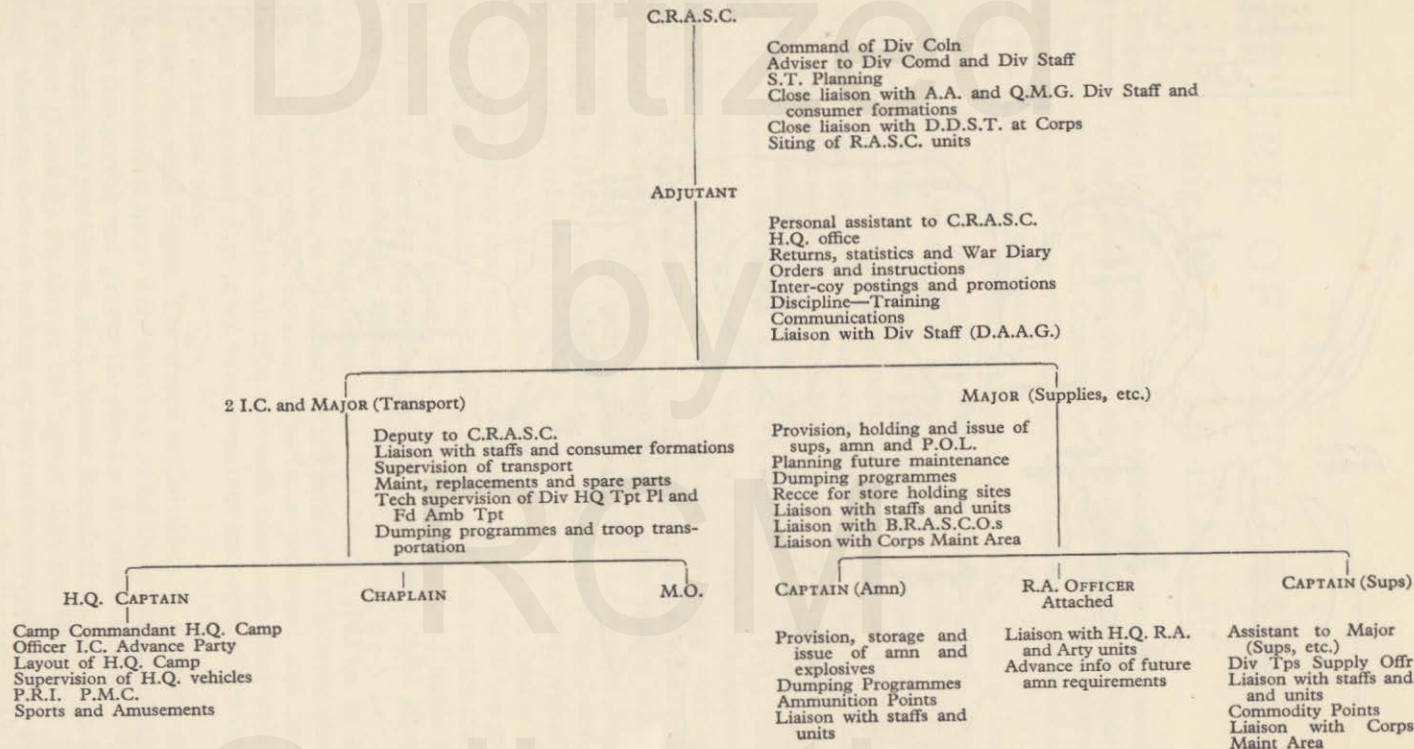
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As I have already said, what has been written above is only one of the ways in which the Headquarters of a Column can work. The views expressed are my own views and may disagree with the views of others ; a lot depends on personalities, but in my own Column I found that these methods really worked. I have not mentioned the Medical Officer or the Chaplain since their duties are self explanatory. Whenever possible, both lived at Column Headquarters, going out daily to the companies and also keeping the Commander fully informed as to the moral and physical state of the units under his command.

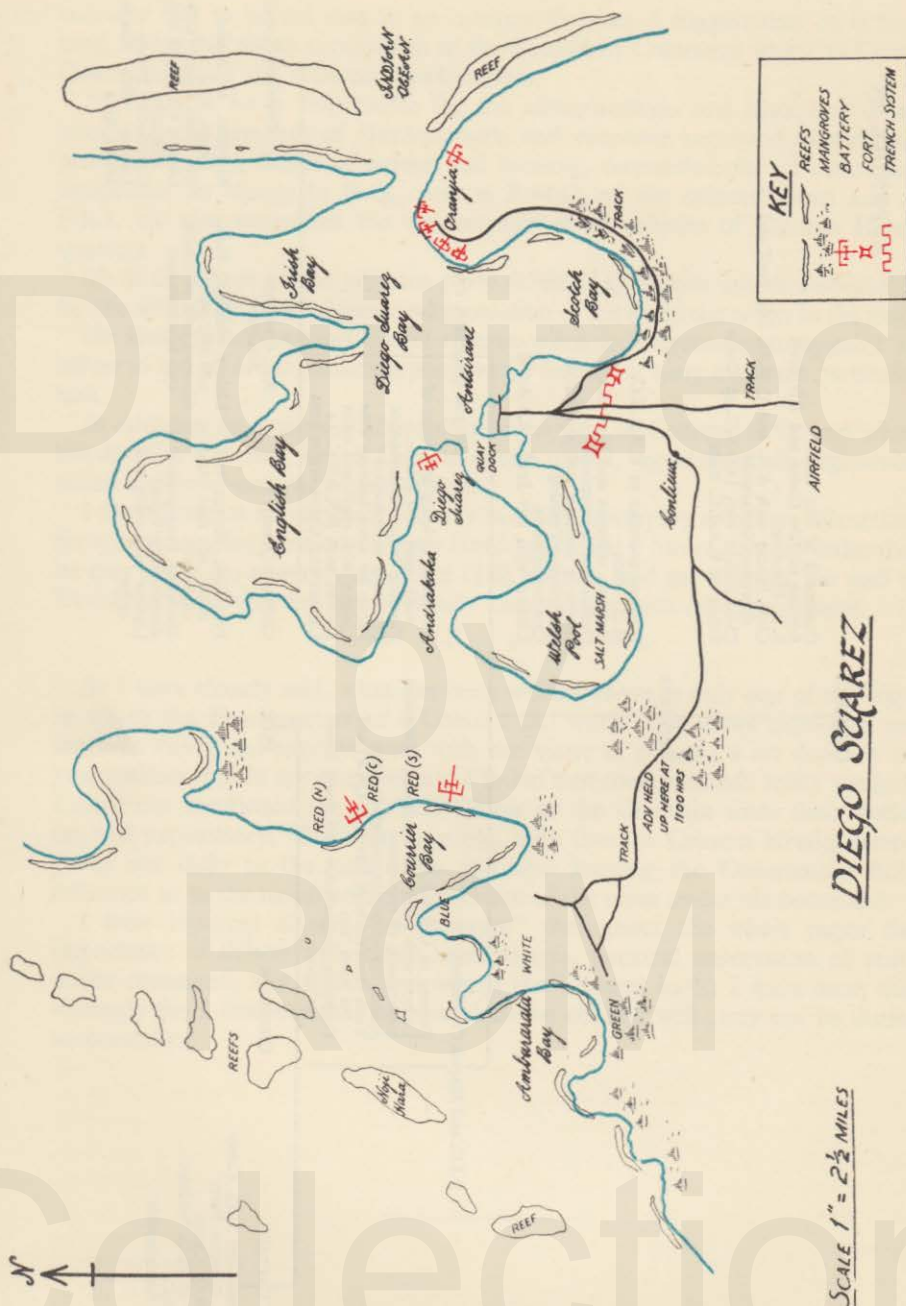
I have repeated almost "ad nauseum" throughout the whole paper the importance of liaison with other headquarters, personal supervision of units under command, and team spirit within the Column itself; I have done this wittingly for I consider that without these no column will carry out its duties successfully.

APPENDIX "A"

OFFICERS WITH H.Q. INFANTRY DIVISIONAL COLUMN



THE ROYAL ARMY SERVICE CORPS REVIEW



THE CAPTURE OF DIEGO SUAREZ

by Brigadier A. F. J. ELMSLIE

DURING 1941, FORCE 110 was training in amphibious warfare in southern Scotland. It comprised one Royal Marine Division, two Independent Brigade Groups and ten Commandos, together with supporting arms and ancillary services. Landing craft and ships were included, and a call could be made on the R.A.F. as necessary.

In December, Operation "Bonus" was planned by Force H.Q. to capture Diego Suarez, the port at the northern end of the Indian Ocean island of Madagascar, then held by the Vichy French. For this operation Force H.Q. detailed H.Q. Royal Marine Division, 102 Royal Marine Brigade, 36 Infantry Brigade, and two Commandos, with supporting arms and services and a detachment of the Marine Naval Base Defence Organization. The final exercise before sailing was planned to take place in the west of Scotland on 20th January, 1942, but on 15th January the operation was cancelled. G.O.C. Royal Marine Division (Lt.-General Sir Robert Sturges, K.B.E., C.B., D.S.O.) decided, however, to go through with the exercise, which was of considerable importance because of the drastically limited scale of road transport being used by the Assault Force. The exercise went off very well and then all concerned returned to their stations in Scotland. Unfortunately some of these trained units then had to go overseas, where they were urgently required for normal duties.

On 12th March, 1942, it was decided that the capture of Diego Suarez was imperative to deny refuelling facilities to Japanese submarines, which were attacking our convoys to Middle East via the Cape. It was further feared that the Japs might at any time occupy the harbour with its 10,000 ton graving dock and so be in a position to do us even more harm with surface craft. So "Bonus" was taken out and dusted, but only 29 Independent Brigade and 5 Commando with a share of supporting and ancillary troops could be spared to go with H.Q. Royal Marine Division.

This Force (121) sailed from Glasgow on 23rd March, 1942 on its 10,000 mile voyage. That it did set off in such a short time with a different allotment of troops was only possible because of previous prolonged and intensive training together in Force 110. All units and staffs knew each other well. Even so, the first two or three days at sea were a welcome rest, especially as inoculations had to be got over.

Then the real work began. The troops settled down to a steady routine which included several hours daily marching round the decks in battle order. Staffs went into purdah and got out the plan for the assault in detail. Wisely, General Sturges had put his own H.Q., Assault Brigade H.Q., and H.Q. Senior Naval Officer (Landing) together in the biggest ship, the *Winchester Castle*. No delays therefore arose in reaching agreement on any part of the plan.

Just before sailing on 23rd March it was learned that the opposition to be

expected at the destination had increased, and the War Office placed 17 Infantry Brigade Group of 5 Division under command. They were travelling in the same convoy but were stowed under trooping conditions for India. There was no time to give them any training but staff and regimental officers were exchanged by 29 Brigade with them for the voyage.

The voyage itself was uneventful. The first stop was at Freetown to link up with the Naval C-in-C., and certain staff officers were flown on to Durban to arrange for our reception. It was remarkable how difficulties connected with quarantine, yellow fever certificates, etc., were overcome.

The advance party did their work admirably and when the main body arrived at Durban on 22nd April, all the ships were brought into the harbour immediately and put alongside the quays. Unloading, checking up on equipment and waterproofing of vehicles and restowing started immediately and went on day and night till sailing on the last leg. This work included the preparation of the vehicles and equipment of 17 Brigade.

It was a great experience, those days and nights at Durban with everyone doing his utmost and spurred on by the Japanese sinking of several ships of the convoy with which we had sailed and which had had to wait at anchor outside the harbour until we left. Waterproofing materials were at a premium, and a laundry at Port Elizabeth had to be dismantled to provide certain pipes. The whole-hearted aid and co-operation of everyone at Durban was almost incredible. Though our destination was a close secret and the troops were not briefed until we had left Durban, the tremendous and unusual activity and of course the landing craft at our davits indicated something unusual.

On 25th April, the slow convoy of M.T. ships got away and the fast convoy with the L.S.I.'s followed on 28th April, with "The Lady in White" singing us farewell from the end of the breakwater. Before sailing on the 28th April it was learnt that the opposition to be expected had still further increased and 13 Brigade Group of 5th Division, which only reached Durban that morning, was also placed under command. However, beyond giving them a copy of the orders for the assault and instructing them to be ready to land on call with rifles, ammunition and a haversack ration, nothing much could be done for this Brigade Group.

For the final seven days of our long voyage, staffs were spread over several ships, to lower the effect of any losses. On the evening of 4th May the slow and fast convoys met up at the rendezvous and began the run in to the objective.

The general plan for the assault was for a main landing at 0430 hours on 5th May by 29 Brigade, with a squadron of tanks and a light battery under command, in Ambararata Bay on three beaches—Green, White and Blue. Having secured the beaches, they were to advance and capture Antsirane, 21 miles by road to the east. Simultaneously, 5 Commando and one company of the 2nd East Lancashire Regiment were to land in Courrier Bay at Red Beaches, South, Central and North, silence the Coast Defence batteries and then advance east and secure the Andrakaka Peninsula. The tip of this peninsula is only 1,200 yards from Antsirane across deep, shark-infested water.

17 Brigade Group were to follow up on the best beaches as soon as landing craft became available, while 13 Brigade Group were to land on D plus 1 for the completion of the capture of Antsirane, if necessary, and of the Oranjia

Peninsula. On the latter stood the Coast Defence batteries commanding the narrow entrance into Diego Suarez Bay.

The approach to Courrier and Ambararata Bays and the taking up of position by the assault shipping was an outstanding feat of navigation and skill on the part of the Royal Navy and the Merchant Navy. This feat could only be fully appreciated when daylight came and the hazards became fully visible. When the orders for the coast defence batteries were captured it was found that they ruled out a night assault as impossible.

5 Commando was unopposed on the Red beaches at 0435 hours, and the batteries were surprised, offering no resistance. 5 Commando then advanced east and reached Diego Suarez at 1453 hours without meeting any serious opposition. Unfortunately no means of crossing to Antsirane could be found. Later, in the Red beach area, snipers and a machine gun came to life and gave considerable trouble in the broken ground until they were finally stalked and eliminated on D plus 1 by a company of 2nd Royal Scots Fusiliers of 17 Brigade.

Meanwhile 1st Royal Scots Fusiliers on Green and 2nd Royal Welch Fusiliers on White, had landed on time, met no opposition and had driven east. As expected, Green was unsuitable for vehicles because of mangroves, while White presented many difficulties, and delays to guns and transport occurred because of large boulders in the sea near the beach and because of mangroves. For a while the situation here looked ugly as this was the main area of the assault, and landing craft were lying about at all angles on the boulders with their loads floundering about trying to get ashore. However, it was sorted out as the light improved.

Blue beach had always seemed too good to be true for development for beach maintenance, from the map and air photographs, though White and Green were nearer the track leading to Antsirane. A company of 2nd Royal Welch Fusiliers from White were sent to take it from the rear immediately after landing, but the bad going in the dark delayed them, with the result that the enthusiastic Beach Master and Military Landing Staff looked like getting there first—until a machine gun opened up. After this the infantry were allowed to do their job and the remainder of 2nd East Lancashire Regiment landed here in quick time. The floating reserve of the Assault Brigade, 2nd South Lancashire Regiment, landed behind 2nd Royal Welch Fusiliers on White.

At 0440 hours H.M.S. *Hermione* had created a diversion on the east coast below Diego Suarez Bay and dummy parachutists were dropped in the same area by the Fleet Air Arm. This diversion succeeded as it was subsequently learnt that the first troops sent out from Antsirane to meet us were sent in that direction.

2nd Royal Welch Fusiliers took the lead of 1st Royal Scots Fusiliers in the drive for Antsirane. The marching troops were soon overtaken by the carriers and the tanks, and part of the light battery also joined them. At 1100 hours the leading troops were held up by fire from a well-defined spur through which the track passed. It commanded the route of advance of the Assault Force. The Brigade Commander quickly mounted an attack with his infantry round the flanks while his tanks went in along the track under cover of the guns. The very broken ground kept the tanks to the track where they suffered

heavily and delayed the capture so that it was not till 1515 hours that the advance was continued.

The remaining tanks continued to lead the advance but again suffered heavily and at 1800 hours when the light was beginning to fail they were withdrawn to refit. The carriers of 1st Royal Scots Fusiliers and 2nd Royal Welch Fusiliers supported by 1st Royal Scots Fusiliers managed to get close up to the anti-tank ditch on the outskirts of Antsirane and they continued patrolling in this area. The remainder of 29 Brigade moved into perimeter area for the night with their headquarters at Conlieux. The Assault Brigade had now been on its feet since 0130 hours when they manned the landing craft. They had marched 18 miles with handcarts carrying their equipment and ammunition, but they were in fine fettle and orders were issued for a dawn attack on the Antsirane defences on a three battalion front on 6th May. The energetic action by the Fleet Air Arm, early on 5th May, when they caught the enemy air forces on the ground ensured that there was no interference in that sphere. 17 Brigade Group were on their way up and all seemed in our favour.

Back at the beaches sea mines were giving trouble in spite of sweeping operations, and a sloop, H.M.S. *Auricula*, was lost. This threat was very serious in the crowded anchorage and inevitably caused some delay in landing the whole Force. *Franconia*, which carried the whole of 13 Brigade Group, had to be moved into shallow water long before it was desirable in order to save loss of life should she be mined. A strong wind produced a heavy chop, and so though all 29 Brigade Group were ashore at 1100 hours, i.e. two hours late, their transport was not ashore until 1800 hours. *Bachaquero*, the first L.S.T. ever, on which much reliance had been placed to put ashore first priority guns, carriers and load carriers, could not find a suitable place because of false beaches until 1830 hours on D day.

Blue beach was the only one to be worked after the assault landing and was developed to maintain the force. As the moon was due to rise at 2230 hours landing craft crews and beach maintenance personnel were rested from dusk at 1830 hours until that time, to prevent loss of landing craft and valuable stores in the dark.

After that time the landing of stores proceeded according to plan and there was never a requirement which could not be met.

Outside Antsirane the main enemy defences faced south across the narrowest part of the isthmus and were based on two old but solid forts joined by a continuous line of trenches. Each flank had steep scrub-covered slopes dropping down to mangrove swamps at sea level. Three roads covered by 75 mm. guns in pill-boxes entered the position, and the command given by the forts enabled other 75's to cover by direct fire all the ground to the front for up to 1,000 yards. The isthmus was generally flat and open but there was some scrub and maize and spaced out bushes. The defences were about two miles from Antsirane itself.

The Brigade Commander issued his orders for the dawn attack at 2300 hours on 5th May. On the right, 2nd South Lancashire Regiment were to move out at 0200 hours on 6th May through the mangroves and rough country along the shore and get behind the enemy line. 1st Royal Scots Fusiliers and 2nd East Lancashire Regiment in the centre and left respectively were to attack

frontally at 0530 hours. Support came from the light battery with six guns and it was hoped that the Fleet Air Arm could bombard and machine gun the defences from 0500 hours if light permitted.

2nd South Lancashire Regiment got off well and battalion headquarters and two companies penetrated the enemy line causing many casualties, capturing many prisoners and harrying the enemy communications, artillery and transport. Their W.T. link with Brigade Headquarters failed, however, and the enemy line closed behind them, leading headquarters to assume that they were lost. It was not until the C.O. and a small escort fought their way back at 1400 hours on 6th May that the true position became known.

Meanwhile the attack by 1st Royal Scots Fusiliers and 2nd East Lancashire Regiment was held up in the exposed area in front of the defences and casualties began to mount. At 0700 hours it was clear that the attack had failed. Most of the troops were pinned down by heavy fire, the bulk of 2nd South Lancashire Regiment had disappeared and were believed lost. The 75's were doing a lot of damage and set fire to the scrub, while snipers were alive everywhere. The inability of *Bachaquero* to land its guns on time was most severely felt. The attack was therefore called off.

The G.O.C., who had seen matters for himself, decided to resume the capture of Antsirane by a silent night advance and assault by 17 Brigade assisted by 29 Brigade, to start at 2030 hours that night. 17 Brigade formed up on a start line about 1,200 yards from the defences with 2nd Northamptonshire Regiment on the right and 6th Seaforth Highlanders, who had a company of 2nd Royal Welch Fusiliers under command, on the left. These two battalions went in on time and bypassing the forts in the darkness reached their objectives on the outskirts of Antsirane by 2300 hours. 17 Brigade Commander then ordered his reserve battalions, 2nd Royal Scots Fusiliers and 2nd Royal Welch Fusiliers (of 29 Brigade), to push through and gain the harbour. The remainder of 29 Brigade joined in and the Brigade Commander entered the Residency at 0100 hours 7th May and started to take over the town.

From the open sea a destroyer, H.M.S. *Anthony*, with fifty Royal Marines from H.M.S. *Ramillies*, entered the harbour at high speed at 2030 hours on 6th May and in spite of heavy fire from coast and field guns, put the Royal Marines ashore on the deep water quay under fire. They soon advanced into the town and joined up with the troops who had entered from the south.

29 Brigade remained to mop up the forts and the remaining pockets of resistance and to garrison the town, while 17 Brigade were set to clear up the Oranjia peninsula and so to allow the fleet to enter harbour. Preliminary naval and air bombardment was laid on for 17 Brigade and a few shots from *Ramillies* 15-inch armament had been fired when the enemy decided to negotiate. At 1400 hours the surrender was arranged and the fleet entered harbour on 8th May. We had forestalled the Japanese but we now fully expected to be assaulted by them in our turn.

As it happened, on 13th May they sent a two-man submarine into the harbour, sank a tanker and put a torpedo into *Ramillies* which put her out of the war for eight months. The submarine was wrecked at the entrance of the harbour on the way out and the crew of two Japanese officers landed and made off to

the north. They were pursued by a troop of Commandos with whom they shot it out. It was a great effort on their part.

Administratively, in spite of very limited transport and the interruption to the landing of stores caused by weather and mines, everything went as planned.

13,000 troops, of whom 449 worked on the beach, 328 guns and vehicles and 542 tons of stores were landed by 0300 hours on 8th May.

Casualties were 105 killed and 290 wounded.

Apart from the brigade companies of 17 and 13 Brigades who got no transport till after 8th May, the R.A.S.C. of the Assault Force comprised :—

H.Q. R.A.S.C., 121 Force (C.R.A.S.C. Lt.-Colonel R. A. E. Dunlop).

55 D.I.D. (three secs) plus some bakers and butchers.

121 Tpt Det (of twenty 15 and 30-cwts and six ambulances).

S.T. Services worked well, the only difficulty being subsequently with the production of fresh bread. The yeast had deteriorated in the heat during the long voyage.

This operation was the first of its kind during World War II. Although the objective was gained in a reasonable time without extravagant expenditure of men and material, the need for a proper organization for beach maintenance was apparent. The Beach Group or Brigade was developed as a result.

THE IMPROVISATION OF JUNGLE RATION PACKS IN MALAYAN OPERATIONS

by Major H. O. LUKES, R.A.S.C.
and Major E. V. HAWKINS, R.A.S.C.

THE OPERATIONS IN MALAYA have enabled the R.A.S.C. to show that production of special ration packs is within the capacity of an overseas theatre's own resources. For several reasons local manufacture can be an attractive proposition :—first, cheap labour can be employed : secondly, a long sea haul is avoided : thirdly, smaller reserve holdings may be held, and fourthly, as the commodities do not have to be stored so long, cheaper packing methods may be adopted.

For these reasons local production may be undertaken in other parts of the world. The experience in the Far East should be available to assist in achieving the best results as quickly as possible.

The beginning of Malay's emergency is now lost from memory in the flood of subsequent events. In 1948, after a few spasmodic attacks on Asiatics, a sudden determined attempt to paralyse the country's industry by terrorism and destruction was launched by an elusive and well organised force. The British Army, the Malay Regiment and the Police left their barracks to patrol far into the jungle. When patrols were away from their bases for anything over a few hours, food at once became a problem as the normal ration for troops in camp was quite unsuitably packed. The R.A.S.C. could draw upon its reserves of 24 hour rations and 10 men compo for British troops but the Gurkhas and Malays had no similar reserves. An urgent need arose to produce pack rations for these troops.

H.Q. Malaya's natural inclination was to follow the design of the U.K. packs for British troops, both for a 10 men compo and 24 hour ration. Their problem was to provide a balanced ration at a reasonable cost in suitable packs.

This "reasonable cost" was an important factor. Financial Estimates had not foreseen expenditure on locally produced ration packs and G.H.Q. ruled at the outset that the financial commitment was to be strictly controlled.

This restriction forced the planners to keep the cost of the pack ration within the value of its normal equivalent, and so successful were they that one was produced with a profit of sixpence. This could only be done by reducing the one factor not constant—the amount of food the soldier was given to eat. It should be accepted in any future requirement of this nature that if a normal ration is to be specially packed for the individual the cost must be greater—time is wasted in trying to avoid the inevitable. Fortunately

it was not long before this was realised in Malaya and the R.A.S.C. was able to include all the items of the normal ration scales which could conveniently be packed.

In designing a pack ration the Staff, the Medical and S.T. Branches, the A.C.C., the Command Secretary and the soldier in the field all have their special interest in the result ; it is difficult to relate weight, bulk, nutritive value, palatability, speed of preparation and finance into a mutually acceptable ration. When dealing with Gurkha and Malay rations all parties are fairly easily satisfied as fifty per cent of the food is rice. The remaining items are chiefly a question of proportion, i.e. need against weight. When quick results are wanted the final product is largely a matter of what S.T. can provide. Only items which are already on the ration scale or which can be obtained locally may be considered. In addition quantities may not be in excess of the ration in any items, otherwise R.A.S.C. long-term provisioning goes astray. The only real problem in these types of ration is to provide a meat or fish element, meat particularly, owing to the observance of religious custom. A canning firm was able to manufacture curried mutton or goat from animals specially slaughtered according to Muslim or Hindu custom, flavoured with ghee or coconut oil as desired. A fish curry was also produced.

In Malaya there is a ready supply of 2lb. size cans for the pineapple industry, ideal for the loose items required in the 10 men compo. The R.A.S.C. provided special waterproof paper bags for the loose items in the 24 hour ration. To provide a container for the 24 hour ration could have been difficult for although there were eighty importers of tinplate in the Federation only two dealt on a large enough scale to provide tinplate from their allocations, and of these two only one had the type of seaming machine for fixing the base and lid on a rectangular tin. An observer in a tin factory will be impressed with the ease and speed at which round tins can be produced in comparison with the more laborious processes required for a rectangular tin, from which the visitor would well understand why the trade goes for a round tin whenever it is able. From a pack ration point of view a circular tin is most inconvenient for the soldier to carry and it was fortunate that the rectangular tin could be made. The size of the containers required to hold the items of the Gurkha and Malay ration was rather more than everyone wanted, because of the bulk of 18 ounces of rice, but it at least had the advantage of giving the soldier a ready-made utensil for cooking his rice.

Malaya abounds with wooden box makers, so there was no packing case problem. After successful trials the R.A.S.C. was ready to start.

The production lines were set up in the Main Supply Depot at Kuala Lumpur, and in the early stages, pending recognition of the emergency, supervisors and packers had to be found from the B.O.R.s and civilian labour already authorised. There was no special equipment available but the R.E. and R.A.O.C. provided roller conveyor, tables, scales, measures, banding machines, fans and minor works. The tin container contractors provided the seaming machines.

This production unit provided pack rations for the Army, Malay Regiment and Civil Police, and in a short time its output had reached its maximum of 80,000 rations a month. It was then decided that as the Malay Regiment

and Civil Police were not a proper commitment for the Army a separate civilian production line should be set up, but with A.D.S.T. Malaya continuing to co-ordinate supply of foodstuffs and packing materials. In due course the military unit was given a proper establishment of its own, and production passed from the experimental stage to a steady R.A.S.C. commitment.

In 1949, Malaya turned its thoughts to the British 24 hour ration. The troops were using only the U.K. made pack, which although good in itself was at the time only in one type and variety and consequently became monotonous. In designing this pack H.Q. Malaya could not solve most of the problem with a bag of rice. The British needed meat, sausage, baked beans and the like, which were already in tins of their own. To put the B.T. ration in its own rectangular tin would have been too bulky, so the tins of meat and vegetables were packed separately in a cardboard carton which on issue to the man was discarded and the contents stowed about the person. Because of the size of most ration and trade tins only one type could be devised on an individual basis, the other two types requiring two men to share the pack.

In June 1950 it was decided that pack ration production was a commitment which should properly be undertaken by the Base at Singapore, and the task was transferred to 4 S.R.D. In the two years that H.Q. Malaya pioneered this new side of R.A.S.C. work in the Far East almost one and a half million rations were produced, and all the difficulties which naturally arise one after the other in a job of this kind had been overcome, giving invaluable experience for those who had to take over in Singapore.

The main development since the change of location has been a revision of the B.T. 24 hour ration. The shared ration was not proving practicable, so arrangements were made with the War Office for some items to be provided from U.K. in tins which gave each man his proper ration.

Details in Appendix "A" of one of each of the British and Gurkha 24 hour rations are given as an indication of what can be done to give a workmanlike ration without trimmings to troops engaged in strenuous duty.

Throughout the development stages of the F.A.R.E.L.F. pack ration, austerity has been essential in order to keep down the cost, which has prevented more ambitious experiments. Furthermore, without previous experience on which to draw, R.A.S.C. officers were obliged to grope amongst technical problems strictly in the province of experts and achieve their results by trial and error. Whilst dealing with the packing of dry foods there is no objection to this method of gaining knowledge except waste of time, but it is full of danger if extended to the canning of cooked foods, especially as the Malayan canning industry, chiefly concerned with fruits, does not specialise in more complicated canning. When a soldier in the jungle eats his pack ration it is the only food available to him, and it must be fit to eat without risk or waste. It would be foolish to trust trial and error methods too far.

It is exasperating, however, when experiments are necessary on a problem which has certainly been met with previously, but upon which no information is available, as can be illustrated by the chief problem in F.A.R.E.L.F., elimination of weevil from rice and other grains.

The weevil is a big problem in tropical countries and it will be of benefit

to set down what has been discovered by those earnestly seeking a way to prevent its existence in the ration pack.

It took eighteen months to discover the fundamental fact that although there are half a dozen ways of killing weevil its eggs escape destruction.

When the weevil lays its eggs in the grain, the insect seals up the grain again, making the egg impervious to heat, cold, gas, light, air or poison. Whatever treatment of the grain is used there will be live weevils again in a week or two. An American scientist gave the answer in the lucid way these people have—"Don't give 'em air to breathe, brother, and they will surely die." In other words the vacuumized tin, and one is back with the old problem of cost.

To avoid any future retreading of the ground it is emphasised that the following methods will not eliminate weevil infestation :—

- | | |
|-------------------------------------|-------------|
| (a) Freezing | (b) Gassing |
| (c) Dusting sacks with insecticides | (d) Sieving |

Heating has not been examined but we are getting details of a process which is stated to be satisfactory and has no ill-effect on the grain. For those interested in the technicalities, details are contained in a paper notified by the Department of Scientific and Industrial Research in "Food Science Abstracts" Volume 23, Number 2, Paper number 767, obtainable at H.M. Stationery Office. It is claimed that the method described in this publication has no deleterious effect on the grain. We have found that weevils do not like heat and if rice is spread out in the sun the weevils get up and walk away until they find some shade, but the eggs do not.

Until the tin can be vacuumized the process used is a combination of science and low cunning. The sacks of rice are placed in a gassing chamber which kills the weevil but not the eggs. The sacks are left for fourteen days until the eggs are hatched and then the rice is sifted before that batch of the pest can lay its own eggs. This is not one hundred per cent effective, but it reduces the initial population to such small proportions that the growth within the three months life of the pack is regarded as "acceptable," at least by the producers if not the consumers.

Other problems fade in significance except the one arising from it—the vacuumised tin. A ration pack which has a life of only three months is not good enough. Little reserve can be held and the problem of turnover is an everpresent worry. The goal of the F.A.R.E.L.F. pack ration is and must be the vacuumised tin, in the absence of equipment and materials to pack in the same way as the U.K. production.

A word to the idealists and the enthusiastic amateurs. It is amazing how people who normally accept life as they find it will produce bright ideas for improving pack rations. This is healthy and from some suggestions good does come. Many fall by the wayside owing to the limitations in technical knowledge, local resources, finance, health, weight, bulk, palatability and time. Production of pack rations in an overseas theatre is an improvisation to meet a specific demand. It cannot be a rival to the rations produced by the War Office with all the technical skill, resources and experience at their command.

APPENDIX "A"

BRITISH 24 HOUR
RATION*Standard Element in Rectangular Tin*

Biscuits..	6 oz.
Rice ..	3 oz.
Curry Powder..	$\frac{1}{2}$ oz.
Oxo Cube ..	1 oz.
Tea ..	$\frac{3}{4}$ oz.
Lemonade Powder ..	$\frac{3}{4}$ oz.
Salt ..	$\frac{1}{2}$ oz.
Salt Tablets ..	5
Sweets, boiled ..	2 oz.
Dried Fruit ..	2 oz.
Matches ..	1 box
Sugar ..	2 oz.
Peanuts..	3 oz.
C. V. Tablets..	2 oz.
Milk in Tube..	3 oz.

*The variety in the carton. Three types.***Type E.**

Breakfast, liver and Bacon ..	5 oz.
Tiffin, Cheese..	3 oz.
Main Meal, M. & V. ..	8 oz.
Fruit Pudding..	4 oz.

Calories 3,600

Weight to carry—3 lbs., 10 oz.

Cost 7/- approx.

GHURKA 24 HOUR
RATION

Rice ..	18 oz.
Dhall ..	4 oz.
Biscuits..	4 oz.
Potato Powder..	1 oz.
Sugar ..	3 oz.
Salt ..	$\frac{1}{2}$ oz.
Salt Tablets ..	5
Tea ..	1 oz.
Dried Fruit ..	2 oz.
Condiment Powder ..	$\frac{1}{8}$ oz.
C. V. Tablets..	1
Milk in tin ..	4 oz.
Mutton Curry..	4 oz.
or Sardines ..	$3\frac{1}{2}$ oz.
Chillies, dried..	3 pieces

Packed in one rectangular tin

Calories 3,800.

Weight to carry—3 lbs., 8 oz.

Cost 5/6d. approx.

Rectangular tins scored round the sides and opened with a key on the sardine tin method.



THE R.A.S.C. WITH THE 6th ARMoured DIVISION IN ITALY APRIL, 1944 to SEPTEMBER, 1944

by Major B. C. VAUGHAN, R.A.S.C.

COLONEL GOODYER-PAIN, in his article in the 1950 REVIEW, ended on the hopeful note that the experiences in North Africa in 1942 and early 1943 would prove useful to the Divisional R.A.S.C. later in 1943. Unfortunately, the Division was not moved to Italy until early 1944, and many lessons had then to be re-learned the hard way. In this article it is proposed to give a short summary of the tactical movements of the Division during the period under review, and then in a little more detail, the organisation and work of the R.A.S.C.

The 1st Guards Brigade Group was the first element of the Division to move to Italy. Their move followed the Salerno landings and was at very short notice. The move of the remainder was 'administrative' and was carried out in March, 1944. The concentration area was Piedmonte D'Alliffe.

In April the Division, less the Armoured Brigade, under command 13 Corps, took over occupation of the Cassino sector from 2 New Zealand Division. Additional troops which came under command in this sector consisted of 2 Independent Parachute Brigade, a New Zealand Armoured Regiment, and three Field Regiments (including one New Zealand Regiment). This force was maintained by means of a Divisional Maintenance Area, (hereafter referred to as a D.M.A.) stocked by 477 Company (Infantry Brigade) and from which units drew ammunition, P.O.L., and supplies in their own transport. No difficulties were experienced, but this phase was chiefly remarkable for the very heavy expenditure of 25 pounder smoke ammunition, and the fact that the divisional R.A.S.C. for a short period took over the responsibility for manning the 'smoke pits' covering the bridges leading into Cassino. This period was, however, invaluable for training the divisional R.A.S.C. after a period of over twelve months in North Africa when training on a divisional level was geographically impracticable.

Towards the end of April, the Division was relieved in the Cassino sector by 8th Indian Division, and rejoined the Armoured Brigade in its concentration area at Piedmonte D'Alliffe. On the 4th May, before the final attack on Cassino, the 1st Guards Brigade was placed under command of 4th British Division and reoccupied the outskirts of Cassino. The Armoured Brigade, less one regiment, was also placed under command of 4th British Division for the assault crossing of the River Rapido. Both brigades were maintained from D.M.A.s operated by 4 Company (Armoured Brigade) and 477 Company (Infantry Brigade).

After the assault and the fall of Cassino, the Division reformed and passed through 78th Division. Led by a mobile force consisting of the 1st Derbyshire Yeomanry, 10th Bn. Rifle Brigade (the Divisional Motor Battalion) and two

S.P. batteries of 72 Anti-Tank Regiment, it pressed the enemy back as far as the River Melfa, where a stand was made, necessitating attack by the Guards Brigade to clear a gap through which the armour passed to take Arce on the 29th May.

At the end of May, 61 Infantry Brigade, consisting of two battalions of the Rifle Brigade (to which was added the Divisional Motor Battalion), was placed under command of the Division, and 329 Company, R.A.S.C. (Troop Carrying) was allotted as its second line company.

From this time onwards the advance became more rapid, the axis of advance being through Frosinore, Altari and Fiuggi, Cave being reached on 5th June. The road from Altari to Cave consisted of single tracks only, in many cases made by bulldozers; in consequence the maintenance of the Division was extremely difficult. Time spent on the road by all vehicles was very considerable and the divisional R.A.S.C. was very heavily committed during this period.

At the beginning of June, command of the Division passed from 13 Corps to 10 Corps, who were to advance on Narni to the east of the River Tiber. This switch at short notice created some difficulty, as 10 Corps F.M.C. was so far removed from the Division that it involved a turn-round of 210 miles over indifferent roads. The second line lift was therefore dumped on the ground, and a reserve of P.O.L. and ammunition was built up out of 13 Corps resources. From Palestrina the divisional axis skirted Rome and swung north east up route 4 through Monte Rotondo to Passo Corese and Stimigliano, which was reached about the middle of June. On route 3 the advance continued through Otricoli and Narni, Perugia being reached on the 17th June, an advance of two hundred miles in twenty three days.

North of Perugia the infantry brigades were committed to a very slow advance as far as Lake Trasimene, whilst the armour carried out a brief refit.

At the end of June the Division reverted to command of 13 Corps, and concentrated south of the lake. It was then passed through 78 Division again north of Castiglione del Lago and continued the advance up route 71 to Arezzo. This advance was very slow in the face of very heavy opposition from the enemy holding the hills dominating the route from both west and east, but Arezzo was reached and cleared by 16th July. After this the Division was committed as the right flank guard of 13 Corps, which was directed on Florence. Again progress was slow owing to heavy demolitions, and for a very short period the Division again came under command 10 Corps. The axis of advance being Montevarchi, Figline, Pontassieve and Dicomano, the total advance from 13th May to 30th September amounted to 410 miles, and the Division had been committed in battle throughout the whole of this period.

It is now proposed to deal in a little more detail with the activities of the divisional R.A.S.C. during this period. For most of the period the R.A.S.C. was organised as follows :

H.Q. R.A.S.C.

4 Company R.A.S.C. (26th Armoured Brigade), consisting of four 3 ton platoons, one 5 ton platoon (Macks), a complete composite platoon, and a workshop platoon.

477 Company R.A.S.C. (1st Guards Infantry Brigade) consisting of three 3 ton platoons, one composite platoon, and a workshop platoon.

329 Company R.A.S.C. (61st Infantry Brigade) consisting of three 3 ton platoons, a workshop platoon, but no composite platoon.

242 Company R.A.S.C. (Armoured Division Troops) consisting of two 3 ton platoons, two platoons of T.C.V.s, a composite platoon less C & D sections, and a workshop platoon.

It should be noted that although the transport lift was substantially larger than that of an infantry divisional R.A.S.C. it operated throughout this period of the campaign with one composite platoon less than that of an infantry division. When 61 Infantry Brigade came under command, only one additional transport platoon was asked for for the carriage of 25 pounder ammunition, S.A.A., and additional P.O.L. However, 329 Coy. were allotted as a complete company of three platoons. In consequence the divisional R.A.S.C. were able to assist in transport details for Corps, who were very hard pushed for transport in this advance, by allotting them an average of two platoons. It was also rarely necessary to have the assistance of Artillery platoons when additional artillery was placed under command of the Division. In point of fact, the congestion of transport on the mountain roads made it desirable to operate the minimum of vehicles.

In accordance with 8th Army practice at that time, the D.M.A. method of R.A.S.C. supply was used throughout the campaign, and at no time did any situation arise which could not easily and quickly be dealt with. The system as operated by 6th Armoured Division is set out briefly below, not because it embodies any radical changes from normal procedure, but because it no doubt differs from other divisional R.A.S.C. procedure during the second World War.

Composite companies were used as such, and were at all times capable of maintaining independently their Brigade Groups. 329 Company R.A.S.C., though it had no composite platoon, was used as a composite company, though bulk breaking had always to be done by the composite platoon of one of the other companies. The D.M.A. was controlled by one of the brigade companies in the following manner :

- (a) Ammunition: A central report centre directed vehicles to either of two ammunition circuits, namely, one for infantry natures and 25 pounder gun ammunition, and one for tank natures and S.P. gun ammunition. The first circuit was within the company location of one of the infantry brigade companies and the other the armoured brigade company. The divisional R.A.S.C. carried an average of fifty-four types of ammunition with a second line carry of about 450 tons. It was usually found impossible to find one circuit sufficiently large to handle all types, and the split between tank and other natures was a logical and easy one.
- (b) P.O.L.: A central circuit was stocked by one or all companies in accordance with requirements.
- (c) Supplies: Supplies had a central circuit where bulk was broken for all units in the Division by the brigade company running the D.M.A.

The average feeding strength of the Division was 20,000 and sometimes involved over fifty splits. It is therefore of some interest to note the system which was adopted.

242 Company (Armoured Division Troops) composite platoon (A and B sections only) less those personnel engaged on ammunition and P.O.L. duties, drew in divisional bulk from Corps F.M.C. and delivered to D.M.A. in echelon transport found from all companies. One composite platoon in the D.M.A. broke bulk and made the issues. If two D.M.A.s were still open, or if one brigade was detached within the same Corps, 242 Company's composite platoon broke bulk into two and delivered to each D.M.A. In practice it was found that in mobile operations, successive D.M.A.s were opened so frequently that it was necessary to leap-frog the composite platoons of the two brigade companies, whereas, in more static conditions, it was found necessary to operate two D.M.A.s, or alternatively the strength of the attached troops (R.A., R.E., and sometimes mule companies) made it necessary to reinforce the composite platoon of the company running the D.M.A. from personnel of the other composite platoon.

Before the Division was committed in battle, much time was spent agreeing with Q Branch on the scale of ammunition and P.O.L. to be carried. From time to time these figures were reviewed in the light of experience, which enabled drastic reductions to be made in some natures, thereby enabling increases to be made in others. Similarly the initial P.O.L. second line was based on fifty miles for both A.F.V. and 'B' vehicles, but practical experience showed that if A.F.V.s in fact moved ten miles, 'B' vehicles moved not less than thirty. The P.O.L. carry was therefore adjusted to an equivalent of thirty-five miles for 'A' vehicles and seventy miles for 'B' vehicles. The second line scale proved to be completely adequate and enabled the divisional R.A.S.C. to open successive D.M.A.s, sometimes at twenty-four hour intervals. When the distance between F.M.C. and D.M.A., or the time taken for the turn-round, became too great, an appreciation of the situation was made by Q Branch and if considered advisable, additional gun ammunition or P.O.L. was ferried into the D.M.A. to meet any heavy demands. This was very rarely necessary and only three occasions can be recalled.

Normally R.A. units drew their ammunition direct from the D.M.A. Where, however, heavy expenditure was anticipated or the D.M.A. was located more than five miles from the R.A. unit lines, a forward ammunition point was established and it was usual for the location of this ammunition point to become the location of the next D.M.A. When a dumping programme was to be carried out, Q Branch ordered the minimum permissible quantity to be dumped at gun sites and the balance of anticipated requirements was held centrally at the forward ammunition point. Normally R.A.S.C. Artillery platoons did not accompany their Medium or Heavy Regiments R.A. when the latter were placed in support of the Division as it was found that except in very mobile phases the divisional R.A.S.C. resources were sufficient. When, however, assistance was required, the Artillery platoons were employed as an integral part of the divisional R.A.S.C. and were invariably used to stock the D.M.A. with the ammunition for the regiment concerned. This, of course, was an ideal arrangement from the point of view of H.Q. R.A.S.C. but the R.A. regiment concerned suffered from a lack of continuity in method of maintenance, noticeable particularly with rations and wherever close liaison had been maintained between the regiment and the platoon.

Owing to the more than adequate transport resources which included two

platoons of T.C.V.s, no difficulties arose as regards troop carrying. In mobile operations troop carrying vehicles were usually allocated as follows: sixty T.C.V.s to the 1st Guards Brigade for the lift of three battalions, and forty-two 3 ton vehicles to 61 Brigade for the lift of two battalions (the third battalion, being the 10th Rifle Brigade or Divisional Motor Battalion, was already mobile). All these vehicles reverted to R.A.S.C. control when the Division was not employed in a mobile role. It will be noted that the establishment of 4 Company R.A.S.C. included one platoon equipped with 5 ton Macks. This platoon did invaluable service. The saving in manpower, the simplification of finding company areas, the reduction in the number of company vehicles and in the scaling of workshops, were all most important factors.

At the time, H.Q. R.A.S.C. asked for more of these vehicles and recommended that up to one third of the divisional second line could usefully be so equipped, particularly for the carriage of P.O.L. and gun ammunition. In spite of some very indifferent roads the increased dimensions and weight of the vehicles did not prevent them from being used on any route which was open to 3 tonners.

Two exceptional services were rendered by the divisional R.A.S.C., brief reference having been made to one above. Before Cassino was finally taken, it was necessary for the bridges leading into the town to be covered by smoke in order to obscure the enemy's view, thus depriving him of a chance of ranging his artillery and mortars on it. Whenever the wind was unsuitable, or the screen became too thin, 25 pounder smoke had to be called for by the officer in charge. The troops had to remain in slit trenches all day, crawling out every ten minutes to light the canisters. The canister area was within one thousand yards of the enemy and was under intermittent mortar and shell fire, and covered by machine guns firing on fixed lines to the bridges. In addition to the actual production of the smoke screen, the replenishment of the pits with smoke canisters was a very arduous task and required eight 3 tonners, seven jeeps and trailers, and about fifty men. Replenishment had to be completed before first light and involved the taking forward of over 1,500 canisters per night to an area continually under enemy harassing fire. The smoke party consisted of three officers and 146 O.R.s, and it was found that three days was the maximum tour of duty. The divisional R.A.S.C. undertook this task from the 7th to 18th April, 1944, and suffered one O.R. killed and five O.R.s wounded.

The other extraneous task was the provision of labour to assist the R.E. on road construction. This was just plain hard work, but considerably safer.

It is impossible to overestimate the importance of driver training in divisional R.A.S.C. work. As a result of the experiences of the divisional R.A.S.C. during this period it was generally agreed that driver training in the U.K. had failed in two aspects, namely night driving without lights and driving over tracks, demolished roads, and in mud. Driving under these conditions required a higher standard and display of more initiative on the part of the individual driver than was called for during normal training in England. Road movement in any future war will, no doubt, be more restricted by air and other activity on the part of the enemy, and it is reasonable to suppose that much of the movement of R.A.S.C. companies in a forward area will be restricted to the hours of darkness. Night driving may well become the most important aspect of driver training.

ROAD TRANSPORT COLUMNS

by Lieutenant-Colonel A. H. C. T. P. HOUCHIN,
R.A.S.C.

THE OPERATION OF ROAD COLUMNS of mechanised transport is one of the principal duties of the Royal Army Service Corps. This duty is much practised in most diverse circumstances and conditions. Apart from occasional reference in other manuals the subject of road transport columns is dealt with in Field Service Regulations, Vol. II, an R.A.S.C. Training Pamphlet and the Field Service Pocket Book. I propose to examine the instructions and guidance on the subject contained in these training manuals in comparison with my practical experience. I hope to arrive at some useful conclusions.

Field Service Regulations disposes of the matter in a few brief paragraphs in which it is explained that mechanical transport moves mainly either as a single column or by small groups. A few figures are mentioned, such as that on good level roads a distance of twenty yards between vehicles and forty yards between blocks will be maintained on the move and two yards between vehicles and twenty yards between blocks at the halt. In other road conditions these distances will need to be altered to suit the circumstances. The cruising speeds recommended are 15 m.p.h. if moving in convoy and 15 to 20 m.p.h. for independent groups.

In the R.A.S.C. Pamphlet the subject is dealt with more fully. Such considerations as the moral and physical condition of the soldiers and the need for rest and regular meals are discussed. Attention is drawn to the value of motor cyclists and they are referred to as the eyes and ears of the commander and his principal means of inter-communication. This, I consider, is overstating their value. A distance of 200 yards between vehicles parked in open country is mentioned. In my opinion, the country would need to be very open and the danger of air attack imminent to justify such dispersion.* It is directed that route cards be issued to drivers stating yards between vehicles and cruising speeds which must not be exceeded and the minimum distances allowed between vehicles when halted. It will be noticed that this instruction is stated in uncompromising terms. In practice I have never seen route cards used except in exercises.

The Field Service Pocket Book contains a number of definitions and explains that movement can be in controlled columns moving at high and low density or the vehicles can operate individually or in small groups. Advantages and disadvantages of the methods set out in the Field Service Regulations were repeated in the 1939 F.S.P.B. The high density column was stated to be slow and unwieldy and liable to cause traffic congestion, while the low density column, though retaining its military organisation, is dispersed as a matter of protection. Independent running has an advantage in allowing halting or overtaking as desired and all vehicles can be driven at their most efficient speeds. It is however

*Editors' note: The 1951 Pamphlet has reduced this figure to 75 yards.

difficult to control except by special organisation. Operating small groups of vehicles is a compromise offering a loose formation with some degree of control. Mechanised movement by road appeared to be visualized rather like the movement of trains on the railroads. Control posts, sign posting, traffic circuits, one way traffic and road patrols were fully discussed. It was made quite clear, however, that consideration had been confined to the most suitable conditions and in particular in relation to the very best roads. Later editions of the F.S.P.B. omit this section on methods of movement, but provide no alternative suggestions. A study of these training manuals leaves an impression of a road column of evenly spaced vehicles with wider gaps between units and sub-units proceeding at a moderate speed along a first class road. Motor cyclists take an active part and the route is boldly signposted with check posts established at suitable points. The soldier drivers will have so benefited by the adequate rest, regular meals and high morale recommended that their appearance may well be indeed cheerful and soldierly.

As there is obviously no limit to the conditions in which road transport is required to operate it is reasonable to include in this discussion the retirement to Dunkirk in 1940. There was little control of the roads by the staff and most roads were excessively congested for many miles with transport both civil and military. Generally any attempt at dispersion led to disintegration as every available space between vehicles was soon filled with infiltrating traffic. The storm ditches so usual on the sides of French roads prevented vehicles from leaving the road except at occasional opportunities. Control of R.A.S.C. units in these circumstances and success in their endeavours was generally achieved by moving in a column of the highest possible density. In fact on some occasions I forced my way through the most inextricable traffic congestions by sheer mechanical solidarity. I wonder what would have happened if all road users had taken the same course. At this time the enemy had command of the air and was making some use of it. However, I do not recollect any notable destruction of transport columns as a result of air attack. I remember an R.A.S.C. troop-carrying company parked nose to tail on an average French road being attacked from the air. This attack took the form of light bombing and the result was two vehicles lost and two drivers wounded and some death and destruction to the civilian refugees and their horsedrawn waggons. There was always the danger that some vehicles of the column would take a wrong turning or be misdirected and so become lost in the retreating masses. Motor cyclists were always insufficient to picquet the route adequately and in any case they were in general unreliable. They had difficulty in riding forward in the congested traffic and if the weather conditions were unfavourable they were further penalised. A high density so that each vehicle was able to see the vehicle in front was the surest way of passing through a town or complicated village. At night when lights were restricted to nose and tail a very high density was essential.

For some three years following the events in France in 1940 much time was devoted to training R.A.S.C. units for the day when we would return to Europe. Our training emphasised road columns at low density to ensure adequate dispersion as a measure of protection against air attack. Advanced guards, rear guards, road blocks and fighting patrols were all new points of

training introduced into the road columns. Equally the control of the roads over wide areas by Formations and Movements was a notable feature of the many large scale exercises. Civilian traffic in the United Kingdom was much reduced in view of the war and military units had miles of road space to themselves for training. Eventually in these most favourable circumstances mechanical movement by road envisaged in the training manuals was approximately achieved. Even so, the limitations of motor cyclists were very apparent. No establishment was sufficient to ensure adequate picqueting of the road in complicated and built-up areas. Sign posting is a great help when opportunity offers, but I well remember in Ireland whenever we signposted a route it was not long before some perverted Irish humourist turned all signs in the wrong direction. In particular, motor cyclists succumbed to bad weather, and mechanical failures such as broken cables were frequent. Clearly when the snow is on the roads it is more agreeable to the cyclist to continue with his cycle in the comparative comfort of the back of a truck. There are of course a few motor cycle enthusiasts who remained mounted in most circumstances and if they possess those admirable qualities enumerated in the R.A.S.C. Training Pamphlet they are indeed good value, but should be regarded conservatively as a bonus.

The efficiency and success of a mechanical transport column depends mainly upon leadership. The great diversity of conditions and circumstances demand so much of common sense and initiative. It is so important that these qualities should not be unduly restricted by narrow rules and over-standardised methods. I often feel that the all-important factor of leadership lost much of its significance in the efforts to train columns to conform to exact distances and precise speeds. The road column tended to be standardised to an exact drill evolved and practised in suitable conditions. The application of the drill in the future to conditions foreseeable and unforeseeable and to circumstances favourable and unfavourable will depend upon the leadership of the officer or N.C.O. in command.

The great day came and once again our road transport columns were operating in France. Difficulties were soon experienced in the application of the drill to the new conditions. Initially the parking space in the Normandy beaches area was so restricted that dispersion was out of the question. The roads were once more the scene of high density columns with the usual congestion. Sometimes the miles of nose to tail transport on the road to Bayeux brought traffic to a standstill for hours and I often wonder whether half the vehicles on that road were performing journeys which were really necessary.

Even after the break out from the Normandy area the congestion persisted for some weeks. I remember on one occasion an R.A.S.C. column setting out from Caen well spaced and well controlled. Before it had proceeded many miles it was overwhelmed with infiltrating traffic. The obvious solution was the high density column which admits of no infiltration. In the course of time as the enemy withdrew towards Germany more miles of road became available and congestion became less. A difficulty which overtook our road columns operating on a 200 miles turn round was occasioned not by the enemy but by the British and Allied soldiery in the vicinity. When a column parked for the night suitably dispersed in accordance with training, the vehicles,

especially the cars and 15 cwt trucks, were very liable to be stolen even just to get a lift back to location from the nearest village. Of course the columns mounted guards but in order that the soldiers should receive the adequate rest and regular meals referred to in the training manuals the guards were of necessity limited. However, an effective solution was devised. Columns parked for the night nose to tail with the cars and 15 cwt trucks securely jammed in the opaque mass. A guard was posted with the first and last vehicles and the occasional prowler patrolled along the line. In this way security was achieved.

Supplies were always covetable items and the Black Market in Europe in these days was enormous. There were "hold-ups" in true bandit fashion organised and successfully executed by British and Allied deserters and supply vehicles were much safer operating in high density columns. Sign posting was at all times a most successful feature of the lines of communication in Europe. As, however, the Allies maintained command of the air there was no great need for low density columns. High density columns on the other hand continued to be of value for other security reasons. Towards the end of the operations in Europe the back areas became so sheltered and the available roads so good that there was little of significance in mechanical movement by road.

In recent months I have been concerned with road transport columns in East Africa and the conditions are so different from those which obtain in Europe that they may well be appropriately included in this discussion. With very few exceptions the roads are without surface and very limited. They wind for hundreds of miles through the African bush and across the scorched and open plains. Frequent stretches are corrugated and rutted. Generally they are to be found in one of two conditions, depending on the season. Either they are dry and one cannot approach within about fifty yards of the vehicle in front because of the dense wake of dust, or, during the rains, the dust becomes slippery, sticky mud. High density columns are not practical in either condition. On roads used fairly frequently by civilian traffic the dust is often such that independent running is the most satisfactory method of operating road transport. In some circumstances this is not acceptable for security reasons and columns are operated at a low density. There are other hazards such as the drifts. In the season of the long rains it is not unusual to happen upon a drift in spate and impassable. A delay of perhaps five hours may see the waters subside, but a spate may last for some days. The alternative routes are sometimes as much as many hundreds of miles out of the way. There is little opportunity of cross country driving in the bush and it takes a long time to cut a new track. Motor cyclists are not generally used and the roads are not very suitable for their machines. There is little danger of vehicles losing their way for it is no exaggeration to say that often there is no turning of any significance either to the right or to the left in a 100 miles. Columns proceeding any distance need to be entirely self contained for supplies, water and fuel, as such items are not available en route. In East African conditions the low density column is the most satisfactory method of operating road transport but success depends upon the leadership, common sense and initiative of the officer or N.C.O. in command.

To date no official information concerning mechanised movement by road in

Korea has reached the outpost of Empire at which I am at present stationed. However, some indication of the conditions were given in the March copy of the CORPS JOURNAL under notes from the British Commonwealth Forces, Korea. I quote: "Road conditions are appalling and during the mass withdrawals the average speed works out at 8 m.i. 2h and the density at something like 400 V.T.M. or more, when a convoy of jeeps tries doubling the line amidst a volley of imprecations in most known languages." So we find in 1951 in Korea the same high density columns accompanied by the inevitable congestion and infiltration as obtained in the withdrawal in 1940 and the first months following the landing in Normandy in 1944.

It is a condition of the roads which must be recognised and reckoned with. It is not practical to regard congestion and infiltration as a temporary inconvenience due to some local inefficiency. It is recurring and ever with us and training must take it into account. Clearly in such circumstances high density is the only method of retaining unit identity and control. The conditions considered in the manuals are the exception rather than the rule. It follows that road transport columns inspired by such conditions are equally exceptional. It may be argued that the instructions set out in the manuals serve as a guide and that whilst it is accepted that they may not always be applicable the transport commander should do his best. However, it is not enough to emphasise the neat and tidy column conforming to an almost precise drill, and omit to emphasise the leadership, initiative and resourcefulness which are the all-important factors.

In England on one occasion I demonstrated to my officers a technique in operating a road transport column which I think has much to commend it. The officers selected a route which entailed some three hours driving and which was not known to me. A transport platoon of thirty-three lorries was paraded. There were no motor cyclists included but the platoon serjeant was mounted on a motor cycle. I explained to the assembled drivers that I needed their co-operation on two points. Although an average density of 30 V.T.M. was to be aimed at the overriding consideration for each driver was to keep the vehicle in front comfortably in sight. In order to check infiltration any civilian or military traffic over-taking or delaying in the intervals between vehicles would result in the closing up of the transport column affected. In this way it was hoped that excessive infiltration would be shut out. This second point is not one to be applied at all times. There may be occasions when light overtaking traffic must be given priority, in which case the drivers are so instructed. Co-operation on these two points was all that was required of the drivers. The serjeant's principal duty was to report progress by watching the column pass and then riding to the head to make his report. Should he notice any undue gap he was at once to ride to the head in order that the column should be halted. Throughout the demonstration, I controlled the column entirely by suiting the speed to the roads and the circumstances. The important point always to keep in mind with such a column is that the tail at the density of 30 V.T.M. is approximately one mile behind. The head of a column will often be obliged to proceed uphill at a reduced speed dictated by the capacity of the engines. Equally the leading vehicle must continue downhill for one mile at the same reduced speed when the last vehicle may be assumed to have climbed to the top. When turning at a road junction or passing through complicated

and built-up areas it is necessary to reduce speed for a mile past the road junction and difficult area to allow ample opportunity for the rear vehicles to keep in touch with those in front. On open and straightforward roads the speed may well be increased considerably to compensate for the occasions when it is necessary to go slowly. At the end of the three hours the column was back at the starting point complete and the average speed proved to be 20 m.p.h.

This was a simple demonstration which emphasized the importance of leadership in the commander, and simplicity in the co-operation demanded of the drivers. The standardised drill method cannot be sufficiently sensitive to the many varying circumstances affecting the column. The necessary sensitivity can only be concentrated in the commander. Although the demonstration was carried out in the English countryside in daylight the simple principles are equally applicable to most conditions. It is of course a high density column and my experience is that a high density is the more usual and often the most convenient. The same principles are applicable to the low density columns in East African conditions as the distance which it is comfortably possible to keep the vehicle in front in sight is so very much greater.

I notice the D.S.T. in his closing address in a fairly recent exercise, refers to the weather. In Europe it is not always fine and he mentions the many days when rain, fog and low cloud will make movement on the roads safer from air attack in the daytime and perhaps even safer than on a fine night. In such conditions a high density column similar to that I have demonstrated would appear to be the most suitable and in any case a high density and slow speed are essential in fog.

I do not wish to give an impression that I feel strongly towards the high density column. From experience however, it must be taken fully into account. Equally I am sure that the low density rigid rule method must not be regarded as the only satisfactory way of operating road transport even on good level roads. Speed, density and parking distances should suit the circumstances. The conditions are so variable that the most suitable speeds and spacings are mainly a matter of judgement and experience. Organisation and procedure needs to be flexible to allow of adjustment to the conditions. Also some simple co-operation will be required of the soldiers in the column commander's arrangements. Training should be on these lines as much depends upon the leadership and, in particular, the initiative and resourcefulness of the column commander.

MAN MANAGEMENT

by Lieutenant-Colonel J. P. MOORE, R.A.S.C.

THE FRONTISPIECE, AND THE FOREWORD, of the last number of the R.A.S.C REVIEW make it evident that articles should be confined to those dealing with the training and organisation of the R.A.S.C. for war. To be acceptable therefore it would appear that any article, whether dealing with past lessons or future policy, must fall within the general framework of the principles of war, and should be aimed at teaching the application of those principles to the work of the R.A.S.C. From the title it can be seen that this article does not deal specifically with any of the principles of war, and furthermore that the subject matter cannot possibly be limited to those tasks peculiar to the R.A.S.C. In justification, however, of its submission it is felt that it does deal with a most important subject, and one in which the indoctrination of the more junior leaders is all too frequently neglected or forgotten.

One dictionary describes morale as "the mental state as regards spirit and confidence, especially of a body of men." Napoleon is reputed to have stated that "the morale is to the material as three is to one." Field-Marshal Montgomery has described morale as "a pearl of great price" and "probably the most important single factor in war." As a result of experience, backed by the opinions of famous leaders, the principles of war, now ten in number, include one called "maintenance of morale."

To put it quite simply, good morale is obtained where between the leaders and their subordinates there exists a feeling of pride and confidence, not only in each other but in themselves and in their unit. In order to achieve this spirit of pride, trust and confidence, the unit must be a well run unit from every point of view. Although it is not intended in this article to mention every contributory factor to good morale, it must be obvious that a high standard of training, discipline, welfare, fitness and a keen inter-unit competitive spirit are numbered among the essentials. It would be possible to write at length on each essential factor, but in this article an effort is made only to show that there is one common factor. It is also hoped to prove that the best results will never be achieved unless this "common factor" is thoroughly appreciated, and practised, by leaders at every level, from Lance-Corporal upwards. It is frequently claimed that this most important common factor is due to personality, knack or just luck. It is this outlook which is largely responsible for the frequent failure to instruct the more junior leaders in the art of man management.

Man management is definitely not a matter of pure luck. Neither is it a subject that can be taught in so many lessons, nor in which great skill can be acquired by reading books. From the point of view of teaching or learning, it is more like a game, where the guiding principles may be read from a book but where real proficiency is gained by having constant practice under an experienced instructor. The claim that man management cannot be taught is a claim put forward by the leader who himself is lazy in this respect. He is

therefore unable to set the necessary example to those junior leaders by whom he is being watched, and whom he should be coaching continuously during their daily routine.

As has already been pointed out there are many subjects which must be successfully dealt with if a unit is to be called a good one. The main ones may be summed up under the general headings of Welfare, Discipline and Training. These are all of equal importance. They are only placed in this order because it is the probable order in which their influence will be brought to bear on the individual, and on the Section, Platoon or Company of which each individual is a team member.

In the following paragraphs these three main subjects are taken separately in an attempt to show how man management is the prime mover in each, and why the probable order of influence is as stated above.

WELFARE

Welfare is in itself an enormous subject, but for simplicity it can be split into Military Administration and Recreational Welfare.

Military Administration consists of looking after the feeding, clothing, pay, allowances, accommodation, and all those matters which the individual can claim as his rights.

Recreational Welfare is in brief the arranging for entertainment or other suitable occupation during an individual's off-duty hours.

On first joining, a man naturally judges the unit and his leaders to a large degree by the amount of interest shown in his own welfare, both military and recreational. The difference between these two sub-headings is that the former is covered by a multitude of army orders and regulations, which enforce a certain standard to be maintained. The latter, on the other hand, is largely dependent on the keenness, initiative and example of leaders at all levels. It should always be remembered that man management does not imply pampering the individual and that in no sense does welfare include doing those things for a man which he should do for himself.

Military Administration which complies strictly to current regulations will no doubt pass all normal boards, audits, stock checks and administrative inspections. It will, however, never become a real factor towards the maintenance of morale in the unit unless platoon and other leaders study all the little problems of each of their subordinates—how many children they have, are their parents alive, do they know how to claim all their proper allowances, and many other details. Such study shows a personal interest, as opposed to the machine-like routine of office administration.

Recreational Welfare is all too frequently represented by a Sports Officer and/or Entertainments Officer, who ensures that Part I Orders contain details of the local "What's on" programme for cinemas, and that the sports grounds are always fully allotted to sub-units. Recreational Welfare on such lines is useless. There must be properly organised sports leagues, dances, rifle meetings, hobbies, arts and crafts, tombola, and so on, in which the leaders must take an active interest, either by participating themselves, or by giving their very real support through regular and energetic attendance.

It is through this personal interest, both on and off duty, that the first sense

of mental comradeship and trust is born. Once born, it becomes the foundation for a better understanding on which to base the more difficult approach to obtaining confidence and pride both in discipline and training. This mental comradeship and trust is not given lightly. It must be worked for, not only on parade but, even more important, during leisure hours. This is not always understood by the more junior leaders, and although undesirable, it is frequently necessary that they be detailed to attend at "Off-duty parades," until they themselves realise its importance and the benefits to be derived from so doing. These junior leaders must not only be watched, coached and reminded of their welfare duties, but the example from above must be such as to leave no doubt in their minds as to what they must do and how they should do it.

DISCIPLINE

Discipline is the training of a body of men to adjust their mode of life in accordance with certain rules. In the Army the mode of life is governed firstly by Regulations and Instructions, issued by people in far-off offices who are seldom seen, and secondly by the Standing Orders, Daily Orders, and other purely verbal orders, issued by the unit commander or his subordinates. To achieve good discipline it is imperative that there should be a true understanding between each party to an order. The person issuing an order must understand its effect on those who must obey it, and they in turn should be made aware of the reason and must try to understand the reason for such an order being necessary. The leader who has the welfare of his unit at heart will be unlikely to issue an order that is unnecessary, or by which he himself does not intend to abide. There is no need to enlarge on the effects of bad discipline in peace time. In war time it is stressed that lack of discipline may well be fatal, not only to the unit concerned, but to the whole of any force of which it forms an integral part.

In both Welfare and Discipline the interests of the individual must be carefully considered. In Welfare it is all-important that this interest is fostered by personal and individual contact with subordinates, irrespective of rank. With Discipline the position is somewhat different. The lead and the policy direction must of course come from above, but the actual inculcation of discipline in individuals should normally be left to the appropriate sub-unit commander. Any attempts to achieve a short cut to good discipline through by-passing the normal channels will result in undermining the authority of those intermediate leaders upon whom you depend for the maintenance of discipline in the unit. In both Welfare and Discipline there must be no attitude of "do as I say, but not as I do," and the example from the top must be beyond criticism.

TRAINING

Training in the military sense means the continuous and progressive practising of every action which the unit or the individual may be called upon to perform in war so that in an emergency the reaction will not only be automatic, but will also be correct. Training, to be effective, must be done under conditions as near as possible to actual war. It will frequently be both strenuous and unpleasant. Here again, the men should not be subjected to such training without being instructed also in its object and its reason. Provided that their confidence

and respect has already been won by good welfare and just discipline, the task of training the unit will be immeasurably simplified.

During training, the aim must be to increase the confidence of the individual in himself and in his leaders, so that there will gradually be built up a feeling of pride in self, pride in leaders and pride in unit.

It has not been intended that this article should be regarded as a directive on instruction in man management. Neither is it intended that it should be regarded as a comprehensive study of all aspects of man management. It would be an impertinence even to imply the former, and an impossibility in so small a space to produce the latter.

The intention was rather to try and arouse a renewed appreciation of the extreme importance of man management, and to show that it is not by knack, but rather by hard work and above all by example, that the best results will be obtained. Taking the best point of view, it is hoped that this article may give a fresh and possibly a useful approach to a very old subject. Taking the worst point of view, it may be that any disagreement with its contents will give rise to discussion and argument, actual or introspective, which in itself may produce some equally good, if not better and more constructive approach, towards the fostering and the maintenance of interest in the art of man management.

It is common knowledge that while an indifferent unit can be slowly but surely improved by good leaders, the reverse will take place with absolute certainty, and in a far shorter time. In support of this, readers are reminded of the somewhat obsolescent saying that "there is no such thing as a bad unit, there are only bad officers": a saying which has been replaced by the more appropriate expression "a unit is the reflection of its officers."

USE OF TANKER AIRCRAFT IN OPERATION "PLAINFARE"

by Lieutenant-Colonel K. W. McQUEEN,
O.B.E., R.A.S.C.

THE BERLIN AIRLIFT, the British part of which was known as Operation Plainfare, was described in an article in the R.A.S.C. *Review* for 1949. During the Airlift, aircraft based in the British Zone of Germany carried to Berlin 1,338,468 short tons (2,000 lb.) of all commodities, of which 92,432 tons, i.e. eight per cent, consisted of petroleum fuels transported in bulk in special tanker aircraft. The purpose of this article is to describe the organisation, procedure and equipment required for loading and unloading these tanker aircraft.

Shortly after the operation began on 28th June, 1948, it became apparent that the city of Berlin would require substantial quantities of petroleum fuels. About a month later, two Lancastrian aircraft, especially adapted to carry 1,500 gallons of gasoline in bulk as freight, flew the first sorties of the tanker lift from the airfield of Buckeburg. This method of transportation proved to be successful. During the following year more tankers were brought into service, until, in April, 1949, some thirty-one planes were being employed based on the three airfields of Wunstorf, Schleswigland, and Fuhlsbüttel. By the Spring of 1949, the daily lift of petroleum fuels amounted to 500 tons. The maximum carried on one day in July rose to 799 tons in 110 sorties. At the time that the tanker lift ceased on 10th August, 1949, after the blockade of Berlin had been raised, plans were being made to increase the tanker fleet to forty planes, all of which were to be based on the airport of Fuhlsbüttel, which was to have a maximum loading capacity of 1,000 tons per day.

Five types of aircraft were used. Four of these (Halton, Lancastrian, Liberator and Lincoln) were converted bombers in which the freight fuel was carried in normal aircraft wing tanks supplemented by additional tanks attached to the fuselage. Capacity varied according to type of plane from 1,400 to 2,450 gallons. The fifth type, the Tudor, was a converted passenger airliner in which five tanks were mounted in the fuselage, giving a capacity of 2,500 gallons.

All were four engined aircraft. The all-up weight varied between 58,000 and 80,000 lbs. None of these types was suitable for carrying dry freight. In some cases, only certain grades of fuel could be carried, e.g. the wing tanks of the Lancastrian could only take M.T. Gasoline. All the aircraft operated on charter from civilian firms under the control of 46 Group R.A.F. exercised through British European Airways (B.E.A.).

The aircraft operated within the block timing system which applied throughout Operation Plainfare. Under this system, if the normal time for loading, some twenty to twenty-five minutes, was exceeded, the aircraft might miss the next available timing, with a consequential reduction in the overall daily lift to Berlin.

It was of importance that the arrangements and procedure for loading should be sound.

METHOD OF LOADING

Two methods of loading were used—through bulk petroleum lorries and directly from bulk installations.

Originally, attempts were made to load aircraft from R.A.F. Boswers but it was found that prolonged pumping caused the pumps on the Boswer to overheat. Instead, standard military bulk petroleum lorries (800 or 1,750 gallons) were filled by pumping from rail cistern cars the precise quantity required by a particular aircraft. A pool of lorries thus pre-loaded was maintained at the airfield. When the aircraft had taxied to the loading point, one or two lorries would be called forward to the aircraft. The load was then transferred to the plane by 100 gallon or 350 gallon per minute pumps through one or two 2-inch hoses some eighty feet in length. The R.A.S.C. crew for loading planes consisted of two British other ranks and two German labourers.

The procedure was as follows. When an aircraft was "in circuit," i.e. within thirty miles of the airfield, the B.E.A. Controller informed the Special Aircraft Refuelling Platoon R.A.S.C. (which provided the loading crews). An Army clerk made out a manifest for a particular aircraft giving its registration number, grade and quantity of fuel to be carried and the loaders' names. On arrival of the aircraft at the loading point, the loading crew checked the tanks to ensure that they were empty. Any residue of fuel not discharged at Berlin was drained into drums. Pumping from bulk petroleum lorry or lorries into the aircraft then commenced. One British Other Rank (B.O.R.) remained with the pump, the second B.O.R. watched the filling port on the plane. Pumping continued until the bulk petroleum lorries were empty. A record of the transaction was entered in an Incident Log Book which formed the basis of investigation if any allegation was made about failure of the crew or equipment and consequent delay in the filling of planes.

Loading by means of bulk installations was carried out in the following way. At Wunstorf airfield, a special bulk installation was constructed for the filling of tanker aircraft. Rail cistern cars discharged into six underground storage tanks each of 50,000 litre capacity. The tanks were grouped in pairs so that when required three different grades could be handled at one time. In the aircraft loading area were twelve stand-pipes connected to the bulk installation by underground pipeline. The stand-pipes were housed in pits. Each was equipped with a flowmeter preceded by a filter. The flowmeter had an automatic device which cut off the flow when a predetermined quantity of fuel had been pumped. From the stand-pipe, eighty feet of 2-inch hose led to the aircraft.

A similar installation existed at Schleswigland where it had been designed originally for fuelling of fighter aircraft of the Luftwaffe. At the time the airlift ceased, a special installation was under construction at Fuhlsbüttel which was to serve forty aircraft. This consisted of a railhead at which fifty-five cistern cars could be discharged simultaneously from 6-inch pipelines, leading from the railhead to the airfield, a distance of some 3,700 metres, and at the airfield eight 600 ton storage tanks. On the airfield were to be constructed thirty draw-off points connected to storage tanks.

PRECAUTIONS NECESSARY WHEN LOADING AIRCRAFT.

Care had to be taken to prevent overfilling of aircraft. The contents of bulk petroleum lorries were carefully checked on level standing. The capacity of each aircraft within a type was somewhat different. At one time, the method of preloading the bulk petroleum lorries was abandoned and a cargo was measured into the aircraft by dipping the lorry while pumping was going on. This resulted eventually in instances of overfilling and consequential damage to the aircraft. When the bulk installation was used, it was important to arrange for the careful servicing and inspection of the flowmeter. The flowmeter setting was checked independently by the two B.O.R.s of the loading crew. Careful inspection of tanks in the aircraft on arrival to ensure that they were empty was necessary to avoid overfilling. Occasionally aircraft arrived at Berlin carrying a grade different from that described in the manifest. Careful checking of the grade being pumped into the aircraft was necessary.

Fire precautions on the airfield were R.A.F. responsibility. Adequate precautions and equipment were essential at rail sidings, bulk petroleum lorry park, bulk installations and aircraft loading points.

Forty minutes were allowed for loading aircraft, including coupling and un-coupling of hoses. In practice, this time was reduced to twenty to twenty-five minutes by adopting standard procedures and careful maintenance of equipment to ensure that there was no breakdown in loading.

UNLOADING

Tanker aircraft unloaded at two airfields at Berlin—Gatow and Tegel. A civilian oil company, Deutsche Shell, unloaded aircraft under contract and removed the fuel from the airfield under supervision of the Fuel and Power Branch of Military Government Berlin. The Forward Airfield Supply Organisation (F.A.S.O.) held a watching brief.

Aircraft discharged through one or two hoses by gravity into underground storage tanks. From the storage tanks, the fuel was removed by either pipeline or bulk petroleum lorry to a wharf where it was transferred to oil barges.

EQUIPMENT

The 350 gallon per minute Carter Pump (Four cylinder I.C. engine, twin-hose outlet) proved to be the most reliable pump both for unloading rail cistern cars into bulk petroleum lorries and for loading aircraft. Few of these pumps were available however. The majority of aircraft had to be loaded by using 100 gallon per minute pumps. These were rather light for the purpose but proved satisfactory, provided maintenance was of a high standard. Precise operating instructions were found to be necessary covering, for example, points such as oil change and insistence that filters should not be removed and that pumps should never be run without liquid passing through them.

At each loading point, eighty feet of hose were required which, in the early days, had to be dragged across concrete to the aircraft. Under these conditions, the life of the hose was found to be about three months. Later a "trolley-hose" was devised which consisted of three lengths of 2-inch iron pipe mounted on wheels with rubber hose at each end. By using this device, wastage of hose was reduced substantially.

MANPOWER

Two special establishments were devised—the H.Q. Special Aircraft Refuelling Platoon (one officer, six other ranks, six civilians) and the Special Aircraft Refuelling Section (six other ranks and nine civilians). A platoon H.Q. was provided for each airfield. The number of sections was determined by the number of aircraft based on the airfield, the need for a twenty-four hour service and the principle that at all times sufficient loading crews should be available to deal with sixty per cent of the strength of aircraft simultaneously.

Highly skilled manpower was not required but experience showed that there should be careful supervision and sufficient technical knowledge of the various types of equipment.

ORGANISATION AND SOURCE OF FUEL

The Berlin Allied Kommandatura Air Staff Committee tabled the requirements and priorities for military and civilian maintenance of Berlin. The Berlin Airlift Co-ordinating Committee decided the distribution of work between rear airfields and the type of commodity to be sent from each. The Headquarters Army Air Transport Organisation (H.Q. A.A.T.O.) implemented the decisions of the Co-ordinating Committee. Demands for liquid fuel were placed by A.A.T.O. on S.T.2 H.Q. B.A.O.R. The latter arranged provision from civil sources in Germany. At each airfield was a Rear Airfield Supply Organisation (R.A.S.O.) in command of a Special Air Freight Company which supervised the activities of the Special Aircraft Refuelling Platoon.

Although four days' buffer stocks of petroleum fuels were maintained on wheels or in storage at each airfield, emergency demands were frequent owing to the sudden effects of good weather. It was essential for the supplying organisation to be flexible and to be in a position always to meet such demands.

The fuels transported comprised M.T. Gasoline, Diesel fuel, Kerosine and small quantities of industrial spirits. Normal flushing of tanks was necessary when aircraft changed from one grade to another.

Normal Diesel fuel begins to coagulate at temperatures as high as plus 25 degrees Fahrenheit. As a precaution against low temperatures in the winter, arrangements were made for the provision of a special type of Diesel fuel which would remain fluid down to minus 35 degrees Fahrenheit.

In order to prevent overloading of aircraft, special attention had to be paid to specific gravity of fuels and the effect of varying temperatures.

RELEVANCE OF THE TANKER LIFT TO WAR

While the tanker lift to Berlin proved to be successful under the special circumstances of the maintenance of a capital city blockaded for political reasons, the suitability of this method of transportation in war will depend on the requirements of the particular campaign. The mobility often demanded in war may prevent the development of satisfactory loading and unloading facilities. In particular, the apparatus for dealing with fuel in bulk at forward airfields, however primitive, requires time for construction, and specialist manpower for its operation.

Compared with freighter aircraft carrying fuel in forty-gallon drums, the tanker can carry sixteen per cent more fuel owing to saving in container weight.

Tankers can load and discharge quicker than the freighter. However sound in appearance on the ground, drums at high altitudes are liable to leak and endanger the aircraft. The tanker aircraft is not subject to the same risk.

Against this advantage must be placed the inflexibility resulting from the modification of aircraft so that they can carry only one particular kind of load i.e. liquid fuels. In war, when divisions are being supplied, priorities between petroleum fuels and dry freight (particularly ammunition) fluctuate rapidly. The inflexibility imposed by the conversion of freighters to tankers is probably the greatest single objection to the use of the tanker, but this objection would become less valid if freighters could be designed in such a way that tanks could be installed or removed at short notice.

The circumstance which favours the use of tanker aircraft is strategic immobility which permits development of facilities and which creates a constant demand for large quantities of liquid fuels. Where mobility and flexibility are dominating factors, tanker aircraft are not suitable.

R.A.S.C. WATER TRANSPORT IN CENTRAL MEDITERRANEAN FORCES, 1943—1945

by Major B. MacMANAWAY, R.A.S.C.

IN THIS ARTICLE I DO NOT want to duplicate the official report on water transport activities as given in R.A.S.C. Training Memorandum No. 3, but rather to give some account of these activities as seen by a company commander. While obviously the experience of each unit differs, I think that the problems and the many possible (and impossible!) solutions to these problems were sufficiently varied to justify saying that my experience was fairly typical.

The shape of the Italian peninsula, of Yugoslavia, Albania, Greece, Corsica, Sardinia, Malta and the North African coastline, coupled with the limitations placed upon road and rail transport by the difficulties of the terrain, made the C.M.F. a perfect theatre for the employment of water transport.

The basis of the R.A.S.C. Fleet in C.M.F. was 247 Motor Boat Company, which had come out from England and had already operated along the North African coastline during that part of the campaign which followed First Army's landing. This unit was on the normal British establishment and up to full strength. From this company three water transport companies of special establishment were formed by taking a cadre from the motorboat company, and adding volunteers. The motorboat company was then restored to strength with volunteers. These volunteers were obtained through orders published in the theatre calling for the officers and other ranks. Thus, as craft became available and the Allied Armies increased the available coastline on which to operate, water transport companies were formed and given areas of responsibility.

I appeared on the water transport scene during April, 1944, having finally persuaded C.R.A.S.C. of my division to allow me to volunteer (the effort covering some eleven months, during which several orders were published calling for volunteers whose names were on no account to be withheld by their C.O.s!).

For the period of formation and training, the unit was allocated accommodation with a quay and beaching facilities in a wrecked torpedo factory a few miles to the north of Naples. Here we started to collect personnel, vessels and stores from all quarters. The basis of the unit was twenty-six schooners already fully manned and operating under the control of the other water transport units. These vessels were widely spread round the Italian coastline and, in some cases, a period of more than three months elapsed before I met their crews. In order to raise the rest of my unit, I was authorized to recruit volunteers from the various training depots in the Naples area. In this way, the unit was brought up to strength with officers and others ranks from R.A.S.C., R.A.C.,

R.A. and Infantry of widely differing interests and personality but with a unifying common interest in boat handling. All these personnel were most enthusiastic but naturally of widely varying experience and skill, ranging from professional seamen, through boat builders, barge men, and yachtsmen to landlubbers who, as they themselves expressed it, "had always wanted to have a go!"

It was necessary, therefore, to train on a very wide syllabus to include classes in seamanship, elementary navigation, signalling and an outline sketch of Royal Navy procedure: the latter being particularly necessary as we should be operating in waters controlled by the Royal Navy, but in which there was a possibility of interference from the enemy. The difficulties and degree of compression of this training programme will be appreciated when it is understood that the company was fully operating and in its permanent location on the Adriatic coast by August, 1944, having received the formation order in May of that year.

The material problems of increasing the number of operating craft to our proper strength of forty (plus such small craft as were needed for administration and training) and procuring boat stores, weapons and special clothing (including items held for Italian co-belligerent volunteers) were solved by methods both unorthodox and varied. In solving these problems we were greatly assisted by the very flexible system which enabled us to obtain assistance direct from the headquarters of the C.R.A.S.C., the D.D.S.T. of District, or the D.S.T. of the Theatre.

It so happened that during this period we occupied the same area as the Force which was being assembled and prepared to land in the south of France. This led to a number of surprising incidents, including an eye-witness account of a large and noisy boat proceeding through the Bay of Naples at 3 knots with a tank suspended at the bottom of it. This, on investigation, proved to be our first meeting with the Sherman D.D. Tank. The second incident of note, also in connection with the south of France landings, was due to security measures which were so secure that we were not notified of them! These gave rise to several days of inexplicable silence from all the schooners which were supplying the American Air Force and French Expeditionary Force on Corsica and Sardinia. We were becoming very worried about the apparent loss without trace of all these vessels, until repeated enquiries brought forth the guarded answer that no vessels were allowed to return to the mainland until after the invasion was launched. It therefore became questionable whether the invasion would be launched before we ran out of schooners!

In August, the unit was moved to the east coast and was given a sphere of operation which included the Italian coastline from Manfredonia down to Taranto and across the water to the Yugoslav port of Split down to Kalamata in Greece. The responsibility of the unit in this area included:

- (a) Establishment of port detachments throughout the area for schooner control and liaison with the Royal Navy, Allied Military Government, Yugoslav Navy and Royal Italian Navy.
- (b) Maintenance of Allied Forces coastwise in Italy.
- (c) Maintenance across the water of Special Forces operating in Yugoslavia, Albania and Greece, including the islands off these coasts.
- (d) The maintenance and repair of R.A.S.C. vessels and Royal Navy

vessels such as M.L.s, M.T.B.s, Mine-sweepers, etc., and assorted vessels operated by the Yugoslav Navy and the Royal Italian Navy.

To cover this responsibility, the company was organised into three distinct sections.

The first of these sections, Command and Operation, set up an Operations room at Company H.Q. and at each detachment, where all signals were handled. Signal traffic was enormous since every ship operating in the Company's area was supposed to report daily, and detailed information was passed between the headquarters of C.M.F. and the Royal Navy and, in many cases, the Italian authorities. As an example, the following is a typical extract of the work involved in moving one ship:

- (a) Nomination received by operations officer at Bari stating that a schooner will cease carrying citrus fruit from Sicily to Naples and will proceed to Bari to be used for maintenance of British and Partisan forces in Yugoslavia, Albania, etc.
- (b) Operations officer contacts his opposite number in Naples area and finds out schooner's estimated time of arrival (E.T.A.) at Bari.
- (c) Operations officer informs Movements Eastern Adriatic, who are responsible for cross-Adriatic shipping, that the schooner will be available in ten days' time on arrival from Naples.
- (d) Movements Eastern Adriatic informs operations officer that schooner will be required in Barletta to load ammunition for Split.
- (e) Operations officer notifies detachment at Barletta of the schooner's nomination.
- (f) Escort of schooner reports in to operations officer and says he wants fuel, coal and rations. Operations officer passes escort to administrative officer and C.Q.M.S. for rations, and tells him to report to Naval Fuelling Officer for instructions about going alongside refuelling tanker and collier. Escort told to report back following afternoon to collect application for routing instructions.
- (g) Operations officer notified Movements Eastern Adriatic and detachment at Barletta estimated time of departure (E.T.D.) from Bari and E.T.A. Barletta.
- (h) Operations officer makes out voyage permit for Bari—Barletta and an application for routing instructions giving name, registered number, and speed of vessel, E.T.D. and E.T.A. etc. All these are handed to the escort who gets routing instructions from the Royal Navy and sails.
- (j) The schooner arrives Barletta. Detachment officer notifies local Movements who arrange loading.
- (k) When vessel is laden detachment officer makes out voyage permit and application for routing instructions. Escort gets routing instructions from the Royal Navy and sails.

The second section, Administration, was most complicated for many reasons. For example, British, Italian and Yugoslav personnel were all on different ration scales and each vessel had to be victualled at frequent intervals since their storage capacity was very limited. Ships did not necessarily operate only within their own Company areas and some crews would not be seen for

several months, whereas crews belonging to other Companies might well appear suddenly in our area for long or short intervals. In this way, the Company at one time operated and administered a fleet of sixty-three vessels belonging to different units. The complications of mail, clothing, pay, etc., can well be imagined.

The third section, that of Maintenance and Repair, was based upon the shipyard at Molfetta where we had a slipping capacity of up to seventeen assorted vessels at one time. In addition, a Boat Stores Section was established in the same village. Some idea of the maintenance task can be judged from the fact that in the 114 schooners operated by the R.A.S.C., there were 108 different types of engines installed. Furthermore, there were virtually no diesel spares at all available to us since the enemy dealt effectively with all this type of material as he withdrew. To overcome these shortages, the shipyard at Molfetta had to be considerably expanded over and above its peace-time capacity and eventually we operated a small local foundry complete with machine shops, saw mill and carpentry sheds, a sail loft and rigging shop. We also ran an extensive slipping programme for vessels as varied as Royal Navy M.T.B.s and 300 ton sailing schooners. This latter work was particularly exacting since the method of slipping was identical with that used in the last century and involved ships being drawn up on to dry land while balanced delicately on the keels in a cradle which was rarely more than six feet wide. The trickiest moments were those while the vessel was actually in movement up or down the slip and could easily be overbalanced by a sudden gust of wind which could have resulted in heavy damage to the vessels on either side. This was about the only disadvantage of operating in tideless waters.

This period brought forth its own incidents of which the following particularly stick in my memory. One day I was summoned before the G.O.C. of the District and, wondering which of my crimes had been unearthed, duly arrived before his presence only to find that he was determined that it should be an R.A.S.C. commitment to provide a safety launch daily for the yacht club which he was about to start locally. The mere fact that all our craft were fully occupied with other duties was of no account and a safety launch was duly provided!

On another occasion, a particularly land-based Area Commander inspected the shipyard and, failing to appreciate the significance of the mass of cordage securing seventeen assorted vessels which were then secured on the slip for repairs, ordered me to have these ropes put away and the dockyard properly tidied up immediately!

The third was a purely R.A.S.C. event when a C.I.M.T. inspector, under the impression that we were a Water Tank company, arrived to inspect the unit's vehicles. His horror at being told that our vehicle strength was one 3 tonner, one 15 cwt and one motorcycle (none of which were in the area) and fifty waterborne vessels, had to be seen seen to be believed. However, he duly inspected the unit and was seasick only three times!

The complexity of our work was not made easier by the conflicting interests of the Royal Navy, Allied Armies, Allied Military Government and Yugoslavs, who all had a requirement for our service. This situation was, however, greatly helped by the establishment at A.F.H.Q. of a Water Transport office staffed by R.A.S.C. personnel. The operational pattern evolved gradually until at

its peak the R.A.S.C. operated 114 schooners, of which one was a refrigerated meat ship, plus a variety of launches, drifters, trawlers and M.F.V.'s over routes which covered most of the Adriatic, the west coast of Italy, Malta and the North African coastline.

Ships were manned mostly with Italian personnel under the supervision of R.A.S.C. serjeants where possible, although often a ship carried a private soldier in charge for months at a time. This threw responsibility out of all proportion on to the shoulders of junior ranks who might have from 70 to 500 tons of stores in their charge for delivery to ports hundreds of miles away.

The Company's duties at this time were many and varied and at all times there was an insatiable demand for shipping capacity and one of the interesting results of our operations was that, greatly to the surprise of the Italians who had never done such a thing in peace-time, we operated schooner traffic without a break through the winter in the Adriatic, notorious for sudden and severe storms.

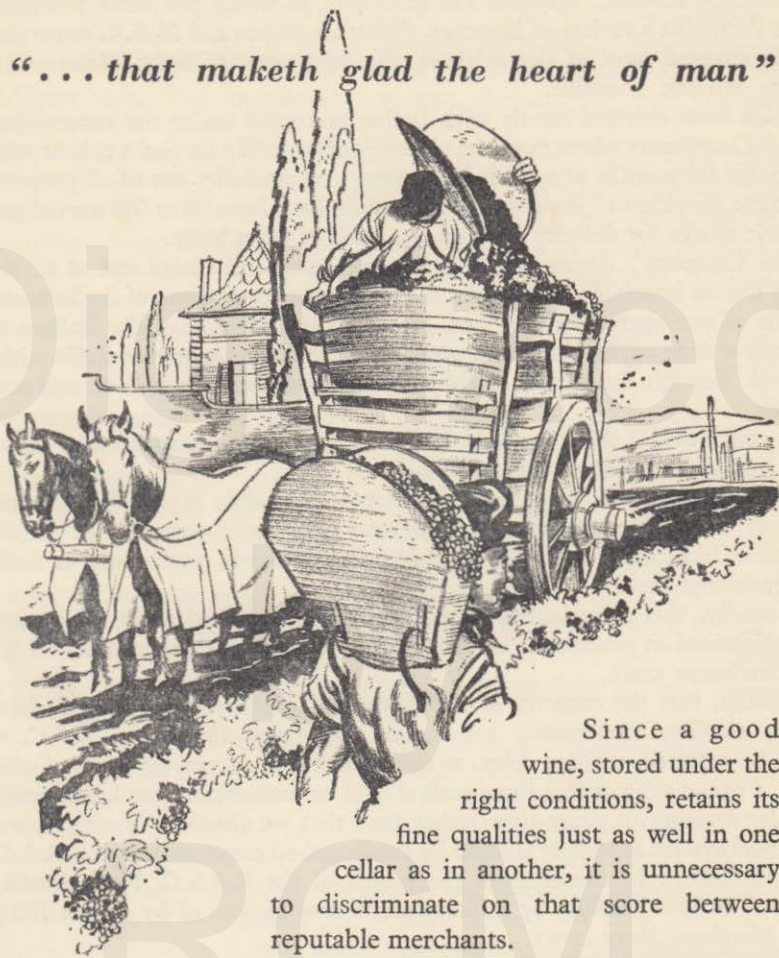
In conclusion, I think it would be fair to say that the lessons learnt through this campaign included the following:

That the R.A.S.C. is so organised that it is possible at very short notice to open up lines of communication in unusual ways and to supplement the more orthodox facilities of the Royal and Merchant Navies, particularly in shallow and restricted waters.

Secondly, that a nucleus of highly trained officers and other ranks should be maintained in peace-time to keep alive the technique of operating all types of waterborne craft.

Thirdly, that the capacity of the Royal and Merchant Navies will, in any future conflict, immediately become so over-taxed that the R.A.S.C. will again be required, without delay, to step in and operate varying types of coastal craft. I would suggest that these craft should be earmarked from home production for training in peace-time rather than that we should rely upon a water transport system as heavily diluted by locally raised crews as was the R.A.S.C. fleet in C.M.F. In consequence the vessels of the R.A.S.C. Fleet should be manned at least partially by military crews now instead of by almost 100 per cent Merchant Navy crews.

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Director of Supplies and Transport, G.H.Q., India.

Director of Supplies and Transport, G.H.Q., Pakistan.

ADDITIONAL TO THE ABOVE

The Editor, *Royal Engineers Journal*.

The Editor, *Journal of the R.U.S.I.*

The Editor, *Royal Armoured Corps Journal*.

The Editor, *The Army Quarterly*.

The Editor, *Journal of the Royal Artillery*.

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