

OPERATIONS OF ORDNANCE DEPOTS IN PACIFIC

OBSERVATIONS AND RECOMMENDATIONS OF

LIEUT-COL S.A.KNIGHT N.Z.E.F.I.P.

FORWARD:

I was appointed Deputy Assistant Director of Ordnance Services immediately prior to the withdrawal of troops from forward areas to base areas in New Caledonia. Shortly after my arrival in Guadalcanal, units commenced preparations prior to evacuation, and my duties as D.A.D.O.S were not onerous since the demand for equipment had dropped to bare essentials. My observations must, therefore, be entirely concerned with an analysis of experiences gained while holding the appointment of Chief Ordnance Officer (COO), Base Ordnance Depot(BOD) New Zealand Expeditionary Force in the Pacific(NZEF IP).

ZONE OF OPERATIONS:

The Base Ordnance Depot was established in New Caledonia at the beginning of the new year in 1943. Being situated some 30 miles from the port of Nepoui at which the bulk of our stores were unloaded and 100 miles from Noumea, fairly long hauls by road were necessitated.

In August of the same year, an Advanced Ordnance Depot was established in Guadalcanal, staffed by about 50% of the Base Ordnance Dept personnel. A few weeks later a Forward Ordnance Depot staffed by 2 officers and 25 ORs was established at Vella Lavella. The later depot was closed down and personnel withdrawn to Guadalcanal when Divisional Troops move forward to Green Island.

Due account must be taken of the type of operations to be undertaken, but it is my opinion that sub-division must be kept to a minimum. If the Base Depot is situated as close as possible to the fighting troops, then the necessity to establish Advanced Depots can be reduced to a minimum. Each time a Sub-Depot is established, additional personnel are required, and the total quantity of stores must necessarily be increased to provide working margins for each Depot.

STORAGE:

It will be generally accepted that few if any permanent buildings will be available for the holding of ordnance stores on Pacific Islands unless the Base is established at places such as Noumea, Suva or Rabaul. Full provision must, therefore, be made for the temporary coverage to provide adequate protection for the initial shipments of stores when a Depot is being established.

Sufficient timber and tarpaulins for the erection of shelters should be forwarded with the first shipment of stores. Well constructed canvas shelters with good ventilation will give satisfactory accommodation for the storage, breaking down and issue of equipment for a period of 3 or 4 months. If the Depot is to remain in one site for a longer period, prefabricated buildings should be provided as early as possible if the loss of stores is to be kept to a minimum. Canvas coverings can only be considered a temporary measure as owing to the high humidity, together with tropical rain and cyclones, deterioration is very rapid.

The effects of a hurricane can be severe, and a poorly constructed Ordnance Depot might easily be completely wrecked with very heavy mortality to stores since hurricanes are usually accompanied by torrential downpours.

I stress the fact that the best type of storage which can be procured, must go forward at the very earliest moment; otherwise, the Depot will be severely hampered, particularly in its infancy.

To meet the requirement of a Base Ordnance Depot serving a Division (including Ammunition) and to provide a small surplus for contingencies 2000 tarpaulins, preferably of the standard 180ft x 13-ft would be required.

In the initial stages of an operation, stores are usually carted to dumps from shops. Every effort should be made to provide dunnage for the stacks and tarpaulins should be arranged, allowing good air circulation.

Stacks of stores covered in this manner require constant attention. For instance, when a stack which has been properly covered allowing good air circulation, is partially broken down, the tarpaulin is allowed to drape on the ground. The air under the tarpaulin arranged in this manner is always saturated in a damp climate and rapid deterioration is the result. The same applies to tentage which should be properly erected, preferably with wooden floors, allowing free air circulation and the maximum benefit of dry sunny days used by removing and drying out damp walls.

Although 1200 Tarpaulins were placed on order for manufacture some weeks prior to the Divisions departure from New Zealand, only about 400 were to hand and available for use when the Ordnance Depot was established in New Caledonia. This number was insufficient to cover all Depot stocks and Ammunition with the result that much damage resulted. On instructions from the A.A. & Q.M.G, 80 tarpaulins had to be removed from ammunition stacks for issue to A.S.C units. As a result of the Ammunition being exposed to heavy rains, considerable damage was done, and a repair party of 50 men was employed for many weeks at a later date, repairing and cleaning the Ammunition, while some had to be destroyed owing to its unserviceability.

When the Ammunition dump was established at Guadalcanal, every effort was made to provide the best possible storage. Ammunition was stacked on goof platforms with coconut poles for base and Tarpaulins were properly arranged, allowing free air circulation. As a result, losses were negatable in a striking contrast to the losses in this Ammunition by U.S. Forces, who did not cover Ammunition stacks which were often in damp areas with no dunnage.

As it is not possible, without disastrous results, to open up and expose M.T parts, Signal Equipment and spares, Wireless Equipment and spares, M.G and S.A spares and certain Engineer Stores in other than dry storage, it is recommended that sufficient Stores wagons should be provided to house this equipment until such time as prefabricated buildings can be erected. It is estimated that not less than 24 well-appointed stores wagons would be required and these should be stocked with spares, most likely to be in early demand.

It may appear to have dwelt on the question of storage, but when the Base Ordnance Depot commenced operations in New Caledonia, the only stores and office accommodation available in addition to Tarpaulins, on which I have already documented were 8 I.P.P. Tents, being the balance of 110 shipped and 2 G.S Single Marquees. Although a considerable quantity of dunnage was unloaded from ships and made available to Units for camp construction, very little was made available for dunnage of stores. Timber ordered in NZ by B.O.D. for the dunnage of Ammunition was taken over by the Engineers and very little made available for Ammunition. By the same token, priority was given to the issue of I.P.P. tents for Messes, Orderly Rooms etc., 102 being used for this purpose, leaving a balance of 8 for use in our Depot as Stores and offices.

The construction of storage accommodation for Ordnance Depot should be the responsibility of the Works Construction Coy N.Z.E which in my opinion is an essential unit in any Army formation.

PERSONNEL:

Personnel for an Ordnance Depot should be carefully selected to fill the various positions; the following are most suitable: -

Clerks: Men who have been clerks and accountants in civilian life are easily trained to carry out clerical duties in an Ordnance Depot. Qualified accountants are invaluable, and three or four of these in a Depot are worth their weight in gold.

Storeman-General: Men who have worked in retail stores and warehouses and who have good clerical training invariably make good storemen. Farm labourers and navvies are, almost with exception, useless as storemen and cannot be relied on to carry out other than labouring duties. It is agreed that there is a certain amount of labouring work in an Ordnance Depot, but this can be done very efficiently by an intelligent man, while on the other hand a labourer cannot carry on with the onerous duties of a storeman, should the need arise.

Storeman-M.T.: It is essential that M.T. Storemen should have had considerable experience at this trade in civilian life. It is desirable that Senior Storemen should have had at least 8 or 10 years experience in the handling of M.T. spares.

Storeman-Wireless: Technical men who have a sound knowledge of wireless equipment appear to be very difficult to procure, but it is highly desirable that at least one very experienced man should be included in the staff of a Depot. It is likely that a Wireless Mechanic who could fill a storeman's position would be more easily procured.

Storeman-Signals: Signal Storemen from the P&T Dept should prove the most suitable, but again these seem rare.

Storeman-Engineers, Arty & Armd: Key personnel to fill the positions of storemen in these sections should be from Ordnance Depots in NZ and should have some years' experience. It is extremely unlikely that any suitable personnel could be obtained from other than Ordnance Depots to fill these positions in anything like a satisfactory manner.

The future Defence Policy of this country should include the training of men for Ordnance duties. Even if only an elementary training can be given, men so trained would be much more useful than those who had no training at all. It is also suggested that a good percentage of the men employed during peacetime in Ordnance Depots should be young men fit for Overseas Service should the need arise.

Care should be taken to ensure that the men selected for Ordnance Depots are trustworthy and of good character. It will be found that men who have filled positions of trust in civilian life can be depended upon to carry out their work in a satisfactory manner in the Army.

N.C.O.'s:

Almost without exception, N. C. O's are promoted on their technical ability, which naturally is of prime importance in an Ordnance Depot. Quite frequently, these N.C.O's prove poor disciplinarians and have insufficient training in drill. It is highly desirable that all N.C.O's should have a short course on discipline and drill, otherwise discipline within the Unit tends to become rather lax.

The importance is stressed, of making provision in the future for sufficient key personnel to be trained particularly in technical sections. In our Base Ordnance Depot with an establishment of 220

NCO's and OR's, we did not have one storeman with any knowledge of Technical stores and had only two men with pre-war Ordnance training.

My experience has convinced me that No Ordnance Depot will function to its fullest capacity unless a D & E platoon is included in the establishment. This Section which should consist of 25 to 30 men including 2 carpenters, would be able to perform the following duties, Guards, Picquets, Camp Maintenance, Maintenance of Stores areas, General Fatigues, and providing working parties to relieve pressure at rush periods. This would obviate the necessity of having to detail clerks and storemen, who are often key men, for such duties.

PACKING:

The standard packing case used by Ordnance in New Zealand has proved quite satisfactory. A suggested improvement is that all cases should be constructed of tongue and groove timber.

Many of the cases, and in particular those constructed by Army contractors, proved unsatisfactory. Three-ply cases are poor for tropical conditions and should not be used. Cases carrying "every-ready" were not constructed stoutly enough to carry the weight packed in them, with the result that a high percentage arrived broken, with a resultant loss of the contents through pillage etc., which in some cases was very heavy. Old used cases should not be used for stores which may require many handlings. Timber used should not be less than $\frac{3}{4}$ inch, and in many cases, it is advisable to use 1-inch boards or heavier, if high weight – size ration is involved.

Waterproof lining for cases should be used wherever possible. In packing stores, it should be always born in mind that cases may have to withstand severe conditions during transit. Quite frequently during unloading of ships on beaches or in transit camps where no coverage is available, stores are subjected to torrential downpours of rain. The resultant damage is not always apparent from outside appearances when packages reach their final destinations. If not required for immediate use the total contents may be rendered unserviceable before being unpacked, perhaps some weeks later.

The use of packing such as wood-wool or straw, which retains moisture, causes rapid corrosion of metal articles, particularly if they have not been toughly treated with a rust preventive before packing. Stores packed out from Ordnance Depots in New Zealand, without any rust preventative have been received in an unserviceable condition owing to the ingress of water or moisture during transit. On occasions, the stores received unserviceable have been urgently required for maintenance. These remarks apply in the main to Artillery Stores, Small Arms parts, and tools.

The packing of Bubbles Spirt Glass, Thermometers and Artillery Packings, etc without protection from heavy articles in the same case, must be avoided at all costs. Fragile articles should be packed in a small wooden box before being included with heavy articles in a case. The use of straw or wool-wood as cushioning when packing instruments such as Binoculars, Telescopes, Periscopes, Rangefinders, etc., should be avoided. Any damage retained by such packing induces rapid mould growth.

STORES PROVISIONING:

Having due regard to lines of communication, minimum require rents only should be carried forward and held until adequate storage can be arranged. This is of course entirely governed by lines of communication. During operations of 3 Div. the paucity of shipping, particularly

during the first 9 months, made it essential that we should carry at least 6 months stock for all items. On some occasions, stores awaited shipment from N.Z. for 6 or 7 months owing principally to the higher priority placed on U.S. equipment.

It is recommended that in future operations where a full Division has to be maintained, consideration should be given to the chartering of a cargo ship solely for supplying such a force. A ship similar to the 'Matua' would do the job admirably. When making this recommendation, I am fully aware that there was a shortage of shipping during the period, but the position may not obtain on another occasion.

TENTS & TARPAULINS:

Conditions in the Tropics made the life of Tentage very short. I.P.P. and I.P. Tents were in general use and proved very suitable. However, due to the high humidity and heavy rainfall, the average life for the Outer Roof was only about 9 months and Inner Roof - 12 months. According to the location and care taken, there were variations. Tents pitched under trees were seldom, if ever, properly dried out and would be unserviceable in 6 months or less, while others pitched in dry exposed areas where the full benefit of drying breezes was obtained, would be serviceable for 12 months or even longer. In combat areas, subject to air attacks, full use has to be made of natural camouflage, and Tents have of necessity to be pitched under trees, where they are available.

Some G.S. Single Marquees which have only a single skin, were used for storage and these were not at all suitable. Besides being unbearably hot, they are not rainproof and should not be used in the Pacific.

The Pyramidal Tent, commonly used for housing troops, by the U.S. Forces is also unsuitable for the tropics, being unbearably hot.

The life of Tarpaulins is also considerably lessened, principally by the tropical heat. Waterproof dressing, which is normally wax bases, melts and runs out of the fabric with the result that frequent dressing is required.

BOOTS:

The Black R. & F. Boot used by the N.Z. Forces gave good service. Due to the conditions, wear on boots was very heavy and the average boot required re-soleing every 3 or 4 weeks. Very little trouble was experienced with mould growth, except where boots had become damp during transit or through poor storage.

CLOTHING:

Uniforms - Wear and tear on clothing was very heavy. In my opinion, the standard Khaki Drill shirt which can be worn with either shorts or long trousers is the most suitable. The Bush Shirt is not suitable for wear with the shorts and cannot be considered a utility garment such as the K.D. shirt is. The average soldier has to do his own laundering while on Active Service and Bush Shirts look very untidy unless they are well laundered.

Socks - Socks proved quite suitable and gave good service.

Hose, Footless - Footless Hose Proved most unsuitable being much too short and tight-fitting. Soldiers avoided wearing them whenever possible. If it is decided to continue the use of this article, liberal allowance should be made for shrinking.

Underclothing - Vests and Shorts Cotton Under gave good service, but it is suggested that for tropical use, these should be made lighter. The lighter weight garments as used by U.S. Forces are considered to be much more suitable.

Belts - A belt similar to that used by U.S. Forces for general purposes should be issued to each soldier.

Hats S.D – Due to the perspiration and rough conditions, the mortality was very high. However, this hat gave good service. The issue of a Tropical Sun Hat would be a more welcome addition to the kit of soldiers.

SMALL ARMS:

I do not propose to report fully on the behaviour of S.A armament or other technical stores since a publication prepared by a Scientific Mission from Australia, who visited New Guinea, covers in detail all the difficulties which confront those who use Army Equipment in the tropics much more fully and scientifically than I could hope to do. I will refer to this publication at the conclusion of my report, but I desire to stress the heavy mortality inflicted on rifles, by the Mason Bee.

This small insect was responsible for the destruction of some hundreds of rifle barrels in the Division. The Mason. Bee will build a nest in a rifle overnight, and corrosion caused by acid immediately sets in and cannot be arrested.

To prevent the Bee entering the muzzle of a rifle, a covering, preferably of mosquito netting or some such open texture material, should be used as this will allow breathing and thus not induce sweating of the barrel which will occur if it is completely sealed.

Mosquito netting was made available to Units in the Division, but in view of the heavy mortality, it is doubtful that the fullest use was made of this or the repeated warnings issued in Divisional Orders, rigidly enforced by all C.O's.

LIFTING GEAR:

The Depot was considerably handicapped by the total lack of lifting gear, until 3 months before the Depot closed, when a very useful Mobile Crane arrived from N.Z. This was in striking contrast to the U.S.Forces who always had an abundance of lifting gear of all types and sizes. The Depot staff had to manhandle such items as Speedway Stores weighing 1-ton and 1ft. T. cases of assemblies weighing 1,100 lbs.

Every Ordnance Depot should have on its War Equipment Table 3 Finger Lifts and 2 Mobile Cranes. One of the latter should be capable of lifting 2-tons at least.

AMMUNITION:

The use of other than steel boxes for the packing of Ammunition should be reduced to an absolute minimum. Wooden boxes, particularly those packed with 37 How. Shell and 25-pdr. Shell failed to stand up to the handling and transporting. This was mainly due of course to the deterioration caused

to the woodwork by the damp, humid climate and accelerated in some instances by exposure to the weather when coverage was not available, but in any case, the life of wooden boxes is much less than that of steel boxes, which will withstand a good deal of rough handling.

AUTOMATIC MAINTENANCE:

The principle of the supply of Automatic maintenance items is considered to be an excellent one. For conditions in the Pacific, there is no doubt that the scales would require a certain amount of revision but owing to the fact that supplies did not come to hand until some 6 months before the Division returned to N.Z, insufficient data was obtained, and time did not permit revision of the schedules. Had Automatic Maintenance been in operation during the whole period, some very valuable information would have been available.

LIASION WITH N.Z:

It is considered that constant Liaison with N.Z. should be maintained. It is considered that an Ordnance Officer should visit the N.N Base from which supplies are drawn, every 3 or 4 months and that an Ordnance Officer from N.Z. should pay frequent visits to Depots overseas when they are so readily accessible by air transport.

GENERAL ADMINISTRATION:

It is desired to place on record the valuable assistance rendered to the Base Ordnance Depot by the Officer I/C Administration, (Brig. W. W. Dove) and his staff at his H.Q. what was a very difficult job was made considerably lighter by the friendly co-operation and help and advice given at all times. No reasonable request was ever refused, and everything possible was done to promote efficiency in the Depot.

The Main Depot was divided into Sections as follows:

- H.Q.
- General Stores and Clothing.
- Armament, Engrs and Signals.
- M.T.
- Ammunition.
- Returned Stores.

H. Q. was controlled by the C.O.O, assisted by an Adjutant and each Section was controlled by an Ordnance Officer.

This arrangement proved quite satisfactory and could well be adopted in future for an Ordnance Depot set up under similar circumstances with the addition of a Provision and Statistical Section, controlled by an Officer.

CONCLUSION:

Following a survey carried out in New Guinea by a Scientific Mission from Australia, a pamphlet entitled "Condition of Service Material under Tropical Conditions in New Guinea" was published.

This publication deals exhaustively with the effects of tropical. Conditions on equipment in all its phases and is, in my opinion, applicable to all Pacific Islands to a greater or lesser degree.

It is recommended that the fullest possible use should be made of this publication and no Ordnance Officer proceeding to the Pacific should fail to read this valuable Pamphlet.

(sgd) S.A. KNIGHT Capt.