

PART I
THE WESTERN FRONT

CHAPTER I

THE FIRST PHASE

THE following passages are taken from a report rendered to the War Office in 1913 by Lieutenant Colonel Forbes, Army Ordnance Department, after attending French Army Manœuvres.

It will be seen that a great contrast exists between the system of supply of stores to the French army and our own system. The French plan is designed to meet a campaign on a large scale in a highly civilized country with the best of rail and road communications. Ours, on the other hand, is based on our experience of warfare in less civilized countries where everything has to be got from a remote oversea base.

Our Ordnance Manual was first compiled after the South African War, the features of which were small independent columns of troops on trek, often out of communication for long periods, replenishing from any Ordnance depot they happened upon; with no big battles involving huge expenditure of ammunition and materiel which would need instant replacement, and no necessity for a centralized administration at the front; in fact conditions in the nature of guerilla warfare. Since then political conditions have changed, and our situation is more akin to that of France, in that the most important campaign we now contemplate, and to which everything else must be subordinated, is one upon the continent.

Taking this for granted the following points arise. In the French army the Director of Ordnance Services would be at the front, in close touch with the commander of his army and with his divisional Ordnance officers. Our Ordnance War Manual allots him an office normally at the base, where he is to carry out his "more deliberate work," and he is then given a sort of roving commission of inspection.

Next as to the divisional Ordnance officer. The corresponding French official has a very considerable staff, he has

the clearly defined duty of supplying all the wants of the troops of his division, and is the actual medium by which such wants are met. His powers of purchase are extensive, and it is his business to make use of them to the utmost before sending back to the lines of communication. With us, except that he collects indents and forwards them periodically to the nearest Ordnance depot, his duties are little more than advisory ; he is not definitely concerned as to how, when or whence articles needed by the troops reach them.

But it is as regards the actual method of supply that our Manual is so specially vague. It is laid down that normally units will make their own arrangements for drawing stores direct from a depot, though how they are to do so is not stated. Such a procedure seems to me inconceivable for a continental campaign. In our field service regulations it is established as a principle of primary importance that ammunition supply must be invariably from the rear to the front. The troops must never have to look back. I hold that this proposition should be the basis of the method of supply of all other articles. In the stress of war troops cannot send back for anything they may want. We have organized a system by which food and forage are supplied in this way, and therefore have a model ready to hand for adoption as regards equipment and other stores. Demands should be met in the same way as those for rations, by means of supplies sent forward via the regulating station, the divisional Ordnance officer attending to distribution.

It will also be noted that in France the supply of Ordnance stores is divided among four services. With us there is only one service, and the main duties at a depot are divided into provision, issue and receipt work, each of the three ranging over the whole extent of the Vocabulary. For our small peace depots this division may be the best ; but for pressure of work on a large scale there is much to be said for division into groups, each dealing with a different class of article. Such a system enables subordinates to specialize ; each obtains a more definite responsibility, and is in closer contact with the actual

work than where there is a centralized office dealing with every class of article.

To sum up, the system I have in mind and have endeavoured to portray is as follows : A Director of Ordnance Services at the front, in touch with the headquarter staff and with a knowledge of impending operations in so far as they affect the supply of ammunition and other materiel ; in touch also with his assistants attached to each main body of troops ; these latter attending to all the wants of such troops, as far as they can from local resources, otherwise by means of consolidated demands for substantially large quantities of what must be obtained from the base ; and finally, all supply to be from the rear to the front.

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To open in this manner a page of history fraught with such stupendous events must I fear seem presumptuous ; but I know of no way in which to express so forcibly what was the opinion of those Ordnance officers who studied seriously their Corps war organization, than by quoting from an official document of the year preceding the outbreak of the Great War. That I happened to be the writer was fortuitous. It was the first time any Ordnance officer had attended foreign manœuvres and the contrast between the French and British methods could not fail to strike an observer. But the inadequate staff to cope with Ordnance work at the front, and the lack of an organized system of maintenance similar to that provided for food, had been represented time and again. Of course, no more than anyone else, had those in the Ordnance any conception of the colossal scale on which munitions would be expended in the form of warfare that developed ; but the Ordnance officer, in virtue of his profession, was better able than others to appreciate that, with the constantly increasing complexity of military equipment, materiel was destined to play a far larger part in the battles of the future ; just as had been the case in South Africa as compared with the Crimea—even though the former was a war of movement and the latter stationary.

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The Army Council, however, seemed unable to visualize this fact and prepare a clear-sighted plan for maintaining an army in the field with all the stores and clothing it was bound to want under modern conditions. Its only idea was to withdraw formations periodically to be re-equipped from top to toe by establishing contact with an Ordnance depot which, at the lowest computation, was likely to be some 50 miles to the rear in a civilized country with good roads and railways. There had been a long and bitter struggle before the General Staff and Adjutant General's branches at the War Office would concede even one officer and one clerk for the war establishment of a division. I do not agree, wrote the A.G. of the day when the subject was first broached after the South African campaign, the place for an Ordnance officer is at his depot with his stores—which was merely begging the question and refusing to face the situation. Even among the more senior of our own officers some failed to realize the importance of the subject and gave but lukewarm support. It was the next generation, those who as majors or captains had borne the heat and burden of the day in South Africa, that were the chief protagonists of a more enlightened policy.

Every recommendation in the above report it may be noted was eventually fulfilled. Establishments at the base were divided into groups, each a self-contained depot specializing in a particular class of equipment; and the D.O.S.'s office was established at G.H.Q. But these were trifles compared with the fact that a regular system of maintenance was adopted, whereby stores and clothing could be sent forward daily in the same way as rations, articles in common use being despatched in bulk for distribution. My modest contribution to the problem naturally shared the fate of its predecessors. I was requested to give a lecture at the Staff College and then the report doubtless found its way to the appropriate pigeon hole. And before the lecture was due to take place the Staff College graduates were at Southampton speeding the Expeditionary Force to France.

One other point. The French organization provided

for the regular replenishment of materials as well as food-stuffs, both going forward in the daily supply train; and at their manœuvres the system was put to practical test. Telegraphic demands for ammunition and other items were received at the advanced base and regulating station (Bordeaux) and acted upon during the progress of the operations. But nothing of this sort was ever attempted at our manœuvres. With us there were no casualties to guns in this mimic warfare, fresh supplies of ammunition were never even called for. Everything, down to the last bootlace, was placed in first-rate order before the troops left for the manœuvre area, and no attempt was made to test the organization of Ordnance services on a war basis.

If however plans for replenishing the equipment of the fighting force lacked attention by our War Office, the same certainly cannot be said as regards the equipment itself. Never was an army better fitted out for the work it expected to undertake than the four divisions and the cavalry division that embarked in August 1914, to be soon followed by the rest of the Expeditionary Force. The order to mobilize was issued on the 3rd August and among the very first to leave on the 8th were Brigadier General (Major General Sir Hugh) Perry as D.O.S. under the Inspector General Lines of Communications and Colonel (Major General Sir Charles) Mathew as D.D.O.S. for service at G.H.Q. under the Quartermaster General; No. 1 Company A.O.C. from Aldershot following the next day. The destination of all three was Havre, our principal base, outside of which a tented city sprang into existence with lightning rapidity. The site allotted for the Ordnance depot was a portion of the recently constructed Hangar au Coton, a single gigantic shed covering nine acres. On the 15th August Nos. 2, 3, 4 and 7 Companies joined up, and the depot staff, with Colonel Egan as C.O.O., proceeded to establish itself and collect the war reserves that began to arrive with every vessel bringing troops or supplies, a small workshop

being established at a manufacturer's premises in the town.

At the same time subsidiary depots were formed at Rouen and Boulogne. Rouen was destined as the base for mechanical transport, to deal with which a small depot and workshop were established. Boulogne has a special rôle due to its being so close to our shores. The first replenishment of ammunition, some special fittings to enable stretchers to be carried in railway trucks and a few other oddments were landed there in charge of a detachment of the Corps.

After spending a few days at Havre, D.D.O.S. joined G.H.Q. at Le Cateau, while D.O.S. proceeded to Amiens, the site selected as the headquarters of the I.G.C.

It was then decided to form an advanced depot at Amiens, a step which betrayed a lack of clear thinking. In the then situation of our army, or in case of retreat, there was no need for any intermediary between base and front, while had there been a substantial advance Amiens would have been too far to the rear. The town was so near Havre in fact that nothing could be gained by creating a second depot there. The result could only be to duplicate staffs and squander stocks. What the rôle of the Amiens depot was actually to be was not clear; the site allotted for it was minute and incapable of expansion, and everyone with experience of Ordnance work knows how difficult it is to confine the bounds and scope of a depot once it is in being. The truth is that to establish an inland depot at this stage was quite untimely and it is fortunate that nothing was accumulated.

However No. 1 Company, under Lieutenant Colonel Watts, whose services would have been most useful at Havre in getting things ship-shape, was sent to Amiens and a certain amount of work done that could have been carried out better at the base ports. The stretcher fittings were sent up from Boulogne and fixed in tiers in ambulance trains composed of box-trucks painted with the Geneva Cross; and, after all available stretchers had been called for from Havre, more had to be manufactured

at Amiens.¹ It had been foreseen in pre-war days that this would be one of the first things to be done, and obviously stretchers and fittings should have been consigned to the same base and the ambulance trains marshalled there. A workshop was started on the premises of a local firm, and set to work to repair derelict lorries and cars, of which a number were soon scattered about the surrounding roads. These were of all sorts and sizes and as the columns to which they belonged were careful to strip them of magnetos, sparking plugs and everything conceivably useful, it was very little that this shop could do. It would have been better to send the vehicles to Rouen where the Mechanical Transport depot of the Army Service Corps, intended to supply spare parts, was established.

No. 1 Company also found the personnel for the ammunition landed at Boulogne which came up to Amiens in charge of a French escort. After being checked and rearranged this was sent on towards the front by rail with a detachment of the A.O.C. in charge of Lieutenant Verchoyle Campbell. This was another faulty pre-war arrangement. The personnel for this first replenishment should obviously have accompanied its ammunition to Boulogne.

Despite the apple-pie order in which the Expeditionary Force left England, there were from the very first a few demands to be met. For one thing Cyclist Companies had just been formed to work with divisional cavalry, and the bicycles arrived close on the heels of the troops; as did travelling kitchens recently approved for battalions, which failed to reach them before they embarked. There being no organized machinery for the despatch of Ordnance stores to the front, each consignment had to be the subject of a special arrangement to provide accommodation on some troop or supply train, involving much trouble and interviews with the railway authorities.

In a bombastic order the German Emperor had directed

¹ This system was a failure owing to the jolting to which the patients were subject.

his troops as an initial task to crush out of existence the "contemptible little British army"; and in the first encounter at Mons, where we had taken up a position on the left of the French, this came perilously near to happening. We were faced by enormous odds, and forced to retreat with heavy loss. Whole battalions and batteries of guns were almost obliterated and nothing but the discipline and training of our small but efficient regular army saved it from disappearing as an organized force.

By working towards the west and south of Paris, however, in its attempt to surround us, the right wing of the German army by which we were opposed became disjointed from its main body advancing against Paris from the north-east; and a pause was necessary to allow it to regain contact and alignment. This breathing space had vital consequences. The French gathered together their large reserves held for the defence of Paris which was being hastily entrenched and we were able to re-form our shattered forces. Together the Allies hurled themselves against the foe at the river Marne and drove him back to the Aisne where he entrenched. Actually this battle sealed the fate of the war. The crisis was over and Germany's advance stayed for good and all though of course this could not be foretold at the time.

The first result of our retreat after Mons was a decision to evacuate Amiens and Boulogne. To clear out of the former was for the Corps a simple matter. We held nothing beyond some half-dozen lorries fit for little more than the scrap heap, which were abandoned without qualm. The I.G.C. with his Directors and the staff of the Amiens depot moved to Rouen on the 27th August, and on the same day the Ordnance detachment at Boulogne with its few stores embarked for Havre on the s.s. *Inventor*.

By the 29th the situation was so grave that the momentous decision was taken to abandon entirely our main line of communications with its two ports on the Seine, and instal a fresh line based on Nantes and Saint Nazaire at the mouth of the Loire, with Le Mans as headquarters

for the I.G.C. and his Directors. At Rouen the contents of an ammunition park that had just landed, some hospital equipment, etc., were handed in to the depot, and the 900 tons of goods thus accumulated were shipped down the river on the night of the 30/31st August. The lorries in our shop were handed over to the A.S.C. to evacuate, and the Ordnance personnel proceeded by rail to Le Mans, there to open a fresh advanced depot; now a very necessary measure as the base would be so distant.

So far it had been fairly plain sailing, but to evacuate Havre was a very different matter. The complete bodily transfer of a base depot from one port to another during the progress of hostilities was a manœuvre that had never been contemplated, and circumstances could not have been more unfavourable. The move took place just when the army was in retreat and known to have sustained serious losses of equipment; no other source existed from which these could be made good, and the Havre depot was not yet organized and in working order. As there are valuable lessons to be learned from the manner in which this change of base was effected, the operation is worth describing at some length, especially as the very first difficulty encountered shows the importance of the teachings of history.

At the Crimea, Sir Henry Gordon (afterwards head of the old Military Store Department), ascribed the crying want of our troops as due initially to the careless way in which its equipment was sent out from home; it was shipped as baggage and the ship's officers had no responsibility for safe delivery. Yet the war reserves were being shipped in the same haphazard manner. The very first vessel to arrive brought out tents without poles, and stores were not charged to the Master on a bill of lading. Though this may have led to the more prompt despatch from England, the saving was far more than counter-balanced by the time taken in finding, checking and linking together what arrived. The Master took no pains to hand over and get a receipt for what he carried. His one anxiety was to turn his ship round and hurry back

for more. Goods of all sorts came out in mixed consignments on board troopships, and were off-loaded at any available berth at all hours of the day and night without the knowledge of the Ordnance officer who had to search all over the docks for what might belong to him. It was a case of more haste, less speed.

The next point is that we in France were largely ignorant of what was to come. The constitution of the war reserves had been treated as confidential; they were detailed in two printed documents called the Q.M.G.'s and M.G.O.'s schedules—according to which of these officials was responsible that they were maintained intact. The C.O.O. had a copy of the Q.M.G.'s schedule but not of the M.G.O.'s, and was ignorant of what guns, spare parts, wagons, ammunition and other technical gear he was to expect.

Both the above difficulties were made known through departmental channels to the War Office; copies of the M.G.O.'s schedule were applied for, their secrecy being no longer operative, and it was asked that a conductor be sent over with each consignment to deliver the goods carried to the Ordnance officer. Why such seemingly reasonable requests should have been refused it is difficult to understand. The need for knowing what was to come was challenged, and it was said no one could be spared as supercargo. The position might be compared to that of a manager sent to open a new branch of a bank whose liabilities, though at the moment unknown, were bound to be heavy; yet whose head office refused to help him to ascertain either his available capital or further liquid resources.

The position then, when the order to evacuate Havre was received in the afternoon of the 29th August, was as follows: Scattered about the gigantic Hangar au Coton and other sheds or wharves were some 20,000 tons of clothing, ammunition and stores of unknown quantities, with more arriving daily. The articles were in miscellaneous heaps often buried under piles of forage; wagons had been dismantled for shipment, the bodies had not yet been erected on their wheels, machine guns had not been

assembled with their mounts or cartridge belts, guns with their mechanisms, cases of horse-shoes with those of nails. The very spaciousness of this immense shed tempted the Base Commandant to use it whenever he was in want of accommodation and, in spite of protests, horses were stabled among the stores and French and Belgian soldiers encamped there. The French were still removing barrels of oil and bales of cotton lying in the hangar when we arrived and lorries belonging to the Army Service Corps depot, lodged under the same roof, thundered to and fro. Altogether the scene was one of great confusion.

What form the order received at Havre took I do not know, but there is no doubt it was treated almost as a *sauve-qui-peut*. There was a certain amount of panic in the town, French troops being sent to guard the approaches and erect barricades. The first intimation received by the Chief Ordnance Officer, as a thunderbolt from a clear sky, was a telephone message from the Port Naval Officer that all unloading was to cease instantly and everything be bundled back on board ship with the utmost dispatch, some small-arm ammunition being put as deck cargo on each vessel. This was followed by an order from the Base Commandant detailing the priority of loading; firstly ammunition according to its nature—small arm, then 18-pounder and so on; then guns, next engineering equipments, and lastly general stores, clothing, vehicles, etc., according as time might admit. Everything not on board by the 3rd September was to be abandoned. One result of this it will be noticed was that the most vital fighting equipment went to the bottom of the hold. So much stress was laid on this priority that the Base Commandant, happening to spy out some saddlery being hoisted up, issued a peremptory order prohibiting departure from his instruction. The C.O.O. had no discretion, and the effect on the establishment of a new base elsewhere was ignored. Nothing was taken into account beyond the saving at all hazards of equipment of primary military value.

But if the Commandant treated Egan purely as an

executive officer with no duty beyond a blind obedience, what was more unfortunate is that the instructions reached and were acted on at Havre before the D.O.S. was aware of their issue. The first step when a decision so vitally affecting the supply services was reached should surely have been for the I.G.C. to confer with his Directors as to the best means of providing for the troops pending the establishment of a new base ; the more so because reports, though deficient of detail, were trickling in showing that very heavy losses of guns and first line transport had attended the fighting. Immediately Perry had news of the evacuation, he told the I.G.C. that the result must be completely to suspend the functioning of Ordnance services for some time to come, and urged that a substantial proportion of the stock be sent by rail to Le Mans to bridge the interval. The railways however were congested, the population of the country occupied and threatened being in flight. A consignment of ammunition held on rail at Havre had been ordered to Le Mans and permission was only given to send in addition a couple of hundred tons of goods and some artillery equipments.

But by this time what was most vital—such as machine guns—was already on board ship, and the most that could be done was to transfer a few guns back on to rail. However what could be laid hands on was loaded up and by lashing cases and bales on vehicle trucks nearer 400 than 200 tons went straight to Le Mans. Work at Havre proceeded without a break, forty-eight hours more time was allowed, and by the 4th September the whole 20,000 tons was cleared ; the last ship, the *Inventor*—a 10,000 ton liner—sailing for the Loire with the depot staff on the following day. Loss had been avoided but the day of reckoning was still to come.

During this time vessels from England had been diverted, and there was lying off the entrance to the Loire a whole fleet of ships that had to take their turn to come up the river and berth, priority being given to those with reinforcements. St. Nazaire, the deep water port, was found to contain no possible site for a base depot,

so it was necessary to fall back on Nantes, which was but little better. Stores had to be scattered among a number of different premises, some on each side of the river; even the workshops were in five different centres. The *Inventor*, the largest ship that had ever entered Nantes, at the top of a spring tide, held the greater part of the stock; she could only berth on the left bank and most of her contents had to be sent round to the other side of the river by rail.

The stores, loaded in this haphazard way, were in hopeless confusion. There were cases of service dress caps, parts of guns and machine guns, bales of horse-rugs and blankets, ammunition, tentage, signalling gear, etc.—much in broken packages—mingled with forage, medical, veterinary, and other goods, just as they had been indiscriminately bundled into the hold; and to sort out this chaos was a lengthy and tedious operation, accompanied by a considerable amount of looting. By this time urgent demands were pouring in, and the first task was to seize hold of anything called for as it came over the ship's side, and rush it up to Le Mans without any attempt at verification. Side by side with this the residue had to be sorted out little by little so as to take stock and make a fresh start.

Just at this time Sir John Stevens, from the retired list, was appointed D.E.O.S. at the War Office. His very first act was to send out a list of what stores were due to France from a certain fixed date, and to arrange for a supercargo to accompany each future consignment. This at last gave a bedrock foundation on which to build up records, and ascertain what further to provide. Thence onwards the shipment of Ordnance stores was on a proper footing, the work at the port of embarkation was supervised by an Ordnance officer and the consignment charged to the Master on a bill of lading.

Meanwhile the advanced depot staff at Le Mans had been allotted the fine goods station of Maroc, with good accommodation and rail facilities. And no sooner did it arrive, just as the retreat was checked and our troops were once more engaged, than it began to snow indents

and hasteners on indents that had gone astray in the disorganized French post; some submitted in August still turning up as late as October. To meet these there was nothing but the small stock sent round by rail from Havre which was hopelessly insufficient. As fast as liabilities were ascertained they were wired to Nantes where endeavour was made to send up what was wanted, but progress was of necessity slow. Machine guns would be found without belts, harness without some necessary component; the boots that first came to hand would be all of one size.

Even where articles were available there was grave difficulty in getting them to the troops. Of course the pre-war arrangement that units would withdraw to refit was impossible, no one dreamt of such a thing now; but a chain of supply to the front was as yet unorganized. Fortunately the Ordnance depot was alongside that of the A.S.C. and the C.O.O. was able to arrange informally for trucks to be attached to ration trains. As far as possible the actual indents of units were worked to, parcels were made up and addressed to the regiments concerned in the hopes that they might find their way with rations to the right address. Often however the only information to hand was that such and such a division was badly in need of socks and boots or whatever it might be; when the only thing was to send up as many as possible in bulk and trust they might reach those who wanted them. But as often as not the truck would come back intact, there being no means of delivery from rail-head. This plan moreover was discouraged, for it was apt to result in looting and the unequal distribution of an all too scanty stock. It was the same with transport wagons. Although clamoured for, there were neither men nor horses to remove them when they reached rail-head; and back they came to Le Mans until a horse transport depot was established there to supply wheeled equipments of all sorts, complete with harness, teams and drivers.

Much was needed besides guns, machine guns and first line transport. Great-coats and packs had been thrown

away wholesale during the long forced marches in the heat of an August summer; and clothing, boots and horse-shoes were beginning to wear out. In many instances the whole of the war reserve proved insufficient to make good the wastage and more was already being telegraphed for from home. The I.G.C. had searching questions to answer from General Headquarters as to why the troops were not being re-equipped more quickly. These he found it difficult to deal with, having held himself rather aloof from Ordnance matters. His only suggestion at this time was that a committee of "sensible experienced officers" should assemble at Nantes to consider the question of accommodation and advise as to what portion of the stock was redundant and could be sent home. It was even proposed to return the whole of the plant sent out as part of the war reserves to equip a base workshop. But Colonel Marrable, Base Commandant at Nantes, was striving his very utmost to find suitable accommodation; not only was all the stock wanted but more was being demanded, and the situation was then improving daily under the supervision of Colonel (Brigadier General Sir Thomas) Heron, a retired officer of ripe experience who had been sent to Nantes to straighten matters up. The date for interference should have been a fortnight earlier, when the evacuation was ordered. Now only time could effect a cure.

The upshot was that General Maxwell was sent for as I.G.C., his predecessor's departure being followed by that of his D.O.S. Maxwell was a man of very different calibre, a glutton for details who wanted to know the why and wherefore of everything. He at once started a daily conference which might last from eight o'clock to lunch time, when he closely cross-examined all those in attendance and required information as to the position of every item of which there was even momentary shortage. These questions it was usually impossible to answer, as no one yet knew the stock figures. The Ordnance was under a cloud, and Perry was inclined to resent these close departmental enquiries. It was natural that Maxwell should blame him because things had gone

wrong ; and, having given the dog a bad name, he proceeded to justify his opinion by hanging him : a judgment reversed when General Perry, after filling the post of D.O.S. Mesopotamia, was selected by India as chief of its newly formed Indian Army Ordnance Corps.

But the truth is that one must look far beyond any action or want of action on the part of subordinates to account for the temporary breakdown of Ordnance services in September 1914. The explanation lies in the fact that our army had suffered reverse and that, in the words of the homely adage, you cannot make omelettes without breaking eggs. Our plans of operation were framed on the assumption that we could hold the ports of the Channel and the Seine. So far was this from being the case that, but for the stout front shown by Belgium, we could not have held them even as long as we did. After Mons there was an idea of concentrating our army south of Paris to be reorganized out of contact with the enemy ; and in this case the method of evacuation of Havre would not have mattered so much. The subsequent decision to remain in the battle-front entirely altered the aspect of affairs. It was now necessary to refit with the utmost speed and while in contact with the enemy, an operation for which the system of replenishment contemplated by our field service regulations made no provision. Further, the reverse to our arms occurred so early in the campaign that the depot at Havre was still unorganized, and celerity was the one and only factor that dominated its abandonment. It is in these facts that the explanation is to be found, and it is bootless to search further and seek for scapegoats among subordinates.

It is now time to turn to the happenings of Ordnance representatives at the front and see how they had fared ; and for this I cannot do better than quote from a narrative compiled by Major Jasper Baker :

“ In peace time, before the war, an officer of the

A.O.D. serving at home was selected to fill the appointment of D.A.D.O.S. to each division of the expeditionary force. These officers were notified personally by the War Office of their appointments and of the day, after mobilization was declared, on which they were to join their divisions. The establishment of the D.A.D.O.S. consisted of himself and one staff sergeant, and these two, with the aid of a horse and box of stationery were, in the words of the Ordnance War Manual, expected to "deal with all matters affecting the Ordnance services of the division."

"I was detailed as D.A.D.O.S. 2nd division and duly joined its headquarters at Aldershot on the 10th August. On arrival the G.O.C. asked me what orders I had and on showing him the Ordnance War Manual 1914 he remarked that I was in for a fairly easy time. The division remained at Aldershot till the morning of the 15th, and the five days intervening were very busy ones, completing the equipment of all units as far as possible; the main deficiencies being travelling kitchens and the bicycles of the Cyclist Company.

"We arrived at Havre on the 16th, where we remained for two days. The D.O.S. was at Havre and gave each D.A.D.O.S. instructions which related chiefly to the necessity for recording at least the main items of stores indented for and issued, the advisability of making the utmost of opportunities of local purchase, and that endeavour must be made to obtain the use of lorries of the Supply Column to convey from railhead any stores that arrived.

"The division was concentrated at Wassigny and, as there was still no sign of the bicycles required, I proceeded to Valenciennes and arranged for their purchase. This purchase was never effected, as the bicycles arrived from the base the next day, and before those ordered from Valenciennes could be delivered, the town was in the hands of the Germans. When at Valenciennes, I arranged through the Maire to meet the leading merchants of the district and obtained from them details of the local resources of the neighbouring factories.

“The day after the battle of Mons I received a waybill by post showing that my travelling kitchens had left Havre several days before. The post arrived at 10 p.m., the railhead for the day was some 40 kilometres away and my only means of transport a horse which had already marched since 5 a.m. The difficulties of transport here became very apparent. I was informed that there would be no room in the supply lorries for Ordnance stores and no means of transport for the D.A.D.O.S. to get to railhead. The occasion, however, was not a good one to discuss these matters, as the whole of the headquarters staff were thoroughly tired out and our chief anxiety at the moment to snatch a few hours' sleep. The next day I met Major Cowan from G.H.Q. who informed me that he had seen several kitchens offloaded at Valenciennes two days before but that the town was now in the hands of the enemy.”

For many days after this the division was continually on the move, passing through anxious moments and receiving gloomy messages and rumours of disaster to other of our troops. New boots were already wanted and the stocks in villages passed through were bought.

“On the 28th August we were told that we had come to the end of our retreat and a day of rest was ordered for the morrow. No sooner was this order sent out than indents flowed in, and my staff sergeant and myself spent most of the night and the whole of the next day dealing with these and forwarding them on.

“During the 29th, the remnants of the 1st East Surrey Regiment, 3rd division, which had been badly cut up at Le Cateau, marched in and, having no further use for its regimental transport, handed it over to me enabling me to make good the more important deficiencies in transport of my own division.

“The next day I received an urgent indent for picks and shovels to dig trenches. I went into Soissons but found great difficulty in obtaining anything as it was Sunday evening and all the shops shut ; but finally, with

the assistance of one of the officials of the Mairie, I found a French military store with a civilian foreman in charge, who gave me the whole of his stock."

Next day the retreat had to be resumed and on the 3rd September the first consignment of stores arrived—mainly clothing sent up in bulk for the 1st and 2nd divisions and 5th cavalry brigade. By now a definite order had arrived from G.H.Q. that D.A.D.O.S. was to be provided with means of visiting his railhead daily and suggesting that he should share the supply officer's car.

"Now came the difficulty of transport from railhead ; not one of the officers commanding Supply Columns would detail me a lorry, but after a good deal of argument and persuasion I got each to take at least one or two packages and eventually got all the goods away. I gave each driver a note to the Brigade Supply Officer to say what stores he was carrying and asked him to arrange issue, and wired to 1st division and 5th cavalry brigade a detail of what was being sent up. The next day I found that the stores had been delivered somehow or other, but of course the distribution was far from satisfactory ; however, as the quantities received were an infinitesimal proportion of the requirements and troops were only too glad to get anything, this did not matter very much."

After this, consignments began to arrive at almost daily intervals, sometimes in bales for distribution and sometimes in parcels addressed to individual regiments ; and always there was the same difficulty in getting them forward to the troops from a railhead that constantly shifted. Occasionally the loan of a lorry would be obtained, but as often as not trucks full of what was badly needed had to be refused delivery and sent back. On the 12th September, for example, horse-shoes arrived for horses almost on the bare hoof. "Again I was refused a lorry or any means of transport, but fortunately D.D.O.S.

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G.H.Q. arrived and argued the point with A.Q.M.G. 1st Corps who also happened to be there ; with the result that I was given one lorry for horse-shoes and the remainder of the truck load had to be returned."

After this the division came to rest for nine days with its railhead at Fère-en-Tardenois where G.H.Q. was situated and under Colonel Mathew's watchful eye matters became a little easier.

This narrative supplies one clue to the doings of the D.D.O.S. at G.H.Q., who had to keep in touch with the Ordnance officers of divisions, and do his best to help them out of their difficulties, though he also was at first handicapped by being dependent on others more fortunately situated for the use of a car. Transport in fact was the prime difficulty of all Ordnance officers at the front at this time. Despite assurances on the part of the Director of Transport, divisional Supply Columns either would not, or more probably could not, carry stores or clothing. It was not until Mathew himself collected statements from the officers of these columns definitely saying that they were unable to cope with anything beyond rations, and the Q.M.G. intervened, that more active steps were taken.

D.D.O.S. had another even more important pre-occupation. Our war organization provided for mechanized Ammunition Parks at the rate of one per division, to link up the railhead with the points where contact was established with the horse-drawn ammunition columns. These parks were not themselves divisional units, they formed a part of the organization of the line of communications ; but when it came to the actual test of warfare, it was at once evident that it was impossible for a far distant I.G.C. to control either them or indeed the railhead from which they operated. The matter was one that could not be dealt with except at G.H.Q. ; and thus it came about that the Q.M.G. entrusted the whole duty of organizing ammunition supply in rear of divisions to his D.D.O.S. He had to arrange the movements of the

ammunition railhead, whose site at this time changed almost daily, to see that the parks kept in touch on the one hand with the railhead and on the other with the divisions they served, to attend generally to their replenishment, and keep a watchful eye on the stock. Fortunately, compared with the experience of later years, expenditure was small; but complications were caused by the throwing out of gear, during the retreat, of the organized system of supply, batteries often drawing direct from one or other of the parks and short-circuiting the divisional echelons.

It had been the intention to forward ammunition from the line of communications in trains loaded with a standard pack, some of each kind used. Each train was to be in charge of an Ordnance officer and, after replenishing ammunition parks at railhead, was to return to the base to fill up to its standard. At the same time as No. 1 train under Campbell was sent forward from Amiens, No. 2 was formed at Havre; but this, as we have seen, was diverted to Le Mans, where it remained for the time being. "Campbell's train," as it came to be officially styled, had some stirring adventures. First it went to St. Quentin, pushed on to Busigny, and then retired again to St. Quentin, there to provide ammunition parks with 100 tons of ammunition. Then came the battle of Mons, after which the train was sent back to Amiens *en route* for Creil, to the north of Paris. While part of the train however, delayed by a hot axle, was still in Amiens station, fresh orders arrived at midnight of the 26/27th August, giving Noyon as destination, to which place as much ammunition as possible was to go by road on any lorries that might be available.

By 6 a.m. on the 27th the supply of lorries ran dry and Perry, who was on the point of leaving, ordered Campbell to follow with the rest of his ammunition by rail to Noyon. At this time the station was a seething mass of humanity seeking to get away to safety, for there were rumours of Uhlans having been seen close by; and, on returning after a temporary absence, Campbell found his men

had been ordered into a train crowded with refugees. He protested that his instructions were to go to Noyon, but was told by a very harassed Commandant to embark on the refugee train. The position was a difficult one for a young officer with a definite instruction from his Director and a contradictory one, though only verbal, from the senior officer remaining on the spot. The ammunition might be vitally needed, and fortunately Campbell was an officer of resource. He spirited his men away one by one, bluffed the French stationmaster into providing him with an engine by the threat that otherwise he must blow up his ammunition and wreck the station, and got away to his appointed destination in safety with his men as an armed escort on the footplate, having providentially annexed a contribution of food, and several motor bicycles—all very valuable acquisitions.

After this the train was constantly on the move, a careful watch having to be kept on stationmasters and engine-drivers anxious to be rid of such a dangerous cargo and send the train for safety in the direction of Paris. The ammunition sent by lorry from Amiens was reloaded on rail, the portion that had gone to Creil rejoined, and invaluable work was done in filling up ammunition echelons at one place and another at all hours of the day and night. The train also furnished the explosives which enabled an important bridge at Compiègne to be destroyed. On the 15th September it came to rest at Fère-en-Tardenois (G.H.Q.) where it was replenished by the contents of No. 2 train, and thereafter by truck loads sent forward from day to day. By now some 6-inch howitzers had arrived in France and the train was split in two, a portion under Lieutenant Cunningham ("Cunningham's train") being located at Mont Notre Dame to deal with the heavier natures—6-inch howitzer and 60-pounder.

After the battles of the Marne and Aisne the headquarters of the lines of communication advanced to Villeneuve-St-George on the outskirts of Paris. Shortly

afterwards Antwerp fell, and a second great wave of German troops over-ran Belgium. The French took over our front on the Aisne and our army was transferred by rail to Flanders to oppose this new advance which was finally arrested at Ypres and on the Yser with desperate fighting, after which both sides entrenched. In this fresh position G.H.Q. was established at St. Omer and headquarters L. of C. at Abbeville, where they were destined to remain for many weary months to come.

All this time the situation at Le Mans and Nantes had been improving so that General Parsons, who relieved Perry on the 9th October, and who moreover could not be held accountable for any shortcomings of the past, started on a rising ride of prosperity.

It will be generally admitted, I think, that no better selection for this appointment, which he continued to hold until shortly before the cessation of hostilities, could have been made. For one thing Parsons had a ripe experience of Ordnance work in the South African War and, although not highly intellectual, he possessed a sagacity eminently practical combined with a fund of shrewd common sense and a very unusual power of concentration. These characteristics enabled him quickly to grasp the essentials of the many new problems that so constantly presented themselves and, for the time being, discard absolutely from his mind every other consideration. Details he would not worry about, leaving his assistants to deal with them unfettered, and contenting himself with a general supervision. His subordinates could always be sure of his whole-hearted support; and as he was an excellent judge of character, with a happy knack of selecting the right man for the right post, nothing could have worked better. The interests of the Corps which he was so proud to command in France (and afterwards as its chief at the War Office) were always very close to his heart. Another very valuable characteristic was a particularly genial manner that endeared him to all—superiors, equals and inferiors; and lastly, though certainly not least, he had the best of health and

a stout constitution without which no one could have withstood the prolonged strain of actively supervising each branch of such a large and varied organization as the Corps developed into before the war was over.

Havre was now held to be amply secure, and it was decided to make it once more our base, Nantes being very inconvenient on account of its distance both from our home ports and from our new front. But this time the manœuvre was carried out in an orderly and systematic manner and without any dislocation of work. In the first place some half of the stock was railed to Le Mans to carry on with while the link with the base was broken. The staff at Nantes was then free to concentrate on the checking and packing of the residue, consignments from home being diverted to Havre. There, fresh premises were taken up in the dock area with 300,000 square feet of covered accommodation, what arrived being distributed among the new storehouses in the arrangement of grouping adopted at Nantes. The order to change the base was issued on the 27th October and was effected by rail, group by group, each group officer taking over on arrival what was already in his storehouses. By the 9th November the new base was able to function, the operation having been effected with the utmost smoothness, in striking contrast to the previous move.

This resulted in the peculiar situation that the base was far in front of the advanced base, Le Mans being 150 miles south of Havre and 370 from our front line; the next step therefore was to explore new sites for an advanced base. After examining the possibilities of Abbeville, Amiens and other centres, it was wisely decided to concentrate at Havre; for there was no more need of a depot further forward than in August.

But the army was rapidly expanding in strength, and it was thought that the wholesale work of a base depot—dealing with receipts in bulk from England—and the retail work of the advanced depot—distributing small parcels to the front—had best be kept apart. The

original idea was to keep the two establishments separate and locate the advanced base at the railway station of Gravelle, three miles away from the docks, to satisfy indents from the front. Le Mans continued to function till the 1st January 1915, when it despatched its supervising staff and outstanding indents to Gravelle, after which the stock remaining at Le Mans was transferred to Havre. This operation also was effected with perfect smoothness and without interrupting the even flow of goods to the front, the resultant saving of time in meeting demands owing to the abandonment of Le Mans being twenty-four hours.

Just at this time, however, a system of issue, to be presently described, was coming into operation which immensely eased the work, making a dual organization at Havre unnecessary; and the advanced base staff was amalgamated with that of the base, Gravelle being turned into a depot for stores returned from the front.

During this time three new depots were founded. St. Nazaire had been the base for re-inforcements, hospitals, etc., a small depot being formed there to furnish what was wanted. When we evacuated the ports on the Loire this establishment was shipped to Rouen to carry out similar work, and a new workshop set up to deal with mechanical transport. With the abandonment of Le Mans the advanced horse transport depot moved to Abbeville, where a depot was opened to provide it with wagons, harness, etc. These however were then but small affairs.

Boulogne, which was reopened, became a far more important centre. Early in October the 7th division was sent out as a semi-independent force to the coast of Belgium to operate against the flank of the new German advance from Antwerp, the force being accompanied by a reserve, mainly of ammunition, in charge of Lt. Col. (Brig. Gen.) Slade Baker, who arrived on the 9th October at Ostend, where there was some idea of forming a new British base. But the division was unable to make good

(it eventually joined the main force), and before the ammunition was all on shore it had to be re-embarked and go to Dunkirk where there occurred a second unsuccessful attempt to establish a base. Finally Slade Baker found a home at Boulogne on the 15th October, just as our troops were being transferred to their new front in Flanders. At this time there began to be a great scarcity of ammunition; every hour's delay in delivery from England was vital and it was decided to make Boulogne the port of entry for ammunition. Campbell's and Cunningham's trains were despatched to railheads at Aire and Arque, and the rest of the ammunition all over the lines of communication was concentrated at Boulogne.

It was now that the thorny question of providing some systematic way of replenishing the equipment and clothing of troops at the front was finally settled—"as a result of the experience of the war"—so the C.-in-C. expressed it, though the solution was one that had been long advocated by many in the Ordnance. Active service forced the higher command to tackle a problem it had persistently shirked during peace. The advent of winter combined with trench warfare amid the mud of Flanders led to heavy demands; warm clothing, boots, socks, blankets, tentage, braziers, etc., being called for in immense quantities.

The problem presented itself under four aspects. There was firstly the question of transport by rail. Next was the difficulty of getting the goods forward from the railhead. The A.S.C. was responsible for feeding the troops and looked upon anything else it might be called on to carry as an incubus—"this bugbear of Ordnance Stores" it was styled in a letter to the Director of Supplies and Transport at the War Office. Thirdly, even if provided with transport, D.A.D.O.S., with all the goodwill in the world, having but one clerk, could not possibly attend daily at railhead, unload and check his goods, and deliver them item by item to the various units by whom they were wanted. Lastly, the army was rapidly growing in size, and to pack up and address thousands of small

parcels at the base was becoming a formidable business, and one bound to involve delay.

Still clinging to the old idea of a complete periodical refitment, the I.G.C. proposed to solve these cognate difficulties by sending up, once a fortnight, a large train-load accompanied by a staff of issuers to each division in rotation; and by placing a central pool of lorries at the disposal of the division whose turn it was to be re-equipped. But now it was possible for the D.O.S. and D.D.O.S. to point out from recent experience the serious results of keeping a regiment waiting a fortnight for boots, to say nothing of guns or rifles. This argument clinched the matter and it was decided that one or more truck loads of Ordnance stores must be attached to each daily ration train.

The scheme as it finally took shape was as follows: Each D.A.D.O.S. sent periodical consolidated demands to the base (all indents at this time went over the wires) for certain categories of stores and clothing for which there was a constant call. Days of the week were fixed on which the demands for each category were to be submitted and on which what was sent up in response was to be forwarded; while on intermediate days the base sent up miscellaneous items that could not be treated in this way. At each railhead was stationed a representative of the base depot to hand over to D.A.D.O.S. what arrived for him and take over in exchange what was to be evacuated.¹ In place of a central pool of lorries, D.A.D.O.S. was provided permanently with a lorry for each of his brigades and with extra staff.

The plan answered admirably. Work was decentralized and distributed over the week and every one knew from day to day what job lay before him.

¹ In the early days convoy-men (sometimes A.O.C. but more often infantry details) invariably accompanied consignments, being given vouchers and waybills for which they were expected to get receipts. But the men often got lost, trucks were looted and it was impossible to trace the delinquent. When these N.C.O.'s were posted there was great improvement, and in July 1915 convoy-men were abolished, the trucks, with the necessary documents enclosed, being sealed.

Subsequently it was found that one lorry per brigade was not enough, a fourth being added in February 1915 for divisional troops; so that the one clerk and horse of the D.A.D.O.S. expanded into an establishment of four warrant officers, four clerks and six storemen with a motor-car and four three-ton lorries. Cavalry divisions had a similar organization differing only in detail.

One example will suffice to show how essential these arrangements were becoming. By the summer of 1915 horse-shoes were expended at the rate of 400,000 pair a month. They were in seventeen sizes or of thirty-four different sorts, allowing for fore and hind, and each had its appropriate species and number of nails. To pack up at a base depot the right quantity and size for each individual unit, which depended on what horses it had at the moment and how heavily they had been worked, would have been manifestly impossible. On the other hand D.A.D.O.S. could not have distributed a truck-load of horse-shoes to those who wanted them without assistance.

The next matter to be tackled was the repair of mechanized transport vehicles. In the years before the war there had been talk of creating centralized workshops to deal with every class of army work; and though this idea never materialized, one result was that the repair of motor-cars and lorries—then a new service—was entrusted to the Ordnance, sooner than open a new class of workshop. But the scheme was never fully operative as the army possessed few such vehicles, trusting to commercial organizations to augment its resources in war. The division of responsibility was that the A.S.C. provided the vehicle with all its components and carried out light repairs at the front, while the Ordnance was to do the heavy class of work that involved a regular overhaul at a base.

The division between light and heavy was however very elastic, and the shortage of mechanized transport in France created a natural disinclination to part with any vehicle that could be patched up and kept running at the

front. Garages were to be found in the towns we occupied, and it was only a very small fraction of what needed mending that found its way back to the Ordnance workshop at Rouen. Moreover, what arrived had usually been stripped not only of accessories but sometimes even of engines and axletrees. It was the duty of the M.T. branch of the A.S.C. to provide the fittings to replace breakages or deficiencies, but as the stock was scanty the M.T. naturally used it in preference to reinforce vehicles already on the road, and the Ordnance mechanics spent most of their time manufacturing an assortment of components.

There were in January 1915 but 30 lorries in the workshop, and the whole could have been turned out in three weeks had the necessary parts been available. It came in practice to this. The A.S.C. kept its transport going till it was absolutely broken down, for which no one could blame it seeing there was such a scarcity, and then handed it over to the Ordnance to be rebuilt out of next to nothing. The establishment formed to deal with this small volume of work was cramped. Garages at the front might not always be forthcoming and constant tinkering was bound in the long run to lead to an increased call for heavy repairs. Yet nothing definite could be foretold, nor could preparation be made for some sudden great expansion.

Altogether the position was most unsatisfactory and, as a remedy, it was decided in January 1915 to hand over to the M.T. all the work from start to finish. To make one branch responsible for repair, and another for the materials wherewith to carry it out, had been a thoroughly unsound policy, and at the time there was no other way of putting matters right.

This had the further advantage of setting free the services of the Ordnance mechanics at Rouen for the more highly skilled and accurate work of examining and repairing artillery equipments, always their most special duty. After the South African war, which proved the utility of well-found workshops, it was decided to build

up a nucleus of machine tools wherewith to start a base workshop, and this nucleus was sent to France with the war reserves. But there was at first no time to take it into use and it was only after Havre was re-occupied that it was installed in workshops formed at the Usine Deutsch. Moreover, no sooner did our army come to rest on the Marne, than the want was felt of an organization capable of repairing guns close to their batteries. Our field gun with its recoil mechanism required far more attention than the simple equipments used in South Africa, and guns had continually to be withdrawn from the line, chiefly on account of buffer trouble. In September, the War Office was asked to equip a workshop lorry to be stationed at the front, and this proved so useful that two more mobile shops were sent out in November and a further three asked for in December. Forecasts had by then been received showing that a number of large howitzers were already under manufacture and would arrive in the spring; and Parsons very wisely appointed to his staff in December Lieutenant Colonel Paul, the senior Ordnance Mechanical Engineering Officer in France, to advise him on technical matters.¹

One further occurrence during the opening phases of the war remains to be chronicled—an episode, though one that gave much trouble at a time of great difficulty. Early in September the author was sent to Marseilles to make advance arrangements in connection with the arrival of the two divisions and cavalry expected from India. The Indian Ordnance Department had no concern with clothing, the full dress uniform alone furnished by the State for Native troops being found by the Supply and Transport Department. I remember asking the S. & T. officer who arrived with the advance party at Marseilles how clothing would be replenished, and his reply that he supposed the regiment would write to India where the garments would be made up in the bazaar and

¹ These officers were still styled Inspectors of Ordnance Machinery, but the title was so out-of-date that I have employed throughout the more modern phraseology adopted after the war.

forwarded to it. India had made no provision for such a contingency. There were also items of equipment furnished by the S. & T., notably transport vehicles and harness, others were found by the Engineers, and others again the regiment itself purchased.

From guns to boots the reserves sent from India were paltry, and I had to wire my Director that it seemed evident, whatever the custom in India, we should have to maintain the troops, Native as well as British, with all their clothing and equipment so long as they remained in Europe. It was obviously out of the question to have two different systems for a mixed force operating together, and the arrangement by which Indian troops provided much for themselves was impossible so long as they were separated from their source of supply by a sea journey of many thousands of miles.

This of course is what occurred, though there were many preliminary difficulties. To begin with, India had not adopted the latest type of rifle used in the home army and its weapon fired a different ammunition. Rifles, bayonets, machine guns and ammunition had to be sent to Marseilles to re-arm the whole force, which was then concentrated at Orleans to be re-equipped. The Indian ground sheet was not water-proof and all had to be exchanged. Telephone apparatus was not interchangeable with that of our army, nor so up-to-date; this had to be replaced. Cavalry provided their own swords, and that of one regiment would fit neither the scabbard of another nor that of the British cavalry. The agent in England who supplied swords to one regiment obtained the blades, so it was rumoured, from a German firm. The Indian Government furnished officers with neither tentage nor saddlery. Their tents, bought privately, were of all sorts and sizes. It was impossible to expect officers to provide for themselves under active service conditions in Europe, and all this miscellaneous collection had to be taken over and priced, the officer being refunded the estimated value. Indian cooking, eating and drinking utensils, which the regiment itself was wont to furnish, were a great source of trouble.

There was much variety and to supply the wrong type might offend customs of religion or caste.¹

All this had to be done at a time when stocks were the very reverse of plentiful and the work contributed largely to the burden of the Corps at a time when it was struggling under adversity.

¹ Here is a telegram on this subject which I kept as a curiosity :

Ordnance Marseilles to Ordnance Communications, 24/11/24.

Mahomedan or Punjab Lotah has a spout, with or without a handle. Hindoo or Bombay Lotah generally of brass but has no spout or handle, is carried by lip. Hindoos and Mahomedans here both agree that a Katorah never has a spout but is a sort of metal bowl. Confirm that you want the spouted article for which nearest substitute is enamelled teapot. These can be obtained locally, price three francs, also enamelled substitute for Parat, price between three and four francs. Delay in reply owing to communications with manufacturer in Belfort. May I purchase as order must be given at once.