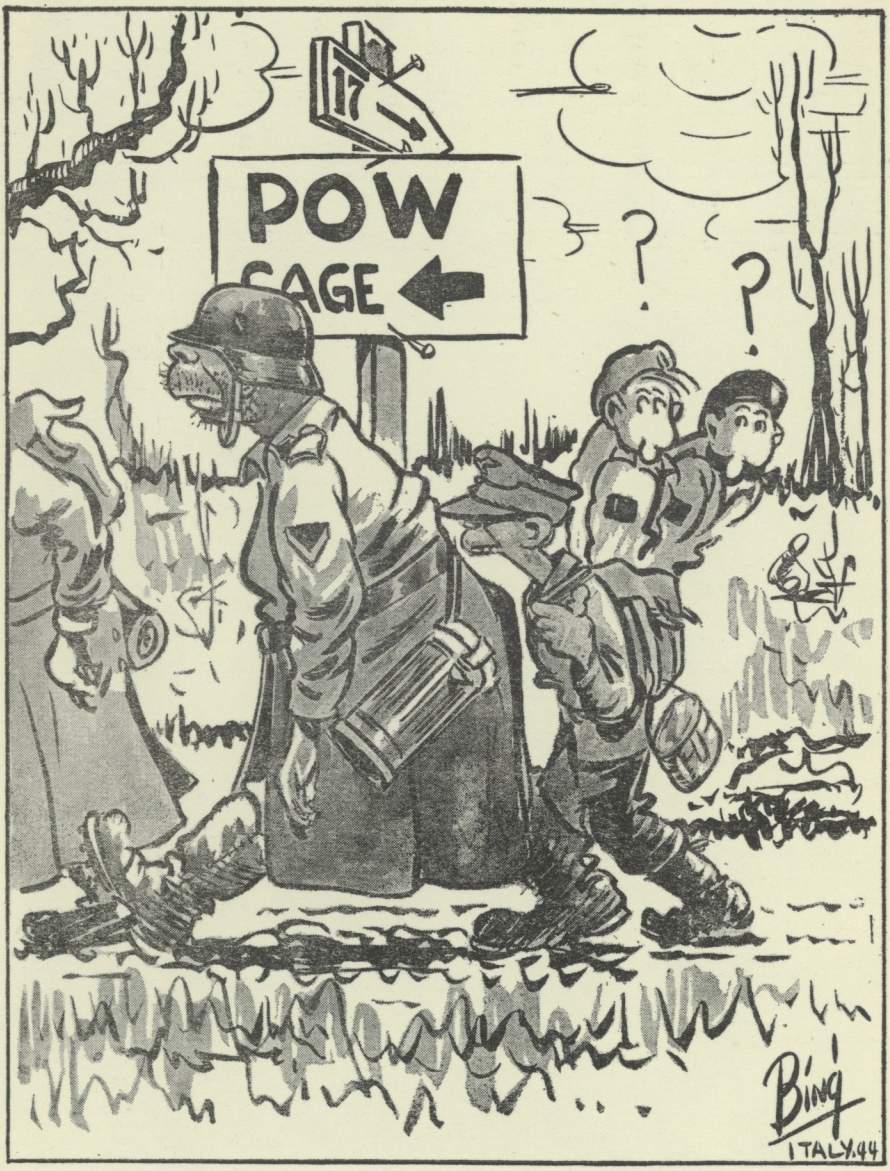
CATM

NUMBER 48

MARCH 1945

THE ROYAL CANADIAN ARMY MEDICAL CORPS



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"MUST BE ONE OF THOSE G'RILLAS WE'VE BEEN READIN' 'BOUT!"

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CATM

Canadian Army Training Memorandum

MARCH 1945 NUMBER 48

CONTENTS

Maj. Gen. C. P. Fenwick, C.B.E., M.C., E.D.

Director General of Medical Services

IN ARDUIS FIDELIS

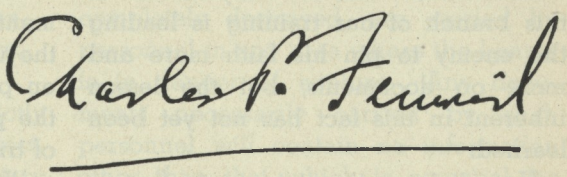
The Royal Canadian Army Medical Corps evolved from the Canadian medical service established during the North West Rebellion in 1885. This medical service was known as the Canadian Army Medical Corps during the war of 1914-1918 and in 1923 received its present designation.

The units of the Corps in the NPAM at the outbreak of the present war comprised Field Ambulances, Motor Ambulance Convoys, Casualty Clearing Station, Field Hygiene Sections and General Hospitals. Practically all the former NPAM units have been mobilized in the present war and there are numerous units since formed having no Reserve Army counterpart. As the war progressed many changes were necessary to meet new conditions and to conform with the establishments and practices of the Royal Army Medical Corps. Motor Ambulance Convoys became units of the RCASC and new units, Field Dressing Stations, Field Surgical Units, Field Transfusion Units and many others were formed to the immeasurable benefit of the individual combatant soldier and the army as a whole.

Responsibilities of the corps include the admission to the army of only those who are physically and mentally fit to serve, their maintenance in health and protection from disease while serving, their care and treatment when sick or wounded in the best possible surroundings and their collection and evacuation as casualties in the field with the greatest possible speed, which necessitates development of transport and changes in vehicles to accomplish quick evacuation over difficult country. The Corps is also charged with the preparation and maintenance of professional records of each casualty and the training of all soldiers in First Aid, Sanitation and the elementary rules of hygiene.

The RCAMC is a vital part of the Army, performing particular functions, controlling yet being controlled. As such its discipline must be of as high a standard as that of combatant corps. In its operations, it must co-operate with other services, particularly the RCASC, in the evacuation of sick and wounded.

The motto of the Corps, "In Arduis Fidelis", which may be freely translated "Faithful in Adversity", demands from all members their utmost in the care of the sick and wounded whatever the difficulties of war. The officers of the Corps, which includes the members of the Nursing Service, consider it a privilege to bring their professional knowledge and skill to the service of their country in her time of need. Their work of mercy tempers the horrors of modern warfare by bringing hope to the sick and wounded soldier to whose care the Corps is dedicated.



WHAT HAVE YOU GOT IN YOUR POCKETS?

(ATM)

An officer, who thought that St. Malo had already fallen, was taken prisoner. In his pocket he carried a plan showing how the locks there could be put into working order again. At that time, the Germans had not blown them up, and it was not until they had studied our plan that they proceeded to make such a thorough job of their destruction.

A German officer prisoner, who was himself an interrogator, has stated that not infrequently British officers are captured carrying air photographs of "first-class quality." These photographs have helped the enemy, not only by giving them an indication of our objectives, but also by showing them the efficacy of their own camouflage; which, after examining our photographs, they have sometimes been able to alter and improve.

One result of our complete air supremacy is that the Germans are constrained, for lack of air reconnaissance reports, to rely for operational or other intelligence almost entirely on information obtained from prisoners and captured documents. The most recent evidence shows that they are having difficulty in making our men talk. Well and good; the lesson of "Name, rank, and number" has been well learned. But our very success in this branch of our training is leading the enemy to pin his faith more and more on documents; but the lesson inherent in this fact has not yet been learned.

Here it is pertinent to quote from a captured copy of a German divisional instruction, dated 5th May, 1944, on the handling of prisoners of war and captured material:

> **"If the prisoner refuses to give his unit, the interrogation should be ended immediately. Prisoners who are willing to talk may be further interrogated about particulars of the formation to which their unit at present belongs.**
>
> "Prisoners willing to talk are to be particularly indicated by a special note on the certificate.
>
> "As it is to be expected that only a very small number of prisoners will be persuaded to talk, the examination of captured material becomes particularly important.
>
> "Almost all British orders bear detailed distribution lists. Important conclusions can be drawn from them.
>
> "The address of private letters generally gives name and rank, as well as number and unit.
>
> "Diaries and notebooks often contain important clues to the identification of the owner's unit.
>
> "The badges of the traditional regiments, which were formerly worn on the uniform, are often found embossed on purses and notecases, or carried in the pocket, either loose or in the form of trinkets and souvenirs.
>
> "Inscriptions on vehicles, on ammunition boxes, and the like, and record

WHAT'S YOUR SCORE?

(U.S. Intelligence Bulletin)

For every question to which you can truthfully answer "No" give yourself ten points.

1. Have you ever repeated or passed on to others a rumor or unchecked story about military affairs?
2. Have you ever talked about military matters with your friends in the presence of strangers in lunch rooms, restaurants, or bars?
3. Have you ever assumed that your taxi driver, waiter, or native bearer doesn't understand English?
4. Have you ever allowed a breach of security to pass unreported?
5. Have you ever attempted to get information home to your relatives or friends, when you knew it was forbidden by censorship regulations?
6. Have you ever discussed classified military information over the telephone?
7. Have you ever thought the other fellow is the only one stupid enough to violate security regulations, and that you yourself are too intelligent to commit such an error, even unconsciously?
8. Have you ever allowed a breach of security to pass unreported because the person making it was of higher rank?
9. Have you ever discussed troop movements with your wife, relatives, or a girl friend you felt sure you could trust?
10. Have you ever passed on classified information to a friend, and then asked that the matter not be repeated, but be kept in strictest confidence?

100% ?

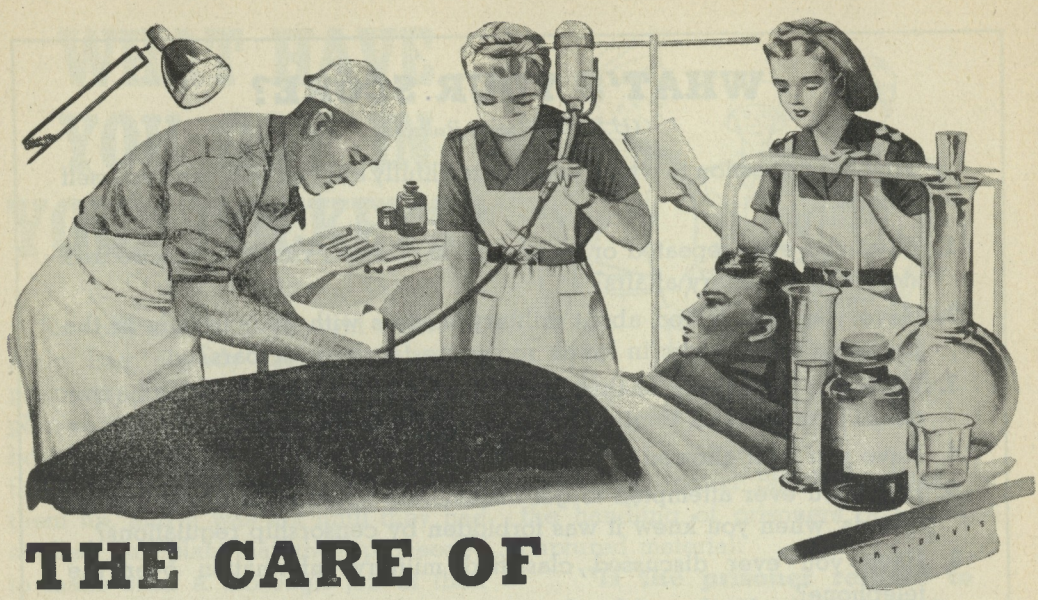
books in destroyed or damaged tanks, are extremely fertile in information.

"Films and cameras often contain information about enemy equipment."

The degree to which security is liable to be compromised is likely to be far greater when papers are taken from officers than from other ranks; and the examples quoted above make it clear that there are still far too many officers who are careless about documents.

Officers will at all times strictly comply with instructions on this subject, as laid down in the Manual of Military Intelligence:

"Commanders will ensure that the following articles are collected from all ranks going into action or on patrol, and left in a safe place: letters, official documents, diaries, memoranda, notebooks, photographs, and other private papers . . . Strict precautions will be taken to ensure that no documents, other than those that are absolutely essential and can be immediately and completely destroyed, are carried by personnel in any area where the bearer is in danger of capture. Any documents necessarily carried by such personnel will contain no information other than that which is essential for the execution of the bearer's task."



THE CARE OF BATTLE CASUALTIES

It would indeed be difficult to paint a picture dark enough to do justice to the horrors of war, but paradoxically enough we find that each war has contributed a great deal to the knowledge of medicine. The present world-wide conflict has demonstrated this perhaps more forcefully than any of the previous wars of history.

For many years it has been known that delay in treatment was a serious barrier to good results. The delay was due to comparatively great distances between the wounded men and hospitals, and the difficulties of evacuating the wounded soldier to the hospital. In order to secure earlier treatment field surgical units and field dressing stations were organized and used in forward areas. In this way the seriously wounded receive resuscitation and operative care perhaps a few hours following injury where before it may have been as many days. It became apparent immediately that this was a great advantage in the saving of life, and this forward type of surgery was developed progressively in North Africa and the Italian campaign; further experience has been gained in the campaign in northwest Europe by the British, Canadian and American Medical Services.

Surgical Centre

When the wounded are evacuated from the front line they are usually taken as directly as possible to an advanced surgical centre where the cases are sorted for operation. In this centre there is a field transfusion unit and one, two or more field surgical units. Whenever there has been a serious loss of blood it is replaced by transfusion of whole blood or serum. A constant supply of whole blood is maintained by an efficient organization which conveys fresh blood to the battle area, often by aircraft. In addition, blood plasma or serum is always available and is used freely.

Once the lost blood has been replaced the surgical teams go to work taking care of the more seriously wounded. These are chiefly the badly mangled limbs, wounds of the chest and abdominal viscera. In this way many lives and limbs are saved that would have been lost if the patient had to be taken further back before appropriate surgical treatment were given.

When the casualty is first seen by the Regimental Medical Officer in the forward area, haemorrhage is controlled if possible and his wounds are dressed, and then treatment by sulphonamides is started and this is continued through to the Advanced Surgical Centre, Casualty Clearing Station, or Base Hospital.

In the severely wounded cases penicillin treatment is started usually at the advanced surgical centre, and can be continued all the way to the base hospital. All wounds that have not been taken care of by the field surgical unit are excised at a hospital further back. This includes the removal of any foreign bodies, such as metal or pieces of clothing that may have been carried into the wound, as well as all dead tissues. The wound at this stage has a sterile dressing applied, but is **not** closed, and the part is usually immobilized by some form of splint.

Following this, wounds usually remain clean and are closed at the base hospital several days later and usually heal readily. This method of treating wounds is perhaps the greatest advance in surgery in the war. It greatly reduces the time that the patient must be in the hospital. The closing of the wound without infection means that there is much less scar tissue formed, and many of the disabilities under former methods of treatment were the result of excessive scar formation. Before this plan of treatment was developed infection of the wound often resulted in the death of the patient, and in most cases delayed the healing of the wound.

Part Played

It is difficult to assess the part played by the different factors involved in the modern care of wounds which brings about such an excellent end result, but the following are prominent therapeutic contributions, each of which plays a part in the whole plan.

The routine practice of bringing surgery forward to the wounded has undoubtedly saved many lives that otherwise would not have reached the base hospitals. A great factor in this has been the generous use of blood, blood plasma and blood serum, a great deal of which has come from Canadians at home through the efforts of the Blood Donor Clinics all across Canada organized by the Canadian Red Cross Society.

An important factor in the treatment of wounds is thorough excision with removal of all foreign bodies and dead tissue, leaving the wound wide open for drainage but covered by a sterile dressing, and wherever possible immobilizing the part. In former wars gas gangrene cost a great many lives. These organisms grow on dead tissue, and it is felt that the present practice of excision of wounds is largely responsible for the very low incidence of gas gangrene in the present war.

Another disease that has disappeared from the army in the field is tetanus or lockjaw, and this has largely been due to the inoculation of all ranks with tetanus toxoid at an early stage in their military training.

The closure of wounds five to nine days after the primary excision with excellent healing greatly diminishes the period of hospitalization and restores early function to the part involved.

Frequent changing of dressings is avoided. When a field dressing is applied to a wound and the hæmorrhage stopped in the forward lines it is not removed until the patient has reached the operating room, where it is removed under aseptic precautions as a preliminary to the operation of primary

excision of the wound. The dressing then applied in turn is not removed until the patient is again in an operating room and as a preliminary to closure.

Tremendous Help

The sulphonamides were available shortly before the outbreak of war, and penicillin is just becoming available in sufficient quantity to use freely. Between them they have controlled many conditions which were not amenable to treatment. Penicillin is used both generally and locally, and has been of tremendous help in preventing infection and in clearing up infected wounds. It is used locally in joints, particularly the knee, and in the pleural cavity following wounds of the chest. Without its use many knee joints that are now functioning normally would be stiff, if indeed the limb could have been saved.

There is efficient liaison between the RCAMC overseas and in Canada, and treatment started in the forward area is continuous throughout until completed. Two hospital ships, the "Lady Nelson" and the "Letitia", are in operation, the former carrying upwards of 500 and the latter over 700, including stretcher and walking cases. Many walking cases come home on other ships. Hospital trains distribute these casualties to their respective Military Districts, and in each District they are carefully examined by medical officers of the RCAMC and directed through the proper channels for treatment. After examination in their home District suitable cases are given 30 days disembarkation leave; if it is considered that delay would hinder their recovery they are sent to hospital at once for treatment.

The RCAMC co-operates with the other medical services, those of the RCN, the RCAF, and the Department of Veterans' Affairs, in providing the best treatment possible for all. The DVA hospitals across Canada as well as Service hospitals are used for this purpose as well as the medical and surgical personnel belonging to all Services.

Special centres have been set up at selected points across Canada and staffed by the most competent surgeons available in the four Services for the care of disabilities in specialized fields, such as neurosurgery, plastic surgery, and orthopædic problems.

Following the healing of the wound, or repair of the injury, a need was felt for further assistance in recovering the full use of the limb or body. This has been met by introducing physical medicine into active treatment hospitals and by utilizing Conditioning Centres which have been established at strategic points across Canada for those who no longer require active treatment. All branches of physical medicine are represented, and include physical training, physiotherapy, and occupational therapy. Treatment in the hospital and Conditioning Centre is continuous and complementary, and every effort is made to restore the greatest possible function to all parts of the body. Whether the soldier returns to service or to civilian life the Medical Service does everything possible to enable him to take up his activity again without any disability.

(U.S. Military Review)

A great captain must say to himself several times a day: if the enemy appears on my front, my left, or my right, what should I do?

—*Napoleon*

NOTES FROM THE CENTRAL PACIFIC

(Extracts appearing in Current Reports From Overseas have been taken from a report by a senior British officer who visited the CENTRAL PACIFIC as an engineer observer.)

No map can do justice to the CENTRAL PACIFIC. If the atolls could be drawn truly to scale, they would be invisible. It is only by crossing the ocean that it is possible to appreciate its immensity and the minuteness of the islands. Admiral Nimitz may be compared, with due respect, to an elephant crossing a wide river on a chain of very small stepping stones. At first his balance is precarious; he moves carefully, feeling his way one step at a time. Nowhere can he sit down and relax. But the elephant is a powerful, persistent, and very sagacious animal; he will scramble quickly up the far bank once a firm foothold is secured.

Jap Navy Broken

Since the offensive power of the Japanese Navy was broken in the MIDWAY ISLAND battle, the problem has been to acquire stepping stones large enough to take the weight of a further advance. Those in use are full of airstrips, depots, and troops. The distance from the HAWAIIAN group of islands, the largest and farthest from the enemy, to the MARIANAS, the next land mass of any size, is 3,700 miles; and the MARIANAS are themselves very small—SAIPAN is only 180 square miles, most of which is very steep mountain.

It is therefore obvious that the engineer problems are very great. Such harbours and airfields as exist will probably be heavily defended, but between them are coastlines, on which we can land, where we are free to choose our point of attack and are likely to meet with little opposition on the beaches. Thus, the speed with which we can develop and consolidate the beachheads, and control airfields, roads, harbours, and ports, will be fundamental to success. To achieve it, highly skilled engineers and much elaborate machinery will be essential.

Amphibious Training

United States troops, before operating in the PACIFIC theatre, have about three months unit training in the STATES, which includes a considerable proportion of amphibious work. Later, after they have left the STATES, they are put through a refresher course, which includes embarkation, disembarkation, swimming, etc., and ends with a battalion exercise on a near-by beach at night, using live ammunition.

Later still, complete landing teams are embarked for a "dry" run in the ships they will use in the operation. They then spend a week carrying out landing exercises on an island in the

PACIFIC on which mock-ups of their particular objective have been erected.

United States troops have no jungle training before they reach the PACIFIC theatre, where there has been a unit jungle training centre in operation for some time. The time spent on this training has been limited by the smallness of the training area, but it is hoped to extend it in the future. The syllabus covers:—

(a) **Scouting and patrolling.**
(b) **Assault against pillboxes, etc.**
(c) **Work with dogs.**
(d) **Close quarter fighting—great stress is laid on the correct stance which is the slight crouch of the wrestler.**
(e) **Unarmed combat.**
(f) **Mines, booby traps, trip wires, etc.**
(g) **Stream crossing.**

"Jungle living" is taught by officers who in peacetime were naturalists studying the PACIFIC ISLANDS. They tour the units and give a course of about ten days to officers and NCOs. Their theme is that the jungle is the friend and protector of man. In particular, they boost the cocoanut palm, which will provide enough food, drink, shade, shelter, and clothing to maintain life indefinitely.

The Dog Has His Day

One point stressed during training is the comparative ease with which well-trained troops equipped with great superiority of firepower can dispose of the Jap once they know where he is. The problem is to locate him. To my mind the dog is the best agent for Jap detection and still more use should be made of him.

The United States force that attacked SAIPAN consisted of three divisions, of which two landed on the selected beaches at first light on D day (15 June). The remaining division was held in floating reserve. Although the heavy preliminary bombardment by sea and air on all known gun positions effectively silenced most of the fixed pieces, enemy fire on the beaches from field artillery and mortars was heavy enough to pin the assaulting troops to the beachhead, which was only some 800 yds deep. Gradually, however, the Japanese were driven slowly back off the airfield.

All the time the Japanese were fighting their delaying action, they apparently believed that their fleet would come to their assistance. Only on "D plus 15," when TANAPAG harbour was captured, did the Japanese commander realize that the Japanese fleet was not coming.

A desperate counter-attack, therefore, was ordered for the night of "D plus 21/22." Several thousand Japanese armed with grenades and knives advanced shoulder to shoulder on a front of 800 yds. They overran two infantry battalions and some field artillery and, despite tremendous losses, pressed on to the outskirts of TANAPAG; but by then the momentum of their attack was spent. Though there were no immediate American reserves available, the Japs believed themselves to be surrounded—as indeed some of them were—and whole groups of them committed hara kiri by holding grenades to their chests or throats. 3,700 Japanese are buried in this area.

Thus the heavy fighting ended and all organized resistance ceased on "D plus 25," by which time 16,000 Japanese had been buried by the Americans. Mopping up, however, continued for nearly two months longer. About 8,000 were buried during this mopping up period, and it was estimated that, at the date of writing (D plus 75), a further 1,000 or more were still at large. Only 1,200 out of the original garrison of 26,000 were captured alive.

YOU'RE PAYING FOR IT!

(Written for CATM by Col. W. G. B. Dailley, OBE, chairman, Army Salvage and Disposal Board, the following article stresses the need for co-operation by all ranks in the Army in the care of army stores. Col. Dailley was in the Royal Army Ordnance Corps during the last war and was charged with the responsibility of organizing and directing the Returned Stores Group at Salonika which later developed into a Salvage Group for stores and equipment returned from forward areas. Recalled to England, he re-organized the Sales and Salvage Group at Woolwich Arsenal, London, and later was appointed one of the commercial advisers to the Army Disposal Board operating in France at the cessation of hostilities. He was loaned to the Canadian government by one of Canada's leading business firms to organize and direct the Army Salvage and Disposal Board in the present conflict. CATM appreciates this opportunity of publishing an article of this nature by such an eminent authority. —Editor.)

Salvage operations within an army is very big business, and while it has none of the "death and glory" flavour it nevertheless plays a big part in supplying the fighting troops with stores urgently required, especially in the battle area from forward Salvage Depots. During the advance in the North African campaign, one Army Salvage Unit re-issued no less than 1,580 articles of M.T. equipment, thereby keeping equipment in action. It is also a well-known fact that the best disciplined divisions operate the most efficient Salvage Units.

Salvage and Disposal Operations within the Canadian Army have produced gratifying results due, in the main, to the interest and constructive co-operation of all ranks of the army. Let us all continue to take care of army stores as if they were our own personal property (which really they are because you have paid for them), thereby helping to lessen Canada's War Bill and diverting more of our money (taxes) to Canada's Health Bill.

The Army Salvage and Disposal Board was set up in June 1941, and within a short time Returned Stores Groups within the Ordnance services were organized in each Military District.

Col. W. G. B. Dailley, O.B.E.

$188 Per Man

Then came the preaching of the gospel of shortage of raw material, shortage of labour and how important it was that officers and men should realize that there is **NOT** "lots where that comes from." The fact was brought home that it costs Canada $188 to outfit a man and that the money really comes out of his own pocket.

The average soldier, or better still, the average officer has no idea of the enormous quantity of stores going through Ordnance Returned Stores Group every month and the amount of goods that are made fit for reissue to the troops.

It is not generally known that clothing returned from units for various reasons is thoroughly examined to see if the garments can be classified as follows:

(a) Fit for reissue back to the troops after cleaning and repair.

(b) Fit for post-war relief in Europe and Canada after dyeing and repair.

(c) Fit as repair material for either (a) or (b).

(d) Sold as rags to be used in the manufacture of new army uniforms.

Boots Ankle go through an even more exacting reclamation operation:

(a) Fit for reissue after being repaired, blocked, etc.

(b) Fit for use for post-war relief or prisoners of war after being repaired.

(c) Those not fit for (a) and (b) but whose uppers are in good condition are classified as "strippers". By strippers is meant uppers that can be used in the manufacture of new boots. Even parts of the old sole and uppers are used up.

(d) Boots that are not fit for either of the three classes above are disposed of as scrap.

Boots Rebuilt

In connection with the uppers salvaged from condemned boots, at the present time several thousand army boots are being manufactured every month and the old soldier prefers the rebuilt boot to the new boot because the former is "broken in."

There is a saying in the Army Salvage and Disposal Branch that "any fool can sell scrap material, but it takes a good man to sell at the right price and a better man to find a use for unserviceable and condemned stores by way of conversion within the armed forces themselves."

In this connection, in addition to supplying prisoners-of-war with boots not fit for reissue to the troops, greatcoats are also worn by prisoners after they have been changed to conform with the specifications of prisoners-of-war clothing.

Even the fillings from old mattresses are used again for the packing of technical stores after being suitably treated. The scrap material arising from salvage operations within the army is carefully sorted and disposed of to the trade at a ceiling price, in the majority of cases.

The writer has seen army salvage operations in both the United States and England, and Canada's efforts compare most favourably. In England there are four separate organizations, in the main, carrying out the same work that this branch of the MGO is doing in Canada.

Last year's progress report of the Army Salvage and Disposal Board shows the following quantities handled:

Total number of articles handled in Returned Stores Depots exceeded 16,000,000.

Total number of articles reconditioned and returned to Ordnance Stock exceeded 11,000,000.

Total weight of articles washed in mobile laundries exceeded 3,400,000 lbs.

Total footwear repaired in boot repair shops exceeded 1,228,000 pairs.

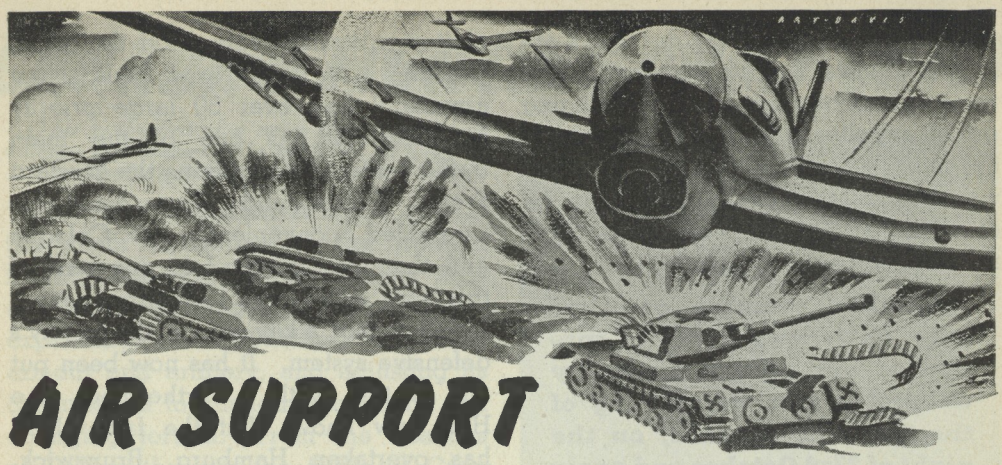
Total boots rebuilt in No. 1 Boot Rebuilding Plant exceeded 46,000 pairs (9 months).

Total number of garments repaired in Tailor Shops exceeded 600,000.

Total repairs to tents and tarpaulins in Textile Shops exceeded 15,000.

Total amount of sales exceeded $1,275,000.

Salvage and Disposal Operations within the army is a merchandising job, and thanks to a very capable staff of officers and other ranks, including civilian personnel stationed in each Military District in Canada, I feel safe in saying that the wastage in the Canadian Army will compare favourably with any other army comprising the Allied Nations.



AIR SUPPORT

(Fighting Forces)

"Air attacks always reduce infantry casualties," said a Group Captain, R.A.F., recently. "You have only to think of Le Havre, where the casualties were merely 400, but prisoners numbered more than 11,000, to realize the value of such support to the ground forces."

Of course, the value of really good air support to the ground forces is unquestionable. What is remarkable is that appreciation of this blatantly evident fact has only been fully realized by the Air Ministry during this past year, and more specifically since D-Day.

Typhoon Work

Typhoons have done especially good work. On 11th and 12th October the full weight of a group of Typhoons, belonging to the 2nd Tactical Air Force, was thrown in to help the Canadians to clear the south bank of the Scheldt. Enemy pillboxes and machine guns were put out of action by 500-lb. bombs, 1,000-lb. bombs and rockets, and the Canadian infantry and tanks were able to advance. During this advance the Germans lodged in three villages. Oostburg, Schwondijk and Sluis were causing trouble, and as a result the villages were practically eliminated by Rocket-Typhoons and bomb-carrying Spitfires. "The places were as full of holes as a sponge when we had finished," said one of the pilots.

Rocket-firing Typhoons led the army when British tanks and infantry captured Venraig in the middle of October, and the two villages of Oberbrock and Veuten, which lay beyond the town.

It is not only aircraft of the Tactical Air Force that have supported our ground troops. Aircraft of Bomber Command have also played their part. Canadian troops south of the Scheldt estuary had suffered considerably from the fire of heavy German guns on the island of Walcheren. On 11th October, Lancasters of Bomber Command attacked the gun emplacements with excellent results. This attack was followed by others until, by the end of October, many batteries were out of action. About the same time Lancasters and Halifaxes were doing good work in completely destroying two German towns, Kleve and Emmerich, situated on the German frontier not far from Nijmegen.

Of Great Value

Although this action could not, perhaps, be regarded as one of direct support to our ground troops, it was, indirectly, of the very greatest value. Both towns served as advanced bases for the defence of the German frontier. Both towns were full of stores, equipment and armament of all kinds. As they were near the front line the rail-

ways which passed through them were of the greatest use to the enemy and were extensively used for the bringing up of supplies and reinforcements to the men in the line. These two towns were completely devastated as to be of no further use to the enemy, and the railways were cut in many places.

Another example of what may be termed indirect support of our ground troops by air action was the putting of the finishing touches, on the night of 23rd October and again in daylight on 25th October, to the almost complete destruction of Essen.

No town has meant more to the German army than Essen, with its various steel plants and munition factories. During these two raids at the end of October Bomber Command did really magnificent work. Air photos showed heavy damage and hundreds of bomb craters throughout the whole built-up target area, more than half of which had already been devastated in Bomber Command's earlier attacks. Hardly any of the buildings in Krupp's works have escaped destruction or severe blast damage. It is not too much to say that Essen is now almost entirely destroyed.

Cologne Job

The same may be said of Cologne. Towards the end of October the 8th U.S.A.A.F. did particularly good work in destroying the network of yards and junctions around Cologne which were expressly laid down for strategic purposes and to serve the army fighting in the west.

Bomber Command completed the job. During the last four days of October over 9,000 tons of bombs were dropped on Cologne.

As a result scarcely a house was left standing. The town, in fact, was obliterated and a very good thing too. Cologne was being used both as an arsenal, it had over 30 large priority factories—and as one of the main traffic centres for supplying the Western Front. Troops and arms could be assembled conveniently in Cologne and then sent forward to any part of the front which was being threatened. It was, in fact, a key-point of the enemy's defensive system. It has now been put out of the battle. Furthermore, the Hun now knows that the fate which has overtaken Hamburg, Brunswick, Essen and Cologne will be the fate of all important industrial towns which lie close behind the Western Front and can serve as centres of supply to the German forces.

Striking figures have been issued concerning the air support given to the United States 3rd Army by the 19th Tactical Air Force. They relate to the period from mid-April to 29th October. In more than 82,000 sorties this air force has dropped thousands of tons of bombs on tactical targets such as retreating enemy columns and troop concentrations. It claims the destruction of 845 enemy aircraft in the air and 253 on the ground, with damage to several hundred more. No wonder this Air Force is beloved and respected by the armoured and infantry divisions of the 3rd Army.

But, of course, the finest and most massive air support of ground troops has been in evidence during the great six-army advance towards the Ruhr and the Rhine. One town after another, forming part of the German defences, has been completely obliterated, though it must be admitted that Allied artillery had an equal share in this good work.

CANADA'S FIGHTING ARMY CHIEF

(This is the first of a series of biographies of military commanders to be published in CATM. It is proposed to publish one in each issue.—Editor)

The First Canadian Army is one of the major formations of the western front. Like most British Armies it is constantly changing in its composition—expanding or contracting, absorbing armour and artillery, and adjusting its organization to changing functions and changing terrain. From the beaches of D Day through the fields of Caen and the defiles of Falaise, it became the fighting left wing of the allied armies, matching and even exceeding in speed Gen. Patton on the right wing; it has in recent months acquired particular battle worthiness in swampy, inundated, and irrigated lands through which it is now penetrating Germany. Its people have varied as dramatically as its battle fields: Canadians were usually at its core; British, American, Polish, Dutch and Belgian formations have contributed to its vigour and success.

To lead such a force requires a general of a peculiar type of leadership, with a versatile training and experience and with a firm diplomacy. It is probably no mere coincidence that such a force under such circumstances had been allotted to General Crerar. With training and with interests broader than most, he has served as a commander and staff officer in France and Belgium in the last war, has served as staff officer in London and Canada between wars, has commanded in both peace and war, and during the past eighteen months has fought in Italy, France, Belgium and Holland and now in Germany.

Well-known Families

Born in Hamilton, Ontario, nearly 57 years ago, Henry Duncan Graham Crerar came of families well-known in that city. His father, a native of

Gen. H. D. G. Crerar, C.B., D.S.O.,
General Officer, Commanding-in-Chief,
First Canadian Army

Perthshire who came to Canada as a young man, was a practicing K.C. in Hamilton where he married Miss Marion Stinson. Henry Crerar was educated in Hamilton and at Upper Canada College and then attended School for a year in Switzerland before returning to Hamilton, where for a year he was at Highfield School, which has produced several other leaders in civil and military life in Canada. He entered R.M.C. in 1906 and graduated in 1909 a few weeks after his twenty-first birthday. Among his classmates were General A. E. Grassett of the British Army and Major-General D. J. MacDonald, now Inspector-General for Central Canada, as well as three others who have become Brigadiers. At the College Henry Crerar was active in sports, serious in study, and graduated 13th

in a class of 30. He won the embroidered badge for gun practice as a premonition of his later career as a gunner, although on graduation his taste would have taken him to the cavalry as a profession. Gazetted to the general list of the Canadian Militia, he was soon employed by the Ontario Hydro-Electric Commission, eventually in Toronto. In January, 1910 he took a commission in his home city in the 4th Field Battery, one of the earliest volunteer Field Batteries in the Canadian Militia, organized in 1855. Lieut. Crerar was for a time Adjutant of the Second Artillery Brigade N.P.A.M. At the outbreak of war in 1914, this young engineer enlisted at once, becoming a captain in the 8th (later 11th) Field Battery at Valcartier and proceeding overseas with the 1st Division. So he entered the profession where he was to reach the highest rank.

Commands Batteries

During the war he rose to command both the 10th and 11th Field Batteries, and the 3rd Field Artillery Brigade for a short time after Vimy; he attended the Gunnery School at the School of Artillery and the staff course at Cambridge; he won the DSO in June 1917 and was mentioned in despatches. His staff experience, perhaps, was more significant. Always a serious student of the scientific as well as of the broader aspects of arms, he was a Staff Learner at 1st Canadian Divisional Headquarters in 1915, and in August 1917 became Brigade-Major of the 5th Canadian Divisional Artillery and as such was one of the early members of a select but increasing group of staff officers in the Canadian Corps in France who were Canadian-trained, in many cases Canadian-born, and were members of the Canadian Service. For ten weeks, from June 1918, he acted as Staff Officer, Artillery, Canadian Corps Headquarters, an appointment previously held by a Major, R.A., who is now Field Marshal Sir Ala Brooke, Chief of the Imperial General Staff; subsequently, as a Lieutenant-Colonel, he became Counter-Battery Staff Officer in the Canadian Corps, where his predecessor had been General McNaughton.

Remained in Army

With this ripe experience Colonel Crerar was selected to remain in the Canadian Army after the war. He was demobilized in Canada in 1919 but early in 1920 was recalled to duty in Ottawa as Director of Artillery and then as Staff Officer, Artillery, and on the first of April, 1920, was gazetted to the Royal Canadian Artillery Permanent Force. He qualified as an interpreter in French, and in 1922 was allotted a vacancy at the Staff College at Camberley in England; on the completion of his two-year course and after a short period on the General Staff of the Aldershot Command, he served for another two years on the Operations Staff at the British War Office. These years immediately after the last war did much to broaden his military knowledge and especially to bring him into close contact with his contemporaries of the British Service, many of whose leaders today are old friends. He also laid the foundation of knowledge of European affairs by visits to the continent.

In 1927 Colonel Crerar with a splendid record from England returned briefly to regimental duty as Commander of "B" Battery R.C.H.A. in Kingston. His work, however, was soon resumed as a General Staff Officer. He became Professor of Tactics at R.M.C. for a year and was then General Staff Officer First Grade on the Operations Staff in Ottawa. After a few months as Acting Director of Military Operations & Intelligence he returned to Britain in 1933 for two years at the Imperial Defence College. He returned to Canada to become Director of Military Operations & Intelligence in 1935 as a

full Colonel, and three years later became Commandant of R.M.C. as a Brigadier. Meanwhile he had also attended an Ordnance display in the United States, an exercise in combined operations in Nova Scotia and had assisted in directing Military Staff Course qualifications. Defence schemes and mobilization plans for the Canadian Militia fell within his purview at this time.

Military Adviser

During this decade of the thirties, however, Colonel Crerar had a special interest in the wider implications of his profession. He was technical military adviser, chosen by the Prime Minister, at the Disarmament Conference in Geneva in 1932, and again under a different Government, at the Imperial Conference in London in 1937. He was a military visitor to Berlin in that year. During this period he became known in forming Canadian opinion by monographs and frequent lectures, usually to restricted and confidential audiences, on fundamental problems of defence and the relation of Canadian defence to the Empire and prospective allies. The value of this training to the later Commander of a cosmopolitan Army is evident.

The outbreak of the current war cut to one year his command of the Royal Military College which, although short, was a most significant tour of duty: in October 1939 Brigadier Crerar was on his way overseas as Senior Combatant Officer in the United Kingdom, to prepare the way for the arrival of the 1st Canadian Division. Here his close association with the plans and personalities of the British Army was to be of the highest value. He remained in that key position during the fall of France, and his invaluable knowledge in the summer of 1940 made him useful to return to Canada first of all as Vice-Chief of the General Staff and then as Chief of the General Staff at N.D.H.Q. The Canadian Active Army had recently been doubled in size, and it was during that strenuous time that he served as Senior Military Officer in Canada supervising basic and early training of the new divisions which included very rapid expansion in Armour.

Took Over Command

When the 2nd Canadian Division was well launched in its training overseas and when its command fell vacant General Crerar returned to England, and in April 1942 he formally took over command of the First Canadian Corps from General McNaughton. In fact, however, General Crerar had been acting commander of the Corps up to that time from his return to England in December 1941. All members of the Corps will remember the strenuous training of the eighteen months of General Crerar's command in England.

Preparations for the Mediterranean invasion were soon under way, and when the senior division of the Corps proceeded to Sicily in 1943, General Crerar stood by to follow as Corps Commander when the 5th Canadian Armoured Division joined the 1st Division on the mainland of Italy. General Crerar's brief term of command in Italy was marked by skilful fighting, vigorous training, close co-operation with other formations (British, American, New Zealand, Indian, Polish, and Greek) and by that rapid adjustment and flexibility which is characteristic of our army as it expanded.

When General McNaughton returned to Canada a year ago, General Crerar was his obvious successor to command the Army in Britain, and he reluctantly left the newly-prepared battle lines of Italy for his new command. It was a short respite. In June last year, hard on D Day, General Crerar and his staff were established in Normandy, not commanding the Canadians but close to the leading 3rd Canadian Division and to General Montgomery. On the

23rd July General Crerar took over command of the international Canadian Army, with a staff already familiar with the existing situation.

Brilliant Crossing

On the brilliant dogged fighting of Falaise followed one of the swiftest movements of the war: Crerar's advance across the Seine. The brilliant crossing of that barrier was so rapid that the Somme later on could not be held by the Germans. So the Canadians arrived in the bogged areas of Holland, while one Canadian and one British Division were diverted to the Channel ports and the rocket bomb launching sites still held by the Germans. That breathless rush to the north stamped General Crerar's Canadian troops as mobile as well as brilliant masters of the close-order fighting in Ortona or through Falaise where he had earlier directed them.

And now, after the traditional miseries of Walcheren and the drowned lands of Holland, General Crerar and his Canadian Army are on German soil—bold, adaptable, co-operative, and always thorough and aggressive, and supported characteristically by one of the heaviest artillery barrages of the war.

General Crerar had become a Lieut.-General on promotion to be Chief of the General Staff, reverted for a moment to command the 2nd Division, recovering his rank in command of the First Canadian Corps in England and Italy, and, after his brilliant achievements from Falaise to Holland, was promoted to full General.

Early in 1916 he had returned to Canada on leave to be married to Miss Marion Verschoyle Cronyn; he has today two children, his daughter the wife of an Artillery field officer with overseas experience and staff training, and his son now commissioned from the ranks in the Canadian Armoured Corps in Italy.

THE END OF THE TIRPITZ

(*The London Spectator*)

The last of the great German battleships, the "Tirpitz," has been sunk at her anchorage in Tromso Fjord with 12,000-pound bombs dropped by Lancasters of Bomber Command led by Wing Commander J. B. Tait and Squadron Leader A. G. Williams. The advance of the Russians into northern Norway led to her removal from Alten Fjord. . . Her existence as a potential fighting force has been of more value to the Germans than her actual achievements. As long as she was there in northern waters, and capable of movement, she was a constant menace to our convoys bound for Russia, and capital ships of the Royal Navy had always to be available to deal with her if she should venture out.

Many Attacks

She has been the object of many attacks and she has sustained many injuries which have kept her under repair for a considerable part of her life. First put into commission shortly after the destruction of the "Bismarck" in 1941, she was soon sent to Trondheim, where she was attacked by Halifaxes, and thence to Alten Fjord.

Damaged by Russian torpedoes in 1942, she was injured again by midget British submarines and by hits from Home Fleet bombers. This "unsinkable" battleship, with heavy surface armour, has been sent to the bottom by three hits from 12,000 lb. bombs—a more formidable explosive than had been contemplated by her designers.

The result is further evidence of the fact that no ship is proof against well-directed air assault unless it is provided with fighter protection.

HEAVY MORTARS IN DIRECT SUPPORT

(Col. M. E. Parker in U.S. Infantry Journal)

ANY MORTAR that can throw a 12-pound projectile 3,000 yards or more can be considered a heavy mortar. Every army has one or more of them: the British and Russian smooth-bore 4.2-inch mortars; the American rifled 4.2-inch mortar;the Japanese rifled 100-mm. mortar (copied from the American model); the German and Russian 120-mm. (4.7-inch) smooth-bore mortars; and the several rocket mortars or projectors of the 4.5-inch, 15cm., 7.2-inch, and 21cm. varieties. All of these mortars and rocket projectors are used for the same tactical purpose and, in general, use the same firing technique.

The tactical and technical employment of heavy mortars in giving fire support can best be explained perhaps through short descriptions of the actual use of the weapons in different campaigns in the current war. The experiences of heavy mortar units with the Fifth Army in Italy provide a number of examples. (Other theatres could provide examples as pertinent as those related here, but these, because of my service with the Fifth Army, I know about.)

Smoke Protection

In the crossing of the Volturno River during October 1943 by the Fifth Army, Company D,—the Chemical Battalion, laid down a smoke screen 3,500 yards long on the German side of the river and maintained this screen day and night with both mortar fire and smoke pots for a period of 36 hours while engineer troops constructed two pontoon bridges, and artillery and tanks got across these bridges in sufficient numbers to support the infantry. During this entire action Company D averaged firing one 4.2-inch WP mortar shell every 15 seconds.

There are mutually supporting twin peaks on the mountain above Venafro. Observation and fire from these peaks dominated the entire Venafro side of the range. Our assaults on these positions . . . had been thrown back several times, so that a new plan had to be worked out. Company B of the –th Chemical Battalion got into position with plenty of WP filled shells and smoked Peak "A". The rest of the battalion concentrated HE and Peak "B". Ranger and paratroop units took Peak "B", and reorganized while smoke continued to blind the enemy on Peak "A". Then three companies switched to HE and blasted Peak "A". Aided by their own supporting fire and 5,000 4.2 HE shells, they took the objective. Three thousand rounds of 4.2-inch shells in ten minutes blasted a German counter-attack and the mountain was ours to the crest. The Concasale side of the mountain, with its many caves, was another story.

First Wave

At Anzio, Companies A and B of the –th Battalion landed with the Rangers in the first wave, on January

22, 1944. These outfits went ashore with a mortar and crew in one DUKW and ammunition supply in a second DUKW. Immediately upon coming ashore, they were ordered to set up and start shooting in the general direction of the Germans, because the CO on the beachhead said, "I want the bastards to know I have something heavy, so they will start digging in. That will give me a chance to manœuvre".

Just south of Minturno, Italy, the –th Chemical Battalion fired more than 10,000 rounds of high explosive shells on enemy positions between 2300 hours, May 11, and 0600 hours, May 12, 1944, and followed this fire by laying smoke screens on near-by enemy observation points during the successful assault by the –th Division.

The enemy knows how to use heavy mortars, too; they showed us at our first attempted crossing of the Rapido River below Cassino during January 1944. Once our forces had crossed the river they were met by devastating crossfire of German mortars and Nebelwerfers against which no human being could advance or even hold his own. Our losses were heavy and our attack failed. Again, in the recent assault on Saipan, Japanese mortars were ranged on the reef and on the shore, and produced casualties among our troops as they passed these critical areas. A published eye-witness account by Howard M. Norton, a war correspondent, said:

> Mortars appeared to be the Japs' favorite weapon. They used them in all sizes, from knee mortars up to a kingsize affair which threw a shell of approximately the same caliber as a 105-mm. howitzer. This little giant tossed geysers of water, sand and rock one hundred feet or more into the air and spattered shrapnel over the water for hundreds of yards.
>
> There were bodies in the water all around us, evidence that the mortars were taking their toll.
>
> Twice that night our line of loaded boats approached the beach and were forced back by mortar fire.
>
> At dawn we were still circling a mile or more off Charan Kanoa sugar mill and the mortar shells were still falling at intervals for the next 24 hours.

Mortars are the man-killers in modern combat. You simply can-

British 4.2 Mortar in Action

not advance over ground swept by accurate mortar fire laid in sufficient volume. Accordingly, counter-mortar action and fire is extremely important prior to an attack.

(CATM NOTES: The following points have been stressed in the foregoing article:—

1. **Mortar fire and smoke are valuable protective weapons.**
2. **The use of smoke followed by HE is very effective against enemy concentrations.**
3. **A large volume of fire may be laid down in a short time with the mortar, a very mobile weapon.)**

RCAMC FIGHTS DISEASE IN WAR YEARS

A survey of past campaigns reveals that sickness casualties have always far outnumbered those due to enemy action, and many brilliantly planned offensives have had to be abandoned on the very eve of victory owing to immobilization of a striking force by disease. During the South African War, 1889-1902, with a British Force of 208,000 men, there were 57,684 cases of typhoid fever, of which 8,022 were fatal. However, in the Great War of 1914-1918, with approximately 6,000,000 British, Dominion and Indian Troops engaged in numerous theatres of war, there was a total of 31,011 cases of typhoid of which only 777 were fatal. This marked reduction was due undoubtedly to the increased attention being paid to sanitation, inoculation of personnel and purification of water supplies.

Meanwhile, through the years the scene of battle has changed. No longer was action taking place on a single front as in the South African War. France and Flanders, Macedonia, Palestine, East Africa and other geographical areas saw a share of fighting and contributed diseases prevalent in those regions. Consequently, on Gallipoli casualties from dysentery numbered 254 per 1,000 strength engaged, and in Poland in 1916-1917 there were 400,000 evacuations from typhus alone.

Every Portion of Globe

In this Great War action has gone forward in practically every portion of the globe. From the Aleutians, Iceland and Norway, through the Netherlands, France, Greece and Italy, across the breadth of North Africa, through China, Burma, to Singapore and Australasia fighting has taken place, and in each region lurks a variety of diseases, many of which had not been experienced heretofore to any great extent by our troops. Malaria, Dengue, Filariasis and Scrub Typhus are names now as familiar to us as the Enterics were 30 years ago. And unquestionably these new experiences have stimulated interest in preventive measures more than in any previous campaign.

Today the causes of sickness casualties are well known, and in this war the RCAMC is utilizing to the fullest extent this knowledge. The application of preventive measures is being so effective that whole groups of diseases are practically disappearing from among the troops, and assuredly one of the greatest contributions to the war effort is the control of those diseases whose epidemic propensities have heretofore been responsible for losses in army manpower far greater than actual battle casualties.

The Canadian Army in this war is composed of men and women carefully selected for physical and mental fitness. It is the responsibility of the Medical Corps to keep the men fighting fit. In order to overthrow the enemy, armies must be made up of men who are physically fit; that is, men who have positive health, who have conquered disease and whose physical and mental health is such that they are not likely to come down with physical or mental ailments when exposed to disease germs, weather, fatigue and various other adverse conditions inherent to warfare. Since the achievement of this objective depends to a large extent on the type of individuals with which the army is made up, it follows that one of the primary functions of Army Medical Services is the medical selection of personnel admitted to the army. The

machinery and organization for the diligent discharge of this important function has since World War 1 been considerably improved. Among the new features which deserve special mention are: X-ray films of the chests of all recruits, serological tests, the screening of the emotionally unstable who would not be likely to stand the stress and strain of modern mechanized warfare.

Watchful Eye

From the time the healthy recruit has been inducted into the army until he is returned to civilian life, the Army Medical Corps keeps a watchful eye on him. Immediately after attestation he is, through a series of inoculations, protected against such diseases as smallpox, typhoid fever, tetanus, diphtheria, typhus fever, etc. In the army, exposure to tuberculosis has been minimized due to the fact that perfected medical screening methods at the time of induction has virtually eliminated this disease in service personnel.

The elimination of occupational hazards such as carbon monoxide poisoning and lead poisoning is also one of the many duties of the medicals. Since the soldier who is laid up with a sprained ankle or a broken arm is just as much a casualty as if he had come down with typhoid, the prevention of accidents among service personnel is a major medical concern.

The incidence of venereal disease in the Canadian Army has been reduced. This has been accomplished by several effective measures. Medical officers secured from the V.D. patient information regarding the alleged contact and the relative conditions that led to his exposure. The information supplied by the patient to the M.O. provided a pattern of the spread of V.D. in Canada, and the community conditions that facilitate the spread of infection. Analysis of these community conditions were made periodically and pressure brought to bear on responsible civilian authorities for remedial action. As a result, the menace of prostitution has been reduced considerably in Canada and the most flagrant instances of facilitation have been corrected.

The Army V.D. Control programme has increased the efficiency and health of the Canadian soldier by reducing the number of infections and the amount of training time lost. It has aroused civilian action to improve those community conditions in Canada which facilitate the spread of V.D. infection among the armed forces and civilian war workers alike.

Constant research in the field of immunology is rewarded with the production of ever new and more highly protective vaccines. When the fighting moved into tropical and semi-tropical climates our armies were confronted with diseases spread by insects such as mosquitoes. Casualties from malaria were high, but the production of synthetic atebrine on a large scale made available a drug which when given daily in adequate (but non-toxic) doses provides a sure means of totally suppressing this disease among combat troops in a malarious region. Simultaneously, the discovery of new repellents and powerful insecticides has provided two sure methods for freeing man of noxious insects. Even the body louse has fallen an easy prey to D.D.T. powder, and the control of typhus in Naples during the winter of 1943-1944 is a memorial to preventive medicine, and stresses the effectiveness of D.D.T. products in the control of insect-borne disease. Promising results, too, have been demonstrated with the use of

(U.S. Military Review)

The comradeship between the services, the dogged endurance and the fighting courage shown during our period of adversity are needed just as much now that we are striving to defeat utterly the power of Germany.

—Admiral Sir Andrew Cunningham

sulphonamides in the control of disease, sulphaguanidine for bacillary dysentery, sulphadiazine for the control of acute upper respiratory diseases where it has been so effective against meningococcal infections and those of streptococcal origin, and sulphathiazole in the management of gonorrhea.

Variety of Diseases

Never in the history of war has the Medical Officer been faced with such a variety of diseases having such potentialities for epidemic spread than during the present war, and yet the incidence of disease has been sharply curtailed all along the line. Smallpox is gone, the typhoids are rare and at best sporadic dysentery is vanishing under rigid sanitation, while tetanus, gas gangrene and trench foot, scourges of the last war, are almost a memory. Under suppressive atebrine therapy, malaria is no longer a menace to combat troops, and no one questions the efficacy of yellow fever vaccine. With sickness casualties being reduced to extremely low levels, our troops have a tremendous advantage, and today the Canadian Armies Overseas are demonstrating the fighting efficiency of troops enjoying good health.

The indefatigable efforts of the RCAMC to inculcate and maintain the principles of preventive medicine in the army is bearing good fruit in the recognition and practice of these measures by all branches of the service, and when the full story is finally told, the effectiveness of these measures in the reduction of disease among the troops will constitute a very large contribution to the success of the campaign.

The new philosophy of military medicine may be condensed in a few words: the elimination of causes of disease and disabilities, the strengthening of the physical and mental resistance of the individual against health hazards that cannot be eliminated. This new conception of the role of medicine in the army and the application to the individual and to the groups in current life of the principles of preventive effort rather than exclusive concentration on curative or salvage technique has given undreamed of results in elimination of disease and epidemics and has saved untold numbers of human lives. The medical sciences are today giving the world the healthiest period it has ever known, and military medicine has contributed its full share in the great crusade for preventing disease, alleviating suffering and prolonging human life.

IS THE PITA ANY G

(ATM—Australia)

("PITA" is the Australian terminology for our PIAT.—Editor)

"Is the PITA any good?"

That is the sort of question one often hears raised. The soldier is apt to be rather conservative, and is chary of according a warm welcome to a new weapon. New weapons have, in the past, suffered from hasty mass production. Those days, however, are past, and the German war production has been outstripped. We now have time for quality as well as quantity, and we can confidently say: "Yes. The PITA is a good weapon."

Unfortunately that does not mean very much by itself.

The English longbow was credited to kill a man outright at 500 paces. That also was a good weapon.

But, be it added, it was a good weapon only when drawn by the skilled and expert archer, and when compared with the equivalent weapons of its day.

It's The Man That Counts

It is not easy to say how good or bad a weapon is, even by comparison. So much depends on the personal capabilities of the firer. The cold facts and figures of armour penetration, or of range or muzzle velocity of one weapon, may be set alongside those of another, and you still have only half the true story. It is the man behind the gun that counts the most. But, before we go any further or attempt to make any factual comparisons, let us summarize briefly the general features and capabilities of the PITA, in case any reader has never had the opportunity of firing one, or even of ever seeing one.

The PITA is the infantryman's personal tank attack weapon. It is also excellent for street fighting; it will knock holes in walls and houses and severely damage concrete pill boxes. Its main handicap is its range, which for accurate tank attack work is limited to 100 yards. This range limitation arises from the difficulty of hitting the target at any longer range, though, in fact, when fired at the required elevation the bomb will carry up to 350 yards. Its penetrative performance is independent of range, since the bomb functions on impact.

The PITA weighs 34 lbs. and fires a hollow charge explosive bomb of 2½ lbs. It is fired from the shoulder like an LMG, and can be carried by a single man.

Its penetration figures must, for obvious reasons, remain a secret, but one can safely say that under good conditions it can defeat about 3½ inches of the best armourplate.

On the whole, the performance of the PITA compares very favourably with its German and American counterparts. But it will be the man who fires it who makes it either a good or a very good weapon.

Spigot Method

The American Bazooka and the German weapons employ rocket propulsion, whereas the PITA uses the spigot method projection. Inside its tubular steel body is a large and heavy bolt, which, on being released by the action of the trigger, is driven forward under the 200 lb. thrust of an equally heavy spring. The long spigot, which is attached to the front of the bolt, enters the tail tube of the bomb and fires a small propellant charge. This drives the bomb off the spigot, and at the same time thrusts the spigot to the rear

just sufficiently to compress the spring and cock the weapon ready to fire the next shot.

The cartridge, which is located in the bomb at the front end of the bomb tail tube, is fired while the spigot is travelling forward and before the latter comes to rest. The forward momentum of the heavy spigot and strong spring, therefore, has to be reversed before any recoil effect can be transmitted to the firer's shoulder. The result, therefore, is a slow push and not a sudden blow.

To achieve their armour penetration the projectiles fired by all these weapons rely on the hollow charge principle—a method of obtaining maximum penetration by concentrating the normal blast effect of HE in one direction, whilst at the same time employing the minimum amount of explosive.

If you inspect the hole made by a PITA in the side of a tank, you may first be surprised by its small size and absence of any distortion of the plating surrounding it. It is usually so small that you can scarcely insert your finger through it. There is no large hole, such as you will get from the AP shot of a 6 pr or 17 pr.

You would make much the same sort of hole if you pushed your finger through a slap of soft butter. As with the butter, the metal of the plate is squeezed out to one side, and is not pushed through the hole which is made.

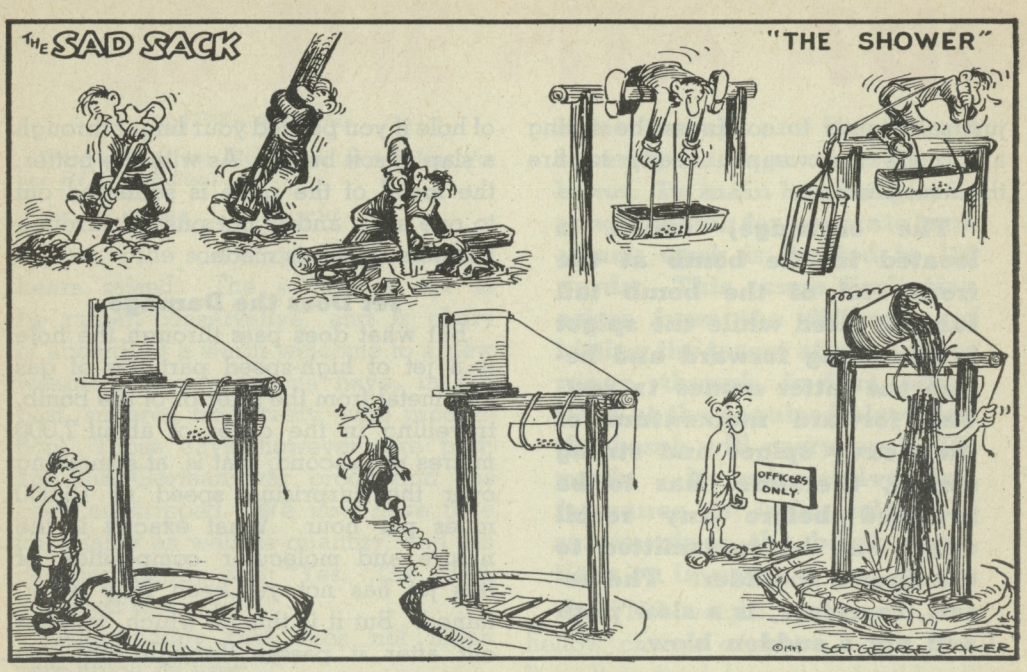
Jet Does the Damage

But what does pass through the hole is a jet of high-speed particles of gas and metal from the interior of the bomb, travelling in the order of about 7,000 metres per second, that is, at something over the surprising speed of 15,000 miles per hour. What exactly is the nature and molecular composition of this jet has not yet been fully determined. But it is this jet which, fanning out after it passes through the hole it has made, causes all the damage.

If a man's arm should happen to be in the path of the jet, he would lose it. His arm would be lopped clean off like a thistle top flicked off by a riding crop.

Even if the jet misses the occupants of the tank altogether, the concussion it sets up inside the tank is enough to kill or stun them.

Should the jet be fortunate enough to hit the ammunition in the racks, it will penetrate through the brass cartridge cases and set fire to the propellant in them. If that happens it is good-bye to the tank. It will simply blow up.



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GUNNERS, LOOK!

(ATM)

The following gunner lessons are the result of several interviews with French officers who lived with the Germans under our artillery fire during the early stages of the attacks in the Cherbourg Peninsula.

First.—The value of surprise fire is infinitely greater than that of any other type of fire.

Second.—A small number of rounds from a large number of guns is often more effective than sustained fire from a few.

Third.—Time - on - target shoots are particularly effective against personnel, especially at medium ranges or with high velocity guns. When such targets are being engaged, the use of a high charge greatly increases the element of surprise. After the arrival of the first rounds, casualties among personnel are few.

Fourth.—There is a tendency to burst time HE too high. The best effect is obtained if 50 per cent of the rounds are set to burst on graze, when most of the shells airburst at "roof top height."

Fifth.—Harassing fire tactics require study. It is evident that our methods are too rigid. The enemy studies them.

Sixth.—Constant observation from OPs must be maintained by the same men. Any movement, no matter how insignificant it may seem at the time, must be noted. The best available optical instruments must be used, and, whenever possible, scissors binoculars installed in the OP.

Seventh.—The camouflage of captured German positions must be studied, and observers taught what to look for.

Eighth.—One observer remarked on the number of casualties caused by observed fire, and the slight damage sometimes caused by concentrations. A proper balance must be struck between the value of the observed fire of a single unit, and the unobserved, concentrated fire of a large number of guns.

SOME ADMINISTRATIVE PROBLEMS

(Some administrative problems encountered during the advance of second army from Falaise to Brussels, 24 Aug to 3 Sep 44.—From Current Reports From Overseas.)

When an army advances more than 300 miles in 10 days, the administrative problems assume no ordinary size. Had the Germans managed to stage any form of resistance on the line of the River SEINE, the administrative situation would have been easier, since the pause would have given us the chance of building up some forward stocks. As it was, Second Army had to maintain two corps, both of which were advancing at an average of over 40 miles a day, from depots in the rear maintenance area.

The Army Commander decided to ground a third of his fighting strength in order to provide the extra transport required and, banking on the enemy being unable to take up a defensive position, he went all out to bring up petrol at the expense of ammunition and other stores.

Transport Problem

Transport was produced from all sources. The third corps of the army was grounded. Its second line and half its first line transport was used to maintain the other two corps. Reserve stocks in the rear maintenance area were big enough to make it possible to cut down, for a period, the daily intake of stores into the ports and on to the beaches to half the usual quantities. By this means much of the transport normally employed on beach and port clearance was made available for work on the lines of communication.

A bonus of a considerable number of captured enemy supply dumps might normally have been expected in a headlong advance of 300 miles through a country occupied by the Germans for four years. This bonus, however, was not forthcoming, due mainly, no doubt, to the accuracy of the Air Force in bombing railways, roads, and bridges (not a single bridge over the River SEINE was found intact), as well as to their many attacks on known enemy supply depots.

The distance between the forward troops and successive roadheads grew so rapidly that transport was extended to the limit. First line transport collected from the field maintenance areas, while second line transport worked from the army roadheads. Army transport, and any other vehicles available, carried stores forward from the rear maintenance area. The turn-around from the rear maintenance area to BRUSSELS took seven days. Tank transporters, each of which can take a 40-ton load, were used to bring up 25-pr ammunition.

Traffic Control

Traffic control became of the utmost importance in maintaining the steady flow of vehicles. Tank transporters are always a potential source of traffic congestion and the improvised bridges over the SEINE and other rivers further increased the difficulties.

As soon as suitable airfields became available in the more forward areas, petrol and ammunition were flown direct from GREAT BRITAIN, thereby easing, to some extent, the transport problem on the lines of communication.

In order to keep the Second Army going during this pursuit phase the services accomplished some amazing feats. RASC columns frequently covered over 200 miles in the 24 hours, and pioneer companies on several days handled over 17 tons per man, instead of five tons, which is the figure usually taken in calculating their working capacity.

AN ASSAULT CROSSING OF THE ANTWERP-TURNHOUT CANAL

(This narrative has been received from a staff officer of the division concerned. All formation numbers are fictitious.—Extracted From Current Reports From Overseas. See Maps 1 and 2 facing page 30).

OPENING SITUATION: Early on the morning of 24 Sep, the completion of a Class 40 bridge over the ALBERT CANAL North-East of LIERRE allowed 500 Inf Bde to pass through 501 Inf Bde, with the object of forcing a bridgehead over the ANTWERP-TURNHOUT CANAL in the neighbourhood of the demolished bridge north of OOSTMALLE. X Bn, the advanced guard of 500 Inf Bde, moved forward in motor transport along the LIERRE-OOSTMALLE road, preceded by elements of the reconnaissance regiment. By 1200 hrs B Coy, the leading company, was in contact with the enemy holding the area of the demolished bridge. The commanding officer then deployed his battalion astride the road to the North of OOSTMALLE.

RECONNAISSANCE: As soon as they were deployed, the forward companies sent out patrols to reconnoitre the canal from the Cement Factory to the demolished bridge. These patrols, together with information supplied by the reconnaissance regiment, showed the enemy holding small posts on the North bank of the canal. It had been originally intended to make the bridgehead in the neighbourhood of the demolished bridge and to build a bridge on its site. Ground reconnaissance, however, established the existence of another demolished bridge at the lock where the water gap was only 30 ft wide. The approach to this bridge from the South, although shown on all maps as unmetalled, was found to be a two-way concrete road.

It was therefore decided to force the bridgehead in the area of the lock. Moreover, the bend in the canal to the West of the lock would defilade the crossing from fire along the water's edge from at least one flank. The canal was between 50 ft and 80 ft wide, the banks were not more than 2 ft high, and, of course, there was no current.

The commanding officer gave out his orders at 1530 hrs, after which he went forward with members of his order group to an OP South of the lock. Company commanders then gave out their orders in time for platoon commanders to see the ground before dark.

PLAN: The crossing was to take place on a two company front, A Coy on the right and C Coy on the left, and their objectives are shown on Map 2. Ten Mark III assault boats had been allotted to the battalion, and the leading companies were given five each, with instructions to keep three in reserve. The commanding officer rules that both these companies would cross one platoon at a time in two assault boats.

The transport containing these assault boats was to be met and guided to an off-loading point by the pioneer platoon commander, and off-loading was to be completed by 2230 hrs. Boat carrying parties and ferrymen were to be provided by the carrier and anti-tank platoons, and the leading companies were to "marry up" with the boats in the assembly area at 2300 hrs. The pioneer platoon—less an assault section moving with each leading company—was to assist at the crossings. "H" hour was fixed for 2400 hrs, the time at which the first boats were to be launched. The moon was in the first quarter.

Company Objectives

Once A and C Coy had secured their objectives, D Coy was to cross and capture its objective. The crossing place to be used and the time of crossing were to be decided later by the commanding officer; the officer commanding D Coy was, therefore, to remain at the battalion command post until the decision had been made. On the way to its objective D Coy was to clear the houses just to the North of the lock, with a view to the battalion command post being established in them later. Once surprise was lost, B Coy near the demolished bridge was to fire its Brens on fixed lines across the canal at German posts on its front.

Covering fire across the canal was to be provided by the leading companies on their own fronts, while the carrier platoon was to find the left flank protection. About 2,000 yds away on the right flank another battalion was to carry out a diversionary crossing. Two field regiments and one medium regiment were in support of "X" Bn, and DF tasks were allotted to them as well as to the 3-in mortar platoon. Personnel to control the mortar fire moved with each leading company, and code names enabled company commanders to call for the artillery DF tasks by 18 set. A FOO went with D Coy and his 22 set had to be manhandled.

RE close reconnaissance of the bridge site was to begin at "H" hour, but the construction of the bridge was not to be started until ordered by the battalion commander. The transport priority across the bridge was to be:

The vehicles of battalion tactical headquarters.
The anti-tank platoon.
The FOO's vehicle.
The company jeeps—carrying breakfasts—and the company carriers—carrying reserve ammunition.
The balance of the transport of the assaulting companies.

The anti-tank platoon commander was to be responsible for controlling the traffic over the bridge. No rafts were available for rafting vehicles across the canal.

THE CROSSING: The crossing was carried out in appalling weather conditions — driving rain throughout a pitch black night. However, these very conditions may well have aided the operation. Surprise was obtained at both crossings, and all objectives had been captured by 0415 hrs on 25 Sep.

Moved Forward

As each platoon of the leading companies concentrated on the far bank, it moved forward to its objective. It took under an hour for C Coy to cross the canal, and two hours after "H" hour both A Coy and C Coy were on their objectives. A Coy had experienced slight opposition, and one of its platoons had been delayed by mines. One platoon of C Coy was fired on while it was crossing. The darkness prevented either side from locating the other, and it was not until first light

that any real fighting took place, when nearly 100 Germans were eventually taken prisoner.

The commanding officer ordered D Coy to start crossing at C Coy's crossing place at 0225 hrs, and about an hour later he told the field company commander that he could begin to build the bridge. The rollers were placed at 0415 hrs and construction started at 0445 hrs.

The bridge was a 30-ft single-girder single - storey Bailey with additional panels instead of end posts, and with two 10-ft ramps. It was completed and decked down by 0600 hrs, but the commanding officer held back the vehicles until 0645 hrs, by which time he considered the situation warranted their crossing.

A girl employed in the engineering shops near the lock had reported early on the afternoon of 24 Sep that mines had been laid in the area of the lock. Patrols, however, had failed to find any. At "H" hour a detachment of the field company went forward to the lock to clear any mines discovered. It was hindered by the darkness of the night, and the covering fire provided by Brens of A Coy and C Coy gave it some anxious moments! Twelve Picric Pots mines were found in the pavé to the East of the lock. Later on, the reconnaissance preparatory to building the bridge was complicated by the party finding a number of loose wires. They were suspected to be trip wires, but, in fact, proved to be harmless.

DF Tasks

Only three artillery DF tasks were called for up to 0900 hrs on 25 Sep. The FOO's 22 set slipped into the water during the crossing in the assault boat, but though it was partially submerged, it still continued to work quite efficiently. Over on the right flank, the diversionary attack met strong opposition and had to be called off.

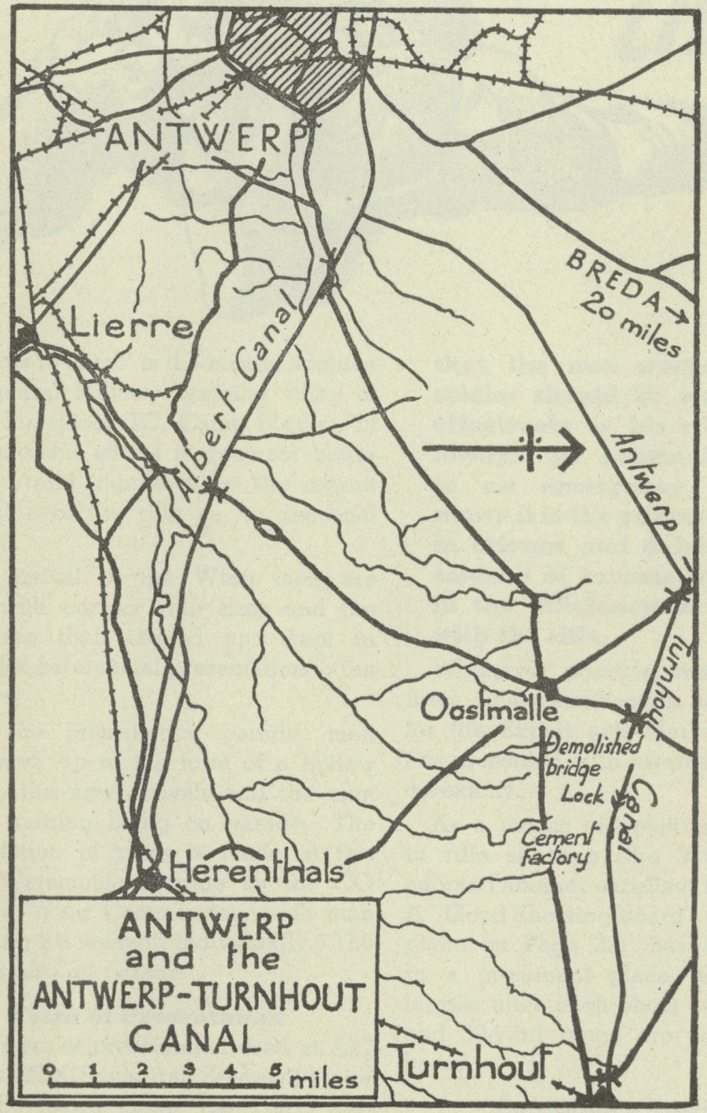
NOTES: (a) This operation appears to have had the advantage of simplicity and, assisted by the darkness of the night and the bad weather, went smoothly and according to plan. Though not excessive, sufficient time was given for a reconnaissance to be made, and this factor contributed substantially to the success of the operation. It is, however, not clear from the narrative whether the canal was crossed by patrols before the attack and reconnaissance carried out on the far bank. (b) The bridge was constructed very expeditiously, but 0645 hrs was a late hour to start getting the supporting weapons across.

BASIC TRAINING

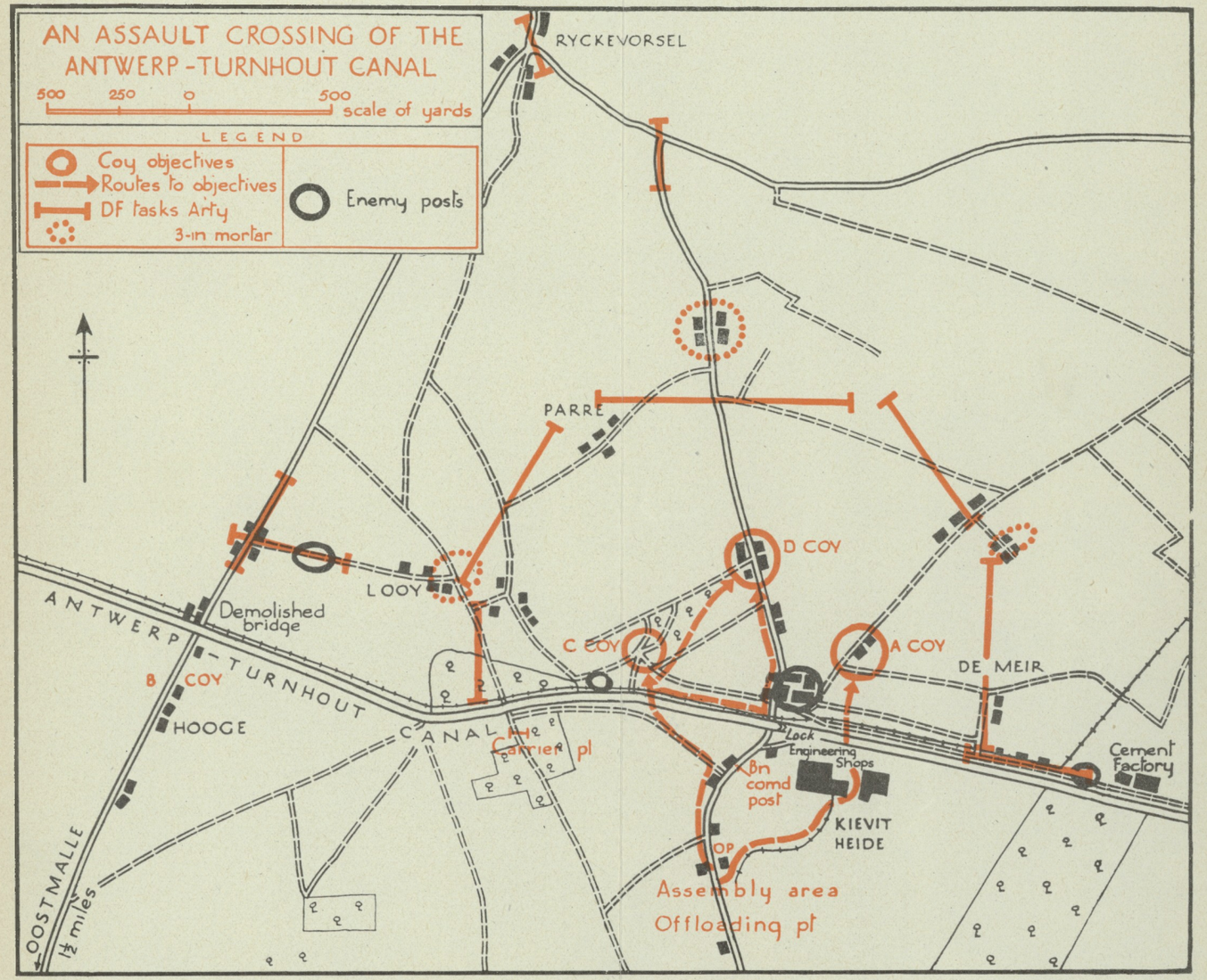
(Progress Bulletin—Infantry)

An officer back from France writes as follows: "If I may express a general opinion on the tactics employed and the fighting in general in France I would say that the basic training of our army is absolutely first class and the morale of the British soldier is of the highest order.

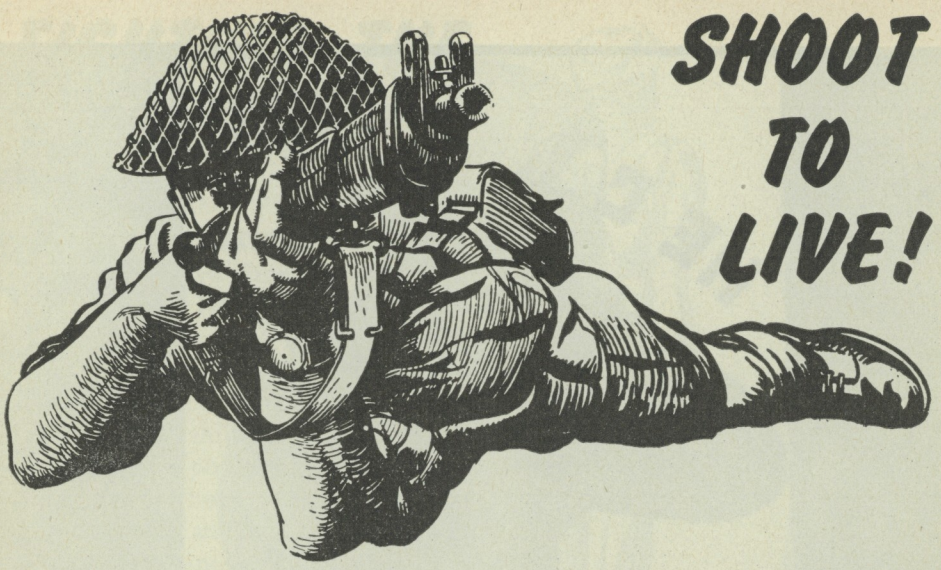
"Writing as a battle school instructor at my Divisional School previous to 'D' Day I consider that the training we underwent proved of the highest value to us in action".


ANTWERP
Lierre
Albert Canal
BREDA
20 miles
Antwerp
Turnhout Canal
Oostmalle
Demolished bridge
Lock
Cement Factory
Herenthals
Turnhout
ANTWERP and the ANTWERP-TURNHOUT CANAL
0 1 2 3 4 5 miles

MAP 1


AN ASSAULT CROSSING OF THE ANTWERP-TURNHOUT CANAL
500 250 0 500 scale of yards
LEGEND
Coy objectives
Routes to objectives
DF tasks Arty
3-in mortar
Enemy posts
RYCKEVORSEL
PARRE
LOOY
Demolished bridge
D COY
C COY
A COY
DE MEIR
ANTWERP - TURNHOUT CANAL
B COY
HOOGE
Carrier pl
Lock Engineering Shops
Bn comd post
KIEVIT HEIDE
Cement Factory
OP
Assembly area
Offloading pt
OOSTMALLE
1½ miles

MAP 2



SHOOT TO LIVE!

"Shoot to Live!" is the maxim adopted by General Military Training Wing of A27, Cdn Recce TC, Camp Borden, in its successful efforts to promote better shooting and impress upon the recruit the value of the rifle as his personal weapon.

On arrival at the Wing men are fitted with correct rifle sizes and the rifles are then tagged and kept in stores for ceremonial presentation to the soldiers.

For the presentation parade, men are drawn up in the form of a hollow square, the new arrivals and the men under training being on parade. The presentation of rifles is made at this Wing Ceremonial Parade by the CO and the Wing Commander, each man receiving his weapon individually. The band is also on parade.

Form of Presentation

The form of presentation used at A27 follows: The Squadron Sergeant-Major calls the man's name; the Troop Sergeant then picks the rifle from the table and hands it to the Squadron Leader, who passes it to the Wing Commander. The latter hands it to the man.

In the short speech at the presentation, the men are told that the one weapon every soldier should be able to use effectively is his rifle. It is always his personal weapon in an emergency, and for many it is the primary weapon in offence and defence. The essence of success in war lies in the efficiency of the man with the rifle.

Whenever possible, men who have fired rifle classification and qualified for the Expert and Marksman badges are presented with awards at the same ceremony.

As a means of creating competition in rifle shooting, the Wing has also adopted another excellent training idea. A "Good Shooting Board" (shown in the photo on Page 32) has been placed in a prominent place, and the best targets after each shoot on the 25-yard and 30-yard range are posted on this board.

Confidence Instilled

The Wing has posted the German Figure Target No. 1 on the "Good Shooting Board" with the inscription—"He Can Shoot—So Can We." In this way confidence in his shooting is instilled in the man.

"Good Shooting Board" built by A27

FIGHTING THE JAPANESE

(Extracts from Current Reports from Overseas)

JAPANESE INSTRUCTIONS FOR RECCE: Observe from depressions, not elevations. Never look over such objects as stones, tree trunks, bushes, hedges, or fences; always observe from the side—and be sure to choose the shaded side—or through cracks or gaps. Often the prone position is your greatest safeguard. When observing from houses, do not stand directly in front of a window; stand further back in the room. Take the same kind of precaution when you are observing from the edge of a wood. Your head should never be exposed against a light background. When you are observing, never betray your presence by restless and unnecessary movement.

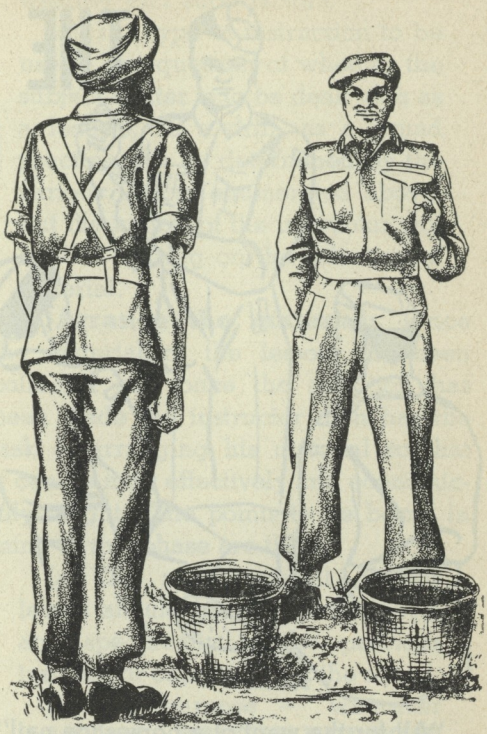
Avoid Roads, Paths

Avoid roads and paths, even at night. Instead, choose such natural depressions as roadside ditches. Do not cross fields and clearings. Move only on the shaded side of boulders, trees, ravines and such like. When you rest, lie down beside a fallen tree. Stoop low when passing through waist high undergrowth, and crawl through still lower growth. When you are creeping forward in any kind of wooded or partly wooded ground, camouflage yourself still further by holding branches in front of you.

JAPANESE PRISONERS: The difficulty of taking Japanese prisoners is well known. They normally prefer to be killed or to kill themselves, rather than be captured. The Intelligence Staffs of formations greedily await the arrival of a prisoner, even half dead, in our prisoners of war cages.

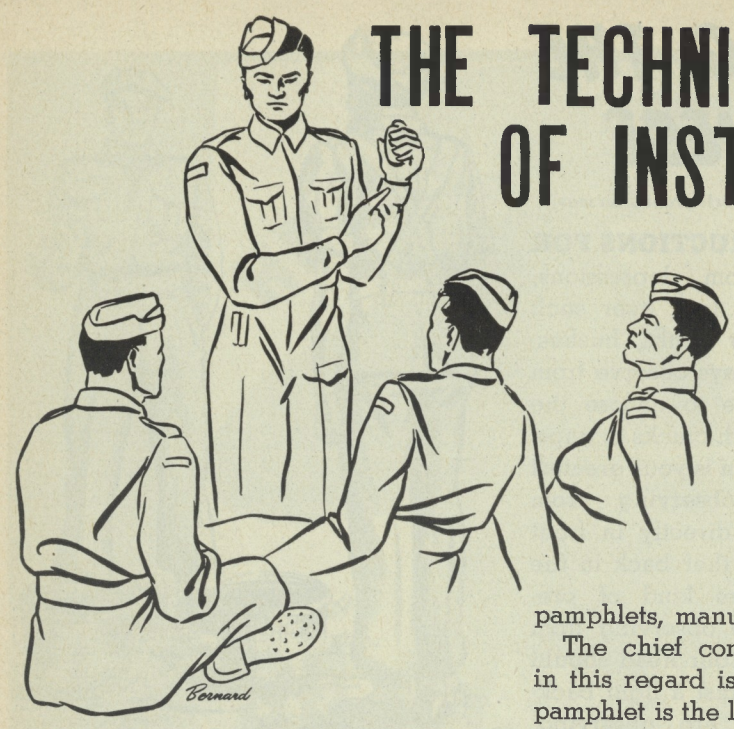
Off With Their Heads

In the ARAKAN at the beginning of last December, a Gurkha patrol came upon three Japs peacefully fishing. There was no British officer present, and it was only a matter of seconds before the three Jap heads were whipped off from their bodies and arranged tastefully in their own fishing baskets and presented in this state to the divisional commander who happened to be at brigade headquarters. The neatness, workmanship and artistic effect turned aside the general's wrath, but the Intelligence Staff remained hungry.



JAPANESE PROPAGANDA: The Japs make frequent attempts to win over our troops to their side. They use JIFC (Japanese - Inspired Fifth Column)—i.e. late members of the Indian Army who were captured during the early stages of the war—to appeal to Indian troops to forsake us and join them. These people can often be heard shouting out to our troops, making the night hideous, and attacks on several occasions began with a vocal effort of this sort.

THE TECHNIQUE OF INSTRUCTION



"All for the want of a horseshoe nail" is the key line of the classic English tragedy based on the theme of lack of preparation. In a very real and vital sense a battle may be lost tomorrow by reason of the sins of omission of today. Similarly, in the more prosaic field of instruction a great deal of efficiency may be sacrificed by lack of preparation.

Careful and adequate preparation, on the other hand, pays at least three dividends:

1. **It makes for efficiency of instruction.**
2. **It lends confidence to the instructor.**
3. **It commands the respect of the squad or class.**

To the end that your preparation may be both careful and adequate it is well to have at your command a "drill" or technique that will insure you against oversights and omissions. The following four steps in the sequence of preparation have been found useful in practice.

1. Collect the material of the lesson: This step implies two kinds of material, namely, the subject matter of the lesson and the necessary physical equipment in the way of stores, location, training aids, etc. Insofar as the subject matter of the lesson is concerned it will largely be found in the pamphlets, manuals and texts available.

The chief concern of the instructor in this regard is to make sure that the pamphlet is the latest available and that it is amended up to date. The more experienced instructor will also see what supplementary material is available to widen his background. CATMs, Notes From Theatres of Operations and similar publications offer a generous source of supply for such supplementary material.

Routine Check

The second phase of the "collection" stage is in most cases simply a routine check to see that the place selected for the lesson, be it area, lecture hall, parade ground or what-have-you, will be available for your squad at the appropriate time. The supply of requisite stores such as weapons, ammunition and training stores as called for in the manuals and pamphlets is another matter that comes within the purview of the chief instructor, the training adjutant or sergeant-major, but the wise instructor will check with the responsible officer or NCO to make sure that the required stores will be available.

The matter of training aids is one, however, which leaves considerable scope for the imagination and initiative of the

individual instructor. A survey of what training aids in the way of diagrams, wall charts, models, film strips, films are available should be a regular part of each instructor's preparation. Too often valuable training aids are left unused to collect dust in the QM or technical stores.

2. Select the material for one lesson: In many cases the selection of material to be taught has already been done in the pamphlet or by the chief instructor. In other cases, however, the instructor will be faced with an "embarrassment of riches" which will necessitate his making a selection. In making his selection, the instructor will have to take into consideration many factors. Among these he would do well to consider:

(a) The background of training and the level of intelligence of the class: Obviously the wider the background of training and the higher the level of intelligence the greater will be the amount of material that can be taught in a given period of time.

Vital Concern

(b) The time element: This is usually a matter of vital concern since the bulk of instruction is done and has to be done under pressure of time. The essential thing for the instructor to bear in mind is the necessity of making the time allowance for class practice or class application as generous as possible since we learn largely by **DOING** and **NOT** by hearing or seeing.

(c) The physical setup: This consideration will take into account such elements as the size of the class, the area to be used, the weather and such factors.

(d) The type of instruction to be used: The question of whether the subject matter is to be dealt with as a lecture, as a drill, as a squad practice will be determined by the various factors enumerated above, but the nature of the instructor will have a bearing on the selection of material.

3. Arrange the material: Once the material of the lesson has been collected and once the selection has been made the instructor then has the task of arranging his material so that it can be most effectively and economically taught. The points to be borne in mind in this phase are three:

(a) The new material of this lesson should be related definitely and specifically to the previous training or experience of the squad.

(b) The purpose — wherever possible, the **BATTLE PURPOSE** —of this lesson should be made explicit.

(c) A logical systematic sequence: Normally, this sequence will be **Explanation, Demonstration, Application** and **Practice,** but the order here may be altered on certain phases combined according to the nature of the subject.

From these various considerations will emerge a plan.

4. Master material: This mastery of subject matter is the final and conclusive step in the preparatory stage of instruction and upon it hinges the value of all the other phases. It is a truism that no one can teach what he himself does not know, and a complete knowledge of subject matter is fundamental to all instruction.

ENEMY WEAPONS

GLASS BOTTLE MINE

(From Tactical and Technical Trends, U.S. Intelligence Service)

German glass bottle mines resembling quart milk bottles, filled with a plastic explosive Gelatine-Donarit 1, and a PETN granular booster charge have been found in France. Two types of aluminum caps are furnished with this mine: one is used with mechanical firing devices; the other, with the standard electric detonator Gluhzunder 28. Called Eisminen by the Germans, they are used either by themselves or encased in concrete blocks which, when set in the ground upside down and partially exposed, resemble some sort of marker. (See sketch page 37).

Firing Devices

These concrete block mines fitted with pull firing devices were wired on brackets near the top of anti-glider poles in the fields between Fecamp and Le Havre. Pull wires radiated to six other poles set in a circle around the mined pole. The mines cannot reliably be detected, since the only metal parts are those in the firing devices.

Glass-and-Paper Mine

(From Tactical and Technical Trends, U.S. Intelligence Service)

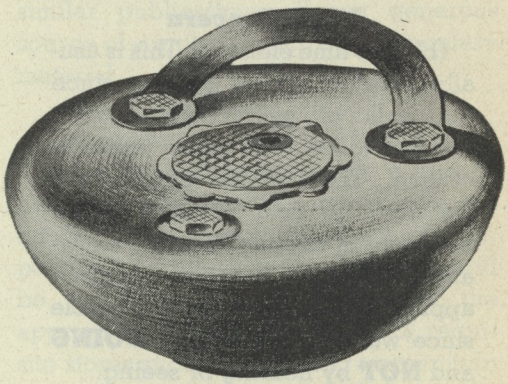
Early in the war German efforts to produce mines that could not be picked by the Allies' electronic mine detectors resulted in a variety of wooden-box mines. Most of these, however, contained enough metal parts in the fittings and fuzes to give a reaction in a standard detector.

A more recent trend, to eliminate this reaction and to foil detection, has been toward the construction of mines made of concrete, glass, bakelite and paper—and in one instance a mine constructed entirely of non-metal parts, the glass-and-paper AT Topf mine.

Pressed TNT

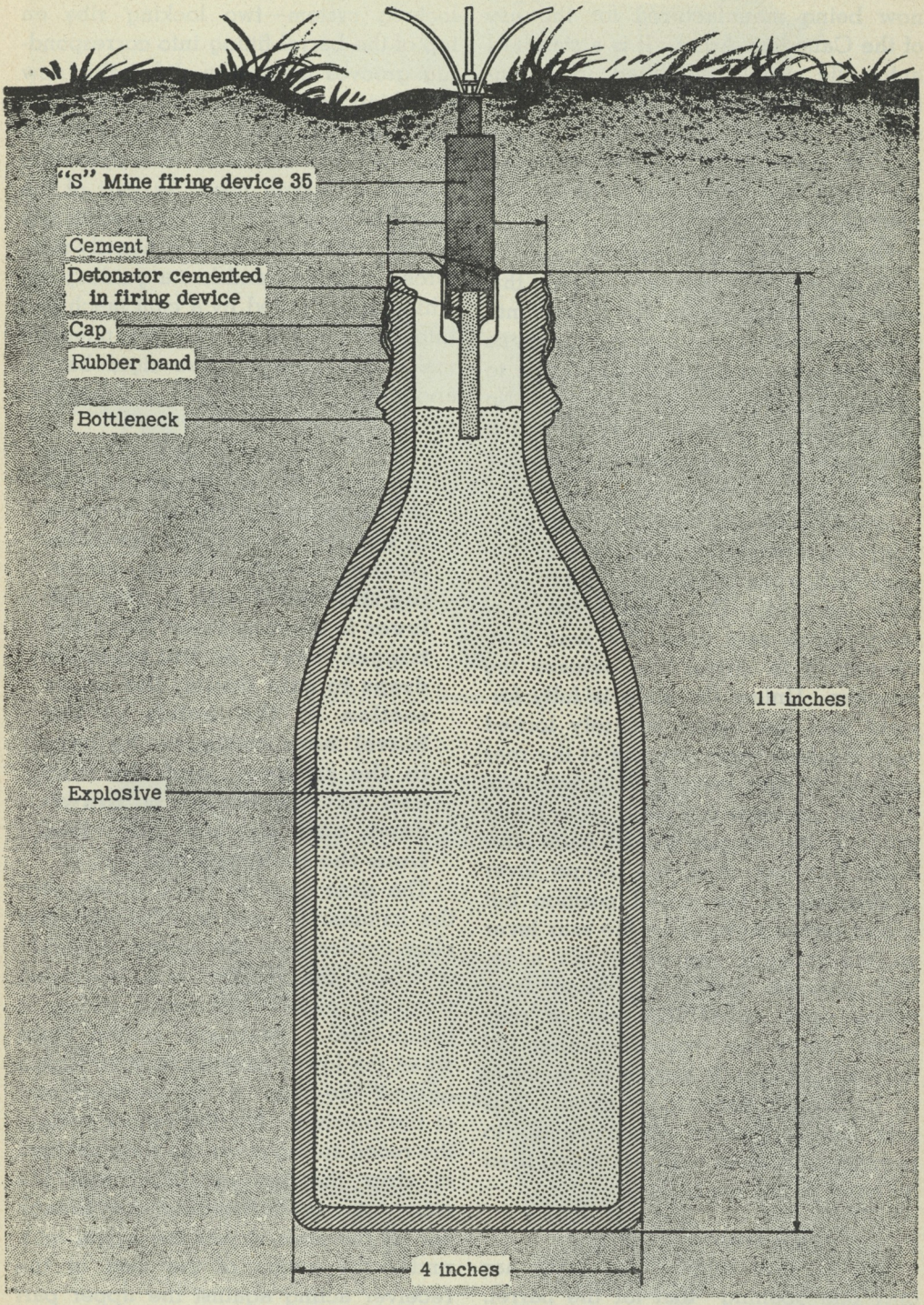
Produced and used in France by the Germans, the Topf mine has a circular casing 13¼ inches high made of 1-inch impregnated paper. It has a black-tar finish which resembles asphalt. Weighing an estimated 20 pounds, the Topf mine is reported to contain a filling of 11 pounds of pressed TNT.

A black leather carrying handle is attached to the under side of the mine body by two glass hex-headed bolts. A glass cover on the same side has a bakelite insert which is drilled and tapped—obviously a fitting for anti-lifting devices. (A Z.Z. 42 firing device fits this socket.)



The German paper-and-glass Topf mine.

A glass pressure plate 6⅛ inches is raised ¾ of an inch above the body of the mine. This plate should not be removed until the type of fuze is determined and the mine should not be subjected to shock. Before removal the mine should be checked for an anti-lifting device.



German glass bottle mine found in France.

NEW BROWNING PISTOL FOR THE ARMY

The new Browning 9-mm pistol is now being manufactured for the use of the Canadian Army. It is a standard automatic pistol, simplified in manufacture and operation and incorporating several notable improvements. The regular model is 7.34 in. long overall and has a total barrel length of 4.64 in. (See photos page 39).

The weapon is provided with a positive hammer safety. When this safety is forced up by the thumb into the notch in the slide, a projection on its lower side fits at the rear of the sear to prevent the release of the hammer. No safety grip is provided, as it is felt that this is not an essential on a military pistol.

Instead of the old stirrup-type trigger, this pistol is fitted with a comfortable trigger which, when pressed, forces a trigger lever upward. This rotates the sear lever which acts upon the sear arm, causing it to swivel and release the hammer. Unless the slide is fully forward and the barrel securely locked to it, the sear lever remains at the rear and the trigger lever cannot act upon it. This prevents the pistol from being fired. If the trigger is held back after a shot has been fired, the trigger lever is retained in the raised position but is also forced forward by the sear lever on the forward motion of the slide. This prevents the trigger lever from acting upon either the sear or sear lever, hence the hammer cannot fall until the trigger is permitted to move to its normal forward position. This acts as a positive disconnector to prevent more than one shot being fired for each pull of the trigger.

An Improvement

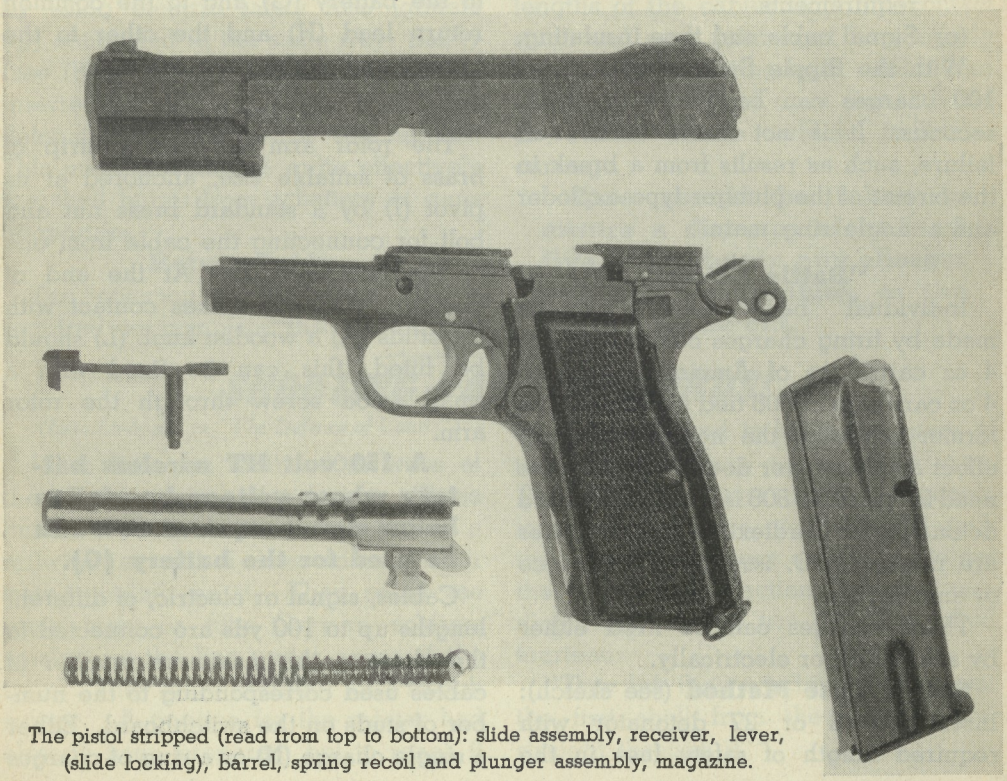
The forward end of the slide has only one opening—that for the barrel. The front of the slide below the barrel muzzle is solid, doing away with the weak barrel bushing of previous models.

While retaining the basic Browning locking system—two locking ribs on top of the barrel fitting into corresponding grooves inside the slide—this new Browning does away with the swinging link and pin used in the American Service .45 automatic and provides instead a "barrel nose" as part of the barrel forging itself. This barrel nose is placed directly below the heavily-reinforced chamber, and has a guiding slot which is controlled by a cam machined into the receiver. This arrangement makes for a much more rigid barrel, and permits simplification of the recoil spring system.

At the moment of discharge the barrel is locked securely to the slide as the top ribs engage in the locking slots in the slide. As the slide starts back, carrying the barrel with it, the sear lever is disconnected from the trigger lever. As the pressure drops to safe limits, the lower section of the notch of the barrel nose contacts the cam in the receiver, and the rear end of the barrel is drawn down until the ribs are free from the locking slots.

The slide goes on back, riding over the hammer to cock it. The extractor claw carries back the empty case until it strikes the ejector and is hurled from the pistol. The recoil spring is compressed. Rearward motion stops when the lower part of the slide strikes against the stop at the forward end of the receiver. For the return motion, the recoil spring starts the slide forward to strip the top cartridge from the mag into the chamber; the breach end of the slide strikes the barrel and, under the action of the cam in the receiver acting against the upper part of the barrel nose notch, the barrel is brought up into the locking position, its ribs locked into the slide.

The Browning 9-mm pistol and holster.



The pistol stripped (read from top to bottom): slide assembly, receiver, lever, (slide locking), barrel, spring recoil and plunger assembly, magazine.

FIRE REPRESENTATION FOR DEMONSTRATIONS

(Progress Bulletin—Infantry)

Realism is an essential in the training of rfts for overseas, and in demonstrations must be achieved by the use of effective expedients representing fire.

The firing of charges by the "Ripple Switch" method is the best means of reproducing "battle noises" on a realistic scale. (See sketch page 41).

The Ripple Switch method can be quite easily improvised in any unit.

Materials Required

The materials required are:

(a) A switchboard with a contact arm, a number of contact studs arranged in a semi-circle, a corresponding number of terminals and two extra terminals for the pivot of the contact arm and a Common Return cable.

(b) A 150-volt H.T. battery whose voltage has fallen below signal requirements.

(c) Signal cable and tape insulating.

With the Ripple Switch, upwards of 100 charges can be detonated in 30 seconds. It is not liable to over-all failure, such as results from a break in the circuit of the plunger type exploder and a single ring main.

"Battle Noises"

Individual "battle noises" can be made by firing charges comprising two 4 oz cartridges of Ammonal and one 4 oz cartridge of 808 tied together. The former produces the necessary smoke effect and the latter does away with the need for primers; 808 is fired by standard detonators or Cordtex. All these stores are normal W.D. issue from ordnance or amn depots.

These charges can be fired either by safety fuse or electrically.

Safety Fuse Method (see sketch): Insert No. 8 or 27 detonator with required length of safety fuse in the 808 cartridge light fuse and throw charge to safe distance.

Electrical Method: A multiple circuit consisting of a "Ripple" switch (Fig. 1) necessary cable and electrical safety fuse igniters or electric detonators has proved the most satisfactory.

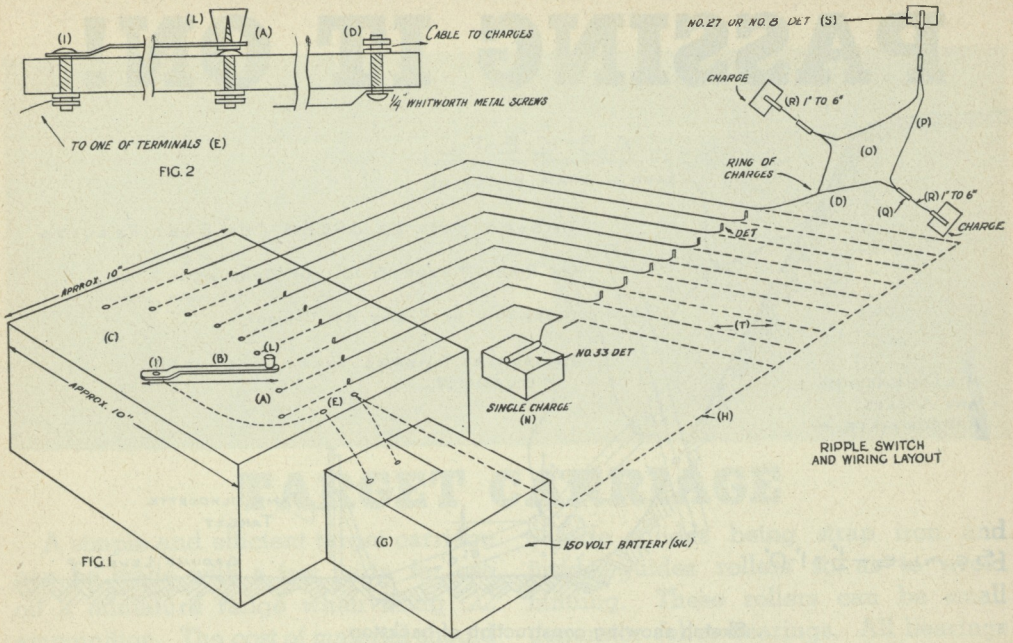
Once again the stores are normal issue except the "Ripple" switch. This can quite easily be made up in the unit. It consists of a switchboard with a number of contact studs (A) arranged in a semi-circle over which a contact arm (B) can be moved. The base of the switchboard (C) can be made from plywood or any other insulating material. The contact studs may be standard round head screws with nuts to fasten to the base and (Fig 2) for connecting wires to the circuit terminals (D). These terminals may again be standard screws as before; there will be one terminal for each contact stud. In addition two further terminals (E) are required, one of which is connected to the battery (G) and to the common return lead (H) and the other to the battery and to the rotor arm (B).

Rotor Arm

The rotor arm may be a strip of brass of suitable size, anchored at its pivot (I) by a standard brass nut and bolt for connecting the cable from one of the terminals (E). At the end of the arm, where it makes contact with the studs (A) a wooden knob (L) should be fitted, this can be fixed with a small wood screw through the rotor arm.

A 150 volt HT wireless battery whose voltage has fallen below signal requirements can be used for the battery (G).

Cables, signal or electric, of different lengths up to 100 yds are connected to the charges, the maximum number of cables used corresponding to the number of studs on the switchboard. Either a single charge (N) or a ring of charges



(O) may be attached to each cable. The charges on each ring can be fired simultaneously if electrical detonators are used, the detonators being linked together by lengths of wire (P).

A better effect is obtained, however, by using electric safety fuse igniters (Q) connected in the same way. Safety fuse (R) of varying lengths up to 6" is inserted between a number 8 or 27(S) detonator in charge of the igniter. This method simulates quite effectively the shell bursts from a battery of guns or mortars.

Return Cable

The common return cable (H) is required to complete the circuit and this must be equal in length to the longest cable to the individual charges. Links of cable (T) must be joined at suitable intervals in the common return to make contact with the charges. These intervals will correspond to the lengths of the cables from the contact studs and each joint must be properly bound with insulating tape. All cables can then be wound on a signal cable or similar drum which facilitates carriage.

Care should be taken to ensure a distance of at least five feet between any charges and the firing cables, or the latter may be cut.

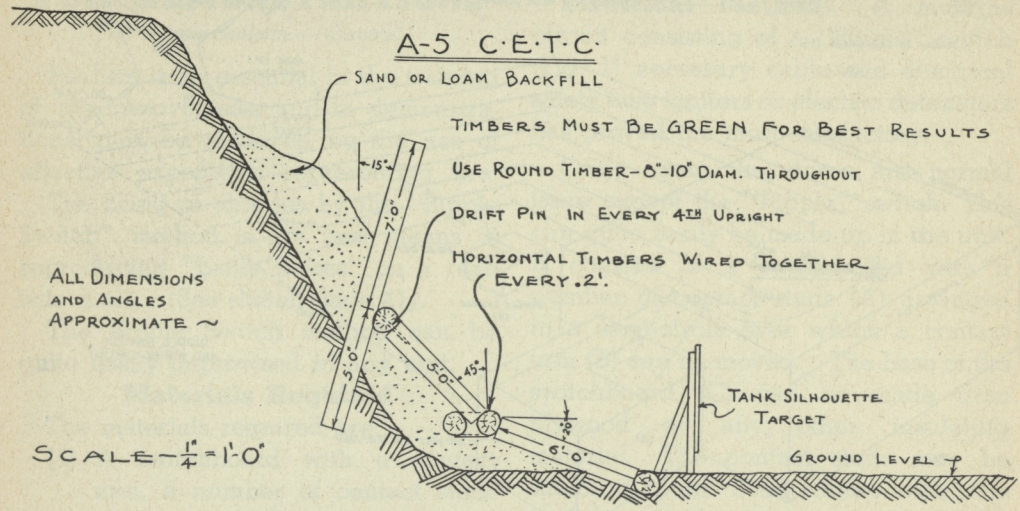
SHOOTING PAYS DIVIDENDS!

(Eric Linklater in "The Defence of Calais")

"Two Riflemen of the 60th were at the upper window of a house. Three hundred yards in front of them was a railway line with a deserted passenger train standing on it. They could see some forty or fifty German soldiers coming up the line under cover of the train. They were bringing up a trench mortar. A position for the mortar had already been prepared, but to reach it the Germans had to leave the cover of the train and cross a twenty-yard gap. The Riflemen were both marksmen, former competitors at Bisley. It took the Germans an hour and a half to get their mortar into action, and in those ninety minutes the two Riflemen killed fourteen.

"They left their window just in time: the first shell from the mortar went straight through it."

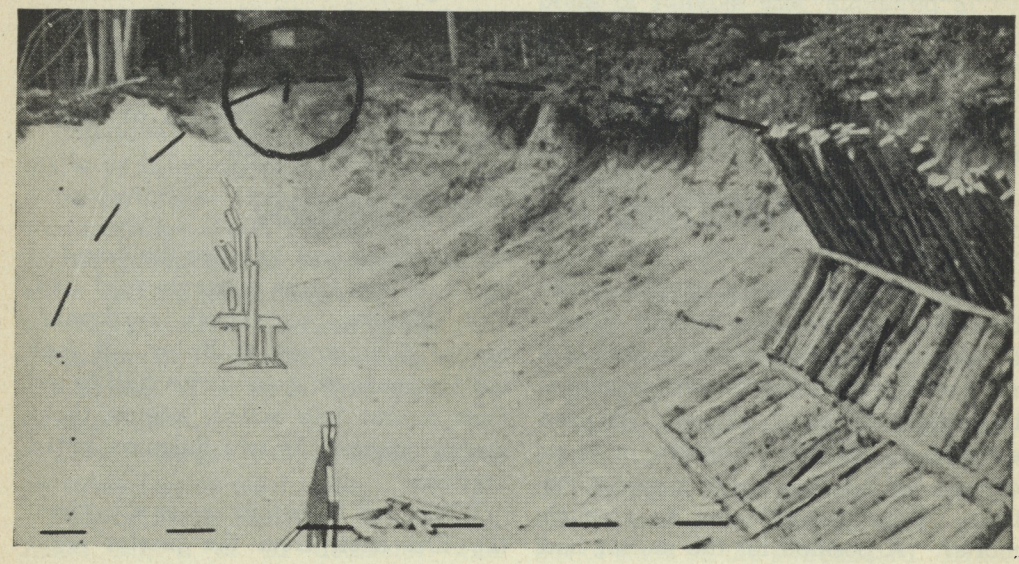
PASSING IT ON!



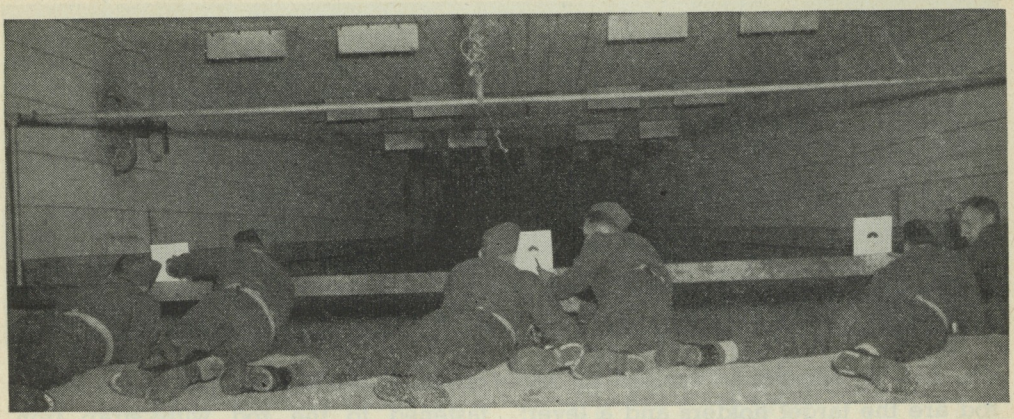
Sketch showing construction of backstop.

PIAT Range Backstop

Recovery of PIAT shot (practice) was a problem at Petawawa Military Camp until engineers at A5 CETC constructed an effective backstop of logs which not only stops the shot but ricochets it back in front of the target. (See photo.) The backstop is built of green timbers placed at an angle against a sand fill. This absorbs some energy and deflects the slowed-down shot in three stages as it hits the logs set at three different angles. The last ricochet slows down the shot sufficiently to cause it to turn end over end as it is thrown 12 to 15 feet in the air; it falls about the same distance in front of the target. Low rounds are stopped by the log base of the backstop. Centres experiencing difficulty in shot recovery will find this idea well worthwhile.



Shot (in circle) ricocheting back in front of target after striking backstop



TARGET CARRIAGE

A simple and efficient target carriage can be made with a few parts, for use on a miniature range when firing .22 ammunition. The cost of material should not exceed $50. It is a time-saving device and it eliminates danger, according to No. 60 C.I. (B) T.C., Yarmouth, N.S., which has constructed the carriage. (See plan facing page 44).

During the practice of "Application of Fire" the targets can be brought up to the firing point so that each individual's target is directly in front of him. The instructor can also see the target and assist the man in making corrections, if necessary. It also embodies a device which makes the targets appear and disappear, which is necessary during a snap shooting practice. (See photos).

Can Be Removed

Should it be necessary to fire .303 ball or other high-powered ammunition, the carriage can quickly be removed and replaced.

On each side of the range there is a wooden bed 2" x 4" and a 1½" x 1" track nailed on the 2" face of the 2" x 4" with the 1" face uppermost.

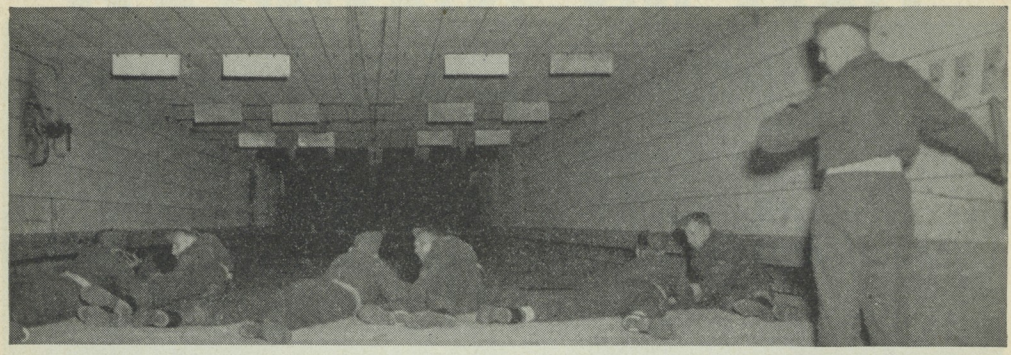
Wooden plugs were driven tightly into the centre four automobile rear axle bearings. These bearings were placed in a slot cut in a one-inch pipe and a guide on each side of the bearings to keep the bearings on the track, the outside guides being strap iron and inside guides rollers so as to avoid binding. These rollers can be small generator roller bearings. All bearings are used auto parts.

These pipes with the bearings are connected with four "T" fittings and two elbows to a one inch pipe, which is about the width of the range. Two ¾" upright pipes connected to the "T" on the sides of the carriage next to the wall are for required height and a ¾-inch pipe is connected to the ends of these, and now the carriage is formed.

Three Pulleys

A cord running on three pulleys and a wheel is fastened to the centre of the top pipe to pull the carriage back and forth. One pulley is at the butts in the centre of the range, the two pulleys and the wheel are behind the sounds in the centre of the range. The three pulleys are fastened near the ceiling. The pulleys can be water pump pulleys taken from a car, the wheel is a tricycle wheel, with the crank lengthened to give more leverage. With the cord running on these pulleys and wheel, the carriage can now be run back and forth by turning the crank in the desired direction.

For the device to make the targets appear, a ½ inch steel rod is fastened directly behind the lower one-inch pipe and held there by bearings which allow



the rod to revolve. Fastened to the rod are the target holders and a lever; to the lever is fastened an upright rod; when this rod is pushed down the lever is likewise pushed down, thereby rotating the rod and target holders a quarter of a turn. Thus the targets, making a quarter of a turn, disappear.

Firing Point Lever

A lever at the firing point operates a lever at the butts which pushes the rod down to make the targets disappear.

The target holders are made of one-inch angle iron; this angle iron is fastened to the rod with strap iron. The targets are held inside the angle iron by springs.

A steel plate ½" by 4" is welded to the front of the 1" pipe, affording protection to the pipe and target holders against shots fired too low.

Bumpers fastened at each end of the tracks stop the carriage from going too far. Guy wires with turn-buckles are fastened to the pipe near the bearings, and the ¾" pipe, to stiffen the carriage. This carriage runs easily and without much noise.

A FEW MORE "WRINKLES"

A2 CATC, Petawawa, Ont., has developed several little "wrinkles" to assist in training.

Wrinkle No. 1: Every A/1 wears a pin with his rank and name over his left breast pocket, as shown in the diagram.

CPL. SMITH

Result: This identifies the instructor to the trainees and also to visiting personnel. Everyone gets to know the instructor **by name.**

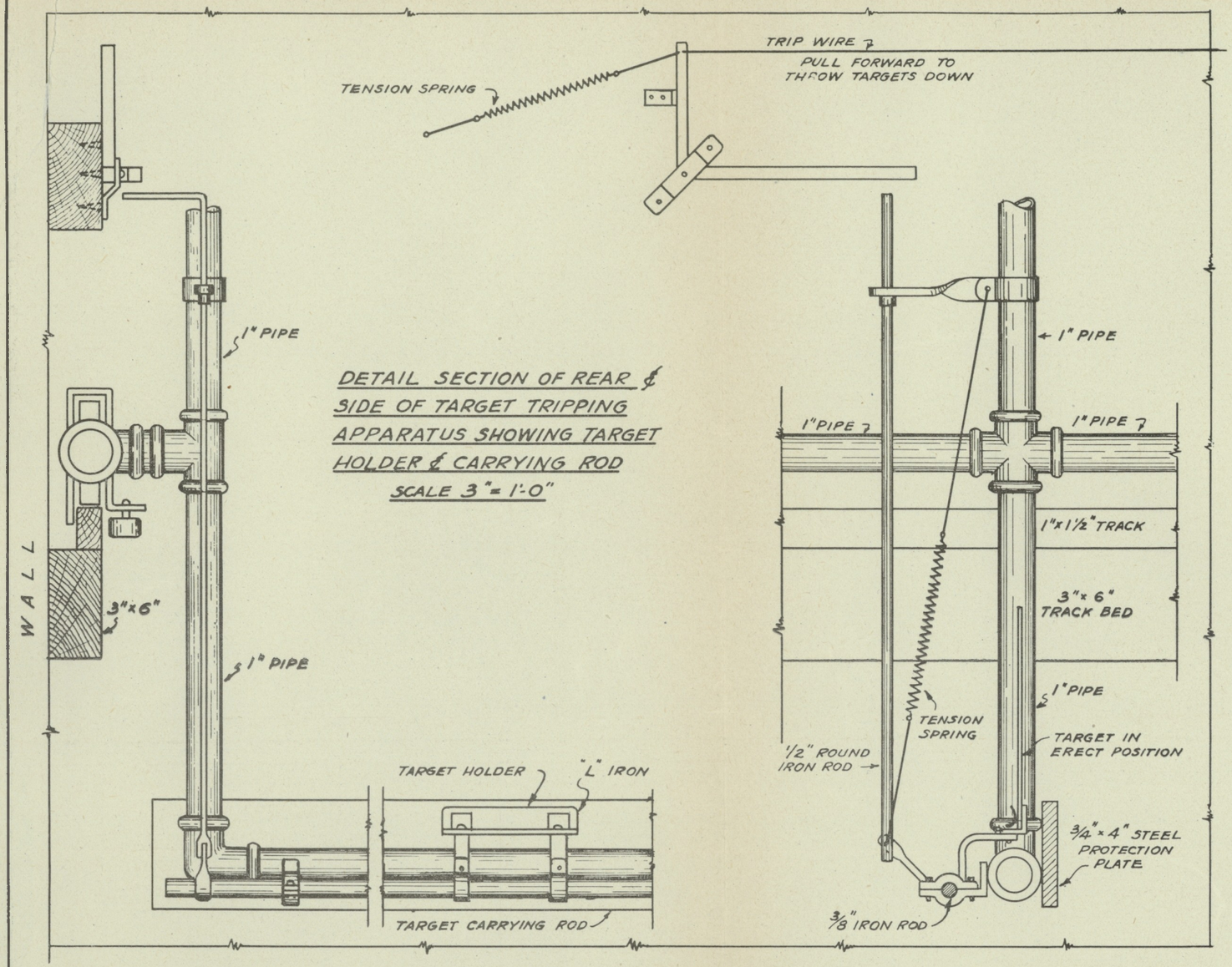
Wrinkle No. 2: At the entrance to each classroom a blackboard shows what sub-unit is taking instruction, what is going on and what week of training the squad is in, as shown in the diagram. Cards may also be used for this purpose.

15 Pl
GAS
2nd Week

Result: Visitors are "in the picture" immediately.

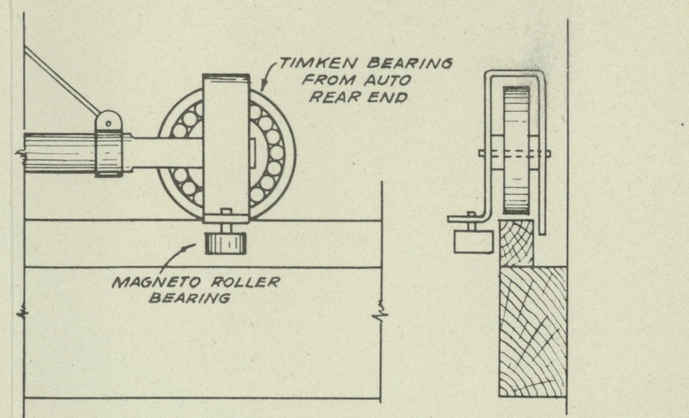
Wrinkle No. 3: Every instructor writes in coloured chalk in the upper left-hand corner of the blackboard the following information: (a) name of instructor; (b) subject; (c) scope; (d) references. This is placed on the blackboard previous to the lesson. Result: (a) proper preparation of material; (b) instruction is "kept on the rails."

On the back page of this issue of CATM there is a calendar for 1945. It's a handy reference and the editor hopes readers will make use of it.



DETAIL SECTION OF REAR & SIDE OF TARGET TRIPPING APPARATUS SHOWING TARGET HOLDER & CARRYING ROD

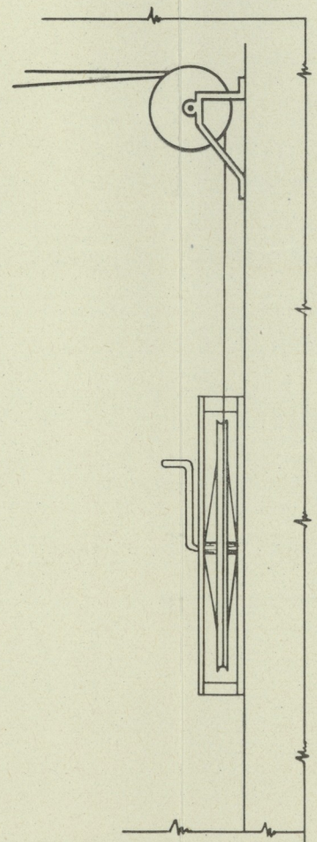
SCALE 3" = 1'-0"



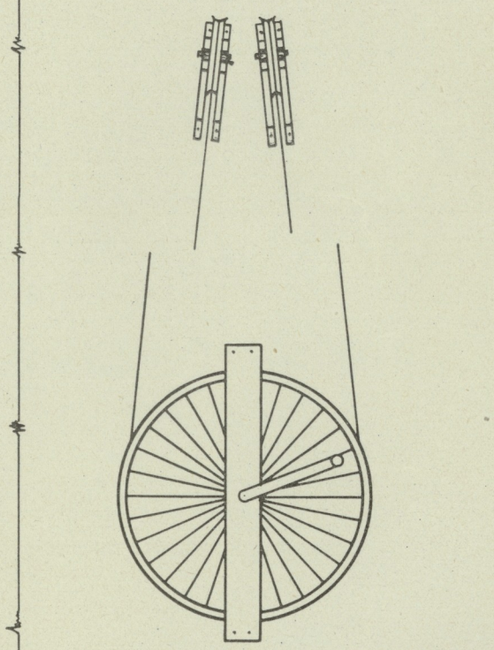
SECTION "A", SIDE

SECTION "A" END

SCALE 3" = 1'-0"

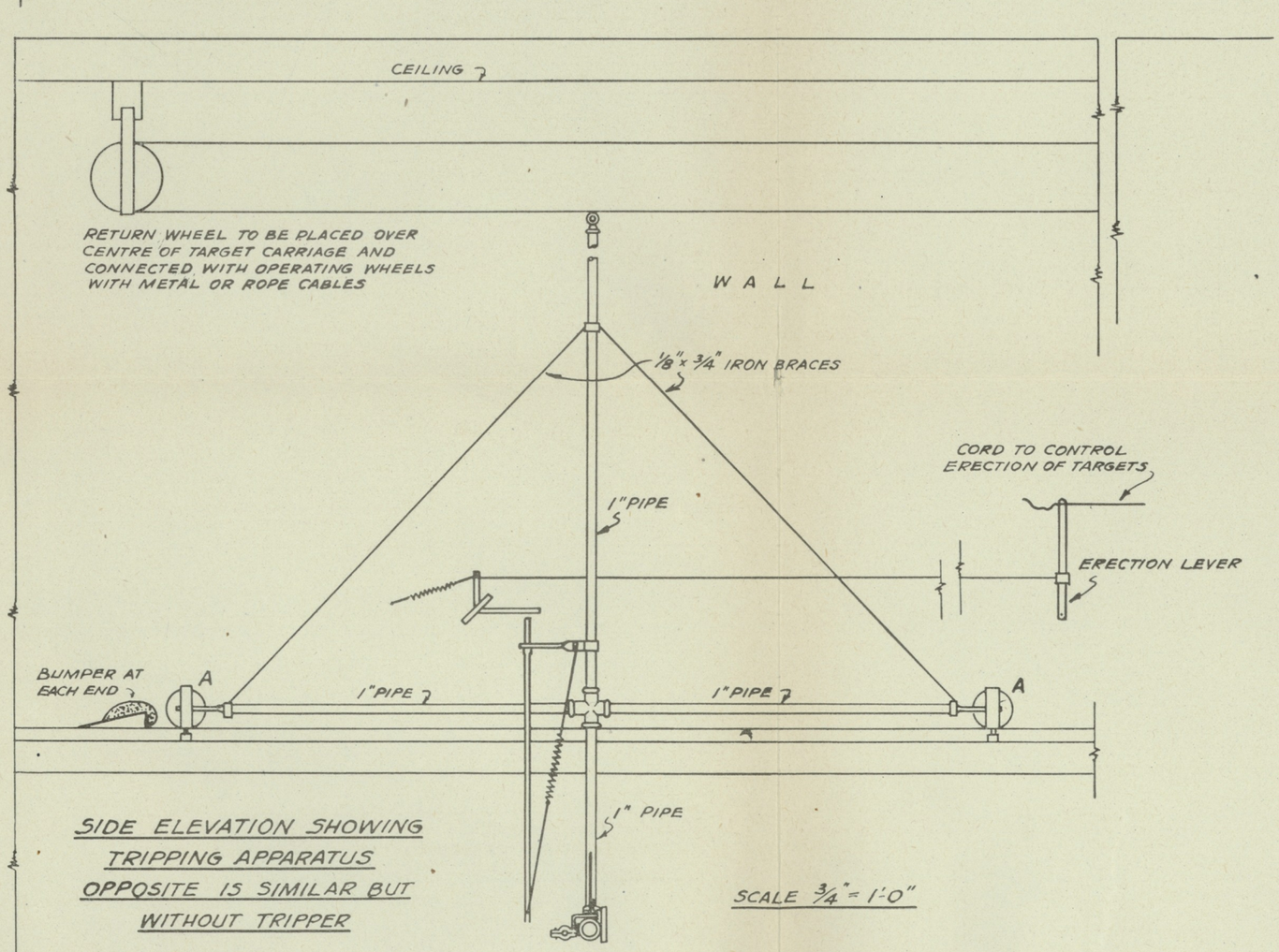


SECTION O.W.



FRONT VIEW OPERATING WHEEL

SCALE ¾" = 1'-0"



SIDE ELEVATION SHOWING TRIPPING APPARATUS OPPOSITE IS SIMILAR BUT WITHOUT TRIPPER

SCALE ¾" = 1'-0"

TARGET MOVING AND SNAP SHOOTING APPARATUS

FROM BLUEPRINT PROVIDED BY #50 CIC(B)TC YARMOUTH 22-1-42

D. M. T OTTAWA – 15-2-45 HMH

PATROLLING AND RAIDING

(Progress Bulletin—Infantry)

(The following extracts are taken from a letter received from a Battalion Commander somewhere in Holland.)

"Being in a static position we have had more practice during the last few days than ever before in patrolling, raiding and generally making ourselves a damned nuisance to the Boche. It was the one chance we wanted to raise our tails to the peak and regain that 100 per cent fighting spirit which is vital; and everyone's morale has gone up out of all proportion to the time taken in the build-up.

"The course we took in our activities after moving in as relieving unit was, firstly, to probe all round with reconnaissance patrols—three or four at a time, day and night, until we learned just where our Boche was.

He Was Active, Too

"He was pretty active himself during this period, and, besides finding out where he was, it was a question of trying to gain the upper hand by letting him know we were there as well. The normal role of the reconnaissance patrol—'to find without being found'—rather went by the board.

"The next stage was the fighting patrol, from seven to 15 in strength; the object to start frightening him by smash and grab raids.

"This not only had the effect of making him less active against our FDLs, but made him pull back to get clear. What we were out to do was to deny him the knowledge of where our FDLs were, and we have achieved this.

"The third and final phase, which is still going on, was the bigger raid striking at different points at different times, with or without tanks (a troop at a time when used).

"All the time, he has been harassed by artillery and mortars until he is so fed up and miserable he doesn't want to go on living.

"We've had Boche deserters walk into our lines in small numbers, and they're near breaking point. They say they've had one hot meal a day if lucky, whereas we have three; they've not been able to wash at all, whereas we get a bath about once a week; and the almost perpetual stand to, day and night, wondering what's going to happen next, has worn these fellows ragged.

"There's nothing new in all this; but it's proved to me, if proof were needed, that there's nothing like successful patrolling for raising morale, especially when you can get everybody out at one time or another.

"The Boche is as much a creature of habit as ever. He still crashes about in large numbers on patrol, and is not very clever at the job.

"His MG 42s still cause a lot of casualties, but on the whole his shooting is wild and unaimed.

Home Teaching Sound

"I say this each time I write, but so far I have found nothing that I feel is unsound in home teaching. In the mass we are not so skilled as the School of Infantry and Arthur Bryant would have us, but then, luckily, neither is the Boche these days.

"The Bren is right into its own, and the men seem to have every confidence in their weapons now. Let's hope when the next big test comes it will prove how justified their confidence is.

"Incidentally, we have a Battalion News Sheet which not only prints world news, but which also tells what all companies are doing each day and what successes they've had".

A QUIZZ FOR OFFICERS

The following quotations have been annexed from a document which is in every officer's possession. Can you recognize it?

"We, reposing **especial Trust** and **Confidence** in your **Loyalty, Courage** and **good Conduct.**"

"**You** are therefore **carefully** and **diligently** to discharge your **duty ...**"

"You are in such manner and on such occasions as may be prescribed by us, to **exercise** and **well discipline** in **Arms,** both the **inferior Officers** and **men** serving under you and use your **best endeavours** to keep them in **good Order and Discipline . . .**"

"We do hereby **Command . . .** you to **observe** and **follow** such **Orders** and **Directions** as from time to time you shall receive from **Us,** or any your **superior Officer . . .** in pursuance of the Trust hereby reposed in you."

Those quotations, gentlemen, are extracts from the King's Commission which has been granted to you on attaining the rank of an officer in the Army. The words are all theirs but the underlining is ours.

Serious Days

These are serious days, gentlemen, and circumstances call for serious and considered thought and action by all officers. You have accepted a full time job and, a full time responsibility and any Officer who gives anything less than his full time attention is not fulfilling the task for which he has been commissioned.

May it be suggested, having read this, that we all engage in a little self-analysis and ask ourselves the simple question "Have I honestly fulfilled the obligations of the King's Commission?"

AN AMERICAN OPINION

(Progress Bulletin—Infantry)

"I was talking to the commander of a battalion of the Sixth Marines at Tarawa and Saipan. He also fought at Guadalcanal, and was wounded at Saipan. I asked him what training he would stress for his battalion to prepare it for the next battle. We have so many weapons in an infantry battalion nowadays that I was really curious to get his reaction.

He said "I would spend more time teaching them rifle marksmanship than anything else."

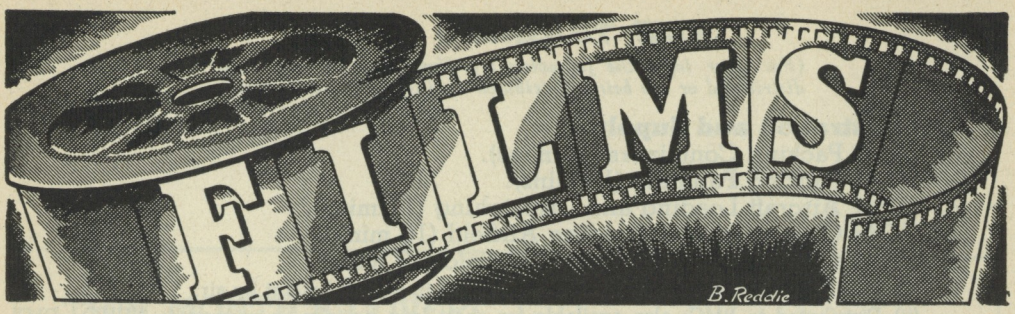
He found that Japs were very good shots at short range. He also found that automatic weapons, such as machine guns and BAR's, often fail to hit individuals at 250 yards and beyond, whereas his good rifle shots could pick them off. He said, "I would like to have my men all able to pick them off individual Japs at about a hundred yards farther than the Jap riflemen can pick us off."

"They shall not grow old as we that are left grow old."

"BRADFORD—In memory of George Nicholson Bradford, V.C., Lieut.-Commander, Royal Navy, second son of the late George Bradford and Mrs. Bradford, Milbanke, Darlington, killed in action on the Mole, Zeebrugge, on St. George's Day, his birthday, 1918, aged 31; and of his brothers, Lieut. James Barker Bradford, M.C., The Durham Light Infantry, died of wounds in France, May 14, 1917, aged 27; and Brigadier-General Roland Boys Bradford, V.C., M.C., 2nd Battn., The Durham Light Infantry, killed in action in France, Nov. 30, 1917, aged 25."

The above notice of an inspiring family record was clipped from the "In Memoriam" column of the London Times of 24 April 1944.

Can you give the name of any other pair of brothers who won the Victoria Cross?

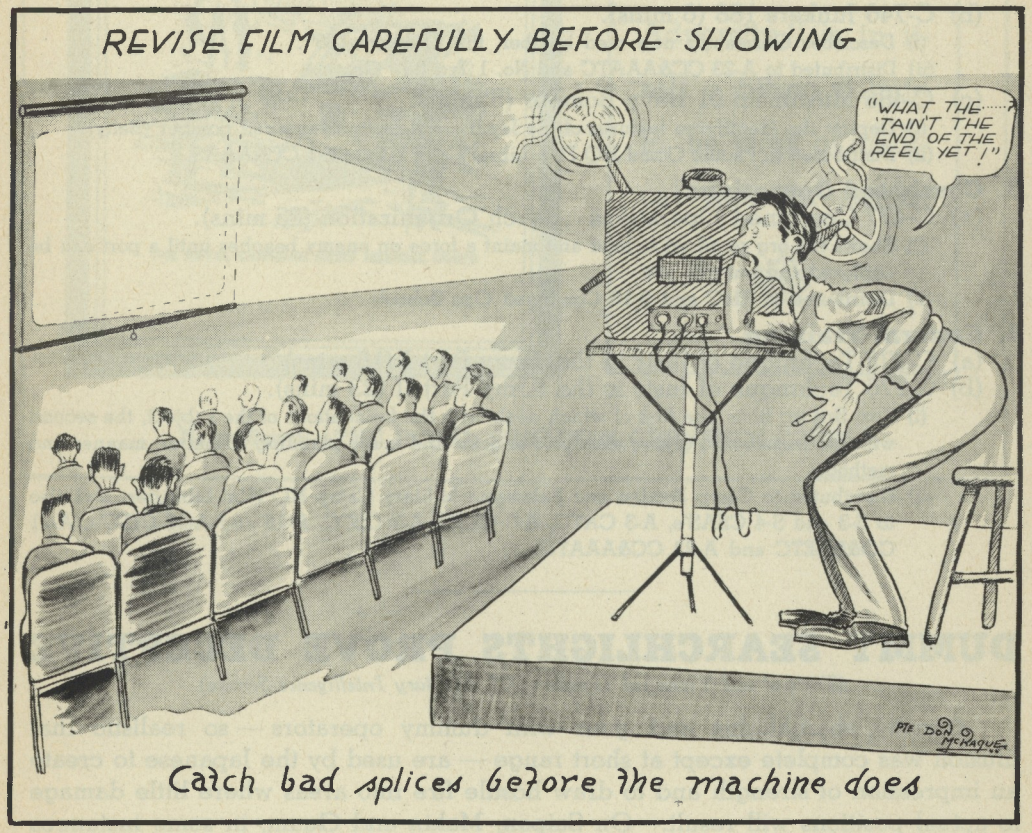


There are two kinds of film splices—good and bad. A good splice is one which makes a weld so that the splice causes no trouble during the rest of the film's life. A bad splice is one which sooner or later causes trouble.

The best way to avoid making a bad splice is to avoid breaking the film. This means there is no splice of any kind—the ideal arrangement.

Splices with loose edges, weakened welds or bulges are apt to throw the film off the sprockets or cause a breakage. These difficulties add up to wasted training time, which is serious.

Bad splices are normally easy to detect as the film passes between the inspector's fingers during inspection rewinding. Inspection should never be neglected.



NEW TRAINING FILMS

(For your infm the following trg films have recently been distributed or are being distributed during the current month)

1. Administration and Supply

(a) C-739 Packing Containers (10 mins).
(b) C-740 Packing Panniers (13 mins).
(c) C-741 Aircraft Loading and Dispatching (11 mins).
(d) C-743 Organization of Loading Airfield (15 mins).
(e) C-744 Organization of Delivery Airfield (12 mins).
  (i) Five Brit trg films dealing with the Army role in sup and maint by air.
  (ii) Distributed to RMC; also available for short loan periods on request to NDHQ—DMT Central Film Library.
(f) C-796 POL Distribution (50 mins)
  (i) Covers POL distribution from base to RH.
(g) C-798 POL Delivery to Units (10 mins).
  (i) Shows the mov fwd to unit tpt lines.
(h) C-797 Petrol Tin Factory Operating Company (9 mins).
  (i) Details the work performed by the unit described in the title.
  (ii) These three films are available for short loan periods on request to NDHQ—DMT Central Film Library.

2. Aircraft Recognition

(a) C-510 York (7 mins).
  (i) Illustrates the distinctive characteristics of the "York", Britain's newest transport.
  (ii) Distributed to Pacific Comd and MD 6 HQ Film Libraries, and also to A-23 CC&AAATC and No. 1 Trg Bde Gp.
(b) C-746 Junkers 188 (6 mins).
  (i) Describes Germany's new med bomber, the "Junkers 188".
  (ii) Distributed to A-23 CC&AAATC and No. 1 Trg Bde Gp.
(c) C-486 Mitsubishi 01 Navy Bomber (5 mins).
  (i) Depicts the identifying features of the Japanese Navy twin-engined bomber (Betty).
  (ii) Distributed to Pacific Comd HQ Film Library and also to S-1 CC&AAAS.

3. Combined Operations

(a) C-477 Combined Operations—Beach Organization (25 mins).
  (i) Shows the org required to land and maint a force on enemy beaches until a port can be captured and put into use.
  (ii) Distributed to RMC and S-16 Combined Ops School.

4. General Training

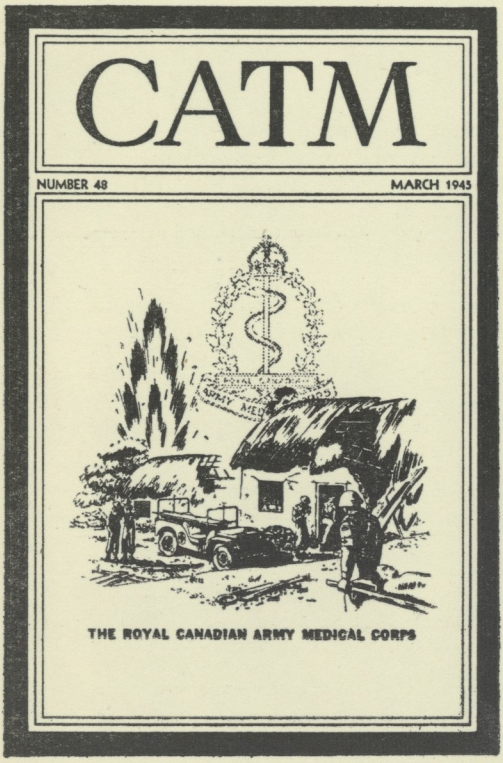
(a) C-775 Technique of Instr in the Army Part I (15 mins).
(b) C-776 Technique of Instr in the Army Part II (23 mins).
  (i) Two Brit trg films, the first of which deals with the foundations of the subject, the second with the framework, giving examples of good and faulty planning of matter, manner and method.
  (ii) Distributed to Camp Borden and Petawawa Military Camp HQ Film Libraries, and also to S-3 and S-4 CSAS's, A-3 CATC, A-6 CETC, A-7 CSTC, A-15 and A-29 CITC's, A-21 CO&EMETC and A-23 CC&AAATC.

DUMMY SEARCHLIGHTS PROVE DECEPTIVE

(Tactical and Technical Trends—U.S. Military Intelligence Service)

Dummy searchlights and guns with dummy operators — so realistic that illusion was complete except at short range — are used by the Japanese to create an impression of strength and to draw hostile fire into areas where little damage to actual positions will result. On Saipan, Makin and Guam, in some instances they deceived aerial-photo interpreters and forward artillery spotters.

THIS MONTH'S COVER . . .



CATM dedicates its cover this month to the Royal Canadian Army Medical Corps. The Corps' motto, "Faithful In Adversity," is in itself a fitting tribute to the work of medical men in battle.

Next Month—**THE ROYAL CANADIAN ORDNANCE CORPS**

OTTAWA
EDMOND CLOUTIER
Printer to the King's Most Excellent Majesty
1945

30,000-3-45 (6682)
H.Q. 54-27-35-101
K.P. 8672

1945

JANUARY

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