

# AN COSANTÓIR

The Defence Forces Magazine

September 1991 £1





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**O**N BEHALF OF  
warmest greetin  
present, whethe  
ous staffs, or serving o  
to stem the world crisis

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The fact that an article appears  
in this magazine does not indicate  
official approval of the views  
expressed by the author.

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An Cosantoir, Defence Forces HQ,  
Parkgate, Dublin 8, under the  
auspices of the Defence Forces  
Authorities.  
Printed by Kilkenny Printing Ltd.,  
Kilkenny.

This month's cover shows personnel from 3 Fd Arty  
Bty, Depot Artillery, Magin Bks, Kildare, in action  
during simulated firing exercises with the 105mm  
Light Gun.

(Photo: Arms John Daly)

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## Introduction

by

Col G. C. Murphy, Director of Artillery



**O**N BEHALF OF THE ARTILLERY CORPS I take this opportunity to extend the warmest greetings to all Officers, NCOs and Gunners of the Corps, past and present, whether they are serving at home in Line Regimental Units, on various staffs, or serving overseas in the many United Nations Missions now established to stem the world crisis of violence. Greetings also to their families, whose support and understanding make our various tasks more easily achievable. A special word to the relatives and friends of members of the Corps who are no longer with us, particularly those of the men who lost their lives in the accident which occurred in the Glen of Imaal and whose anniversary falls at this time.

My association with the Artillery Corps over many years has brought me into contact with the most enthusiastic of men and indeed it has been a pleasure to have served with them. We can look back on what we have achieved and survey the scene at present. In recent years great strides have been made in the updating of Field Artillery with the required modern technology. This includes the 105mm Light Gun with greatly extended range using Laser Range Finders, and Integrated Field Artillery Computer Systems such as MORCOS and GUNZEN. In addition Electronic Muzzle Velocity Analysers and Multi Role Electronic Fuzes for High Explosion, Illuminating and Smoke Missions bring a vastly improved reaction time accuracy and lethality to all Fire Missions. As well as Field Artillery we have had improvements in our other Branch, Air Defence. Among these are the recent acquisitions of the RBS 70 Ground to Air Missile Systems, "Giraffe" Search and Track Radar and Target Data Receivers. These improvements complement our existing Bofors L60 and L70 Air Defence Guns to provide an effective Air Defence System. The advent of this new technology has presented a tremendous challenge to all ranks in the Corps vis-a-vis training in, and handling of, the new systems both technical and tactical. I feel confident we will not be found lacking in enthusiasm for such tasks.

In closing I wish to recognise the professionalism and adaptability and special 'Esprit de Corps' found in the Artillery Corps. Long may it continue.



## Simulated Artillery Training v The Real Thing

by Capt E. Fogarty

*Many are of the opinion that the use of Simulators for Artillery as well as other arms training is a relatively modern concept, brought about mainly by budget pressures due to the exceptionally high cost of replacing ammunition stocks during live firing practices. Simulator training, however, is not new to either the Field or Air Defence Artilleryman. The most basic simulator in use by the Field Artillery for over 50 years is the Raikes Range. This is where many an OP Officer and Mortar Fire Controller underwent their basic introduction to fire control procedures. For those not familiar with it, it consists of an elevated cloth model section of terrain, prepared in great detail from a large scale map, the underneath of which is gridded alpha numerically. The OP Officer is positioned on an elevated platform and calls down fire, using standard procedures. The CP Staff, underneath, then plot the fall of shot and include probable Range and bearing errors for good measure. The fall of shot is indicated by one of the CP Staff using a small metal pipe to blow a puff of smoke up through the base cloth of the model. This system has stood the test of time and is still in use in a number of locations today. However, as one of the CP Staff has to be a smoker the whole procedure should probably carry a "Government Health Warning".*



Deployment Drills. With practice making perfect each gun crew is put through its paces during Annual Training. Co-ordination and team-work are skills which get the crew to operate like fingers on a human hand.

(Photo: Ann John Dwyer)

**A**S THE RAIKES RANGE was limited in the number of, and complexity of, shoots which could be carried out on it, in 1974/75 it was decided to install a SAAB-SCANIA BT 33 Fire Control Simulator. This has the capability to simulate anything from Section to Regimental Fire, from Forward Observation Officers (FOOs) to Regimental Fire Plans including much more complex Fire Missions such as AB Missions, Smoke Missions, Moving Target Missions, Illumination Missions, Co-ordinated High Explosive/Illumination Missions.

The Fire Control comprises the following main units:

- projection screen
- two terrain slide projectors
- automatic slide projector
- automatic film projector with servo-controlled platform
- two or three burst projectors
- the central unit.

The terrain slide projectors are standard colour slide projectors. The connected projector shows a region of terrain as it would appear to an observer from an observation post and the automatic slide projector simulates the effect of illuminating shells.

Burst projectors are used to simulate the effects of fire in areas of terrain or against any targets that may appear. The projectors display different types of burst symbols on the

terrain view. The burst images take on a different appearance for air bursts and impact bursts. If a projectile explodes behind a hill, it automatically becomes 'loss' and only the sound of detonation is heard. If the hill is not too high, however, the burst is signified visually as a cloud of smoke rising from behind the hill. A low-level air burst sometimes gives rise to fragment impact on the ground. This is often visible to the fire observer.

The size of bursts (which depends on the observation distance) and their configuration, smoke from any concealed bursts and shrapnel impact on the ground from an air burst, all give the fire observer valuable information as to the position of the burst in relation to the target.

The simulator is equipped with a sound-effect system. There are a few seconds of sound of a projectile in trajectory before the burst symbol appears. Then comes the sound of detonation, suitably delayed in relation to the actual observation distance. Both the delay and intensity of detonation sound are varied automatically.

As well as exercising the OP Officer/Party on the BT 33, CP Staffs can be exercised in conjunction either in the same Lecture Room or in one nearby, with the BT 33 operator effecting the role of Gun Line. Many Units carry out 'Dry Shoots' during Command Post Exercises (CPX) prior to firing live practices in order to build up co-ordination between the OPs and CPs and practice the required drills. A well thought out CPX can be used in conjunction with the BT 33 to effectively train and exercise, both OP and CP Staffs, thereby putting them under pressure to produce the data required for all aspects of a Fire Mission or a Fire Plan within an acceptable time limit. It is only when they are put under such pressure is it possible to assess their probable performance during live firing practices.

Simulation as far as the training of CP Staffs are concerned is not a major difficulty. To put it simply the CP is just a data processing centre between the OP and the guns. The Command Post Officer (CPO) and his Battery Technical Assistants (BTAs) whether they are using Graphical Control Instruments (Plotters/Mortar Board), Hand-held Computers (MORCOS/GUNCOS/GUNZEN), or FACE can be trained in all aspects of CP Drills and Fire Discipline in conjunction with, or in isolation from, the OP/Guns. All that is required is a properly equipped CP and a Radio Net on which to transmit and receive data.

When it comes to the training of gun crews simulation has yet to reach its full effectiveness. The efficiency and training of gun crews to date can only be assessed by the crews performance during 'Dry Shoots' and Proficiency Tests. Several simulator kits are available for fitting to weapons to assess a crew's performance during Direct Fire Missions. In general these kits use lasers or Infra Red Light Beams to trigger smoke generators thereby indicating a target round. To date the only system that I am aware of that has been developed



FACE Computer



The BT 33 Simulator at the Artillery School (Photo: Military Archives)

to fully simulate the firing of, or target area effects of indirect fire weapons, is CATIES (Combined Arms Training Integrated Evaluation System). Manufacturer's literature describes CATIES as 'an area weapons effect tactical engage-

ment simulation system designed with the potential to simulate realistic indirect fire including Nuclear Biological Chemical contamination mine warfare effects during world wide force on force training and operational testing'.

Air Defence Artillery has been using simulators for training purposes since the early 1950s. The No 3Mk Seven Radar had a simulator which allowed the training of the radar operator without full deployment of the equipment and target aircraft. A similar but more up-to-date system is available with the Giraffe Target Acquisition and Tracking Radar. The simulator presents realistic target paths and possible jamming on the radar screen. The Target paths and jamming are recorded on cassettes. The target echo, with the inclusion

## Did You Know ?

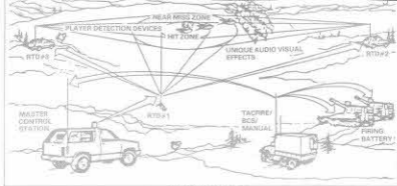
by Comdt R. Ó Tuathail (FCA)

- ◆ The first round of Artillery Fired by the Irish Defence Forces in the Glen of Imaal was at 1000hrs on 1st Sep 1925 by Lt Gen P. A. Mulcahy the Officer charged with forming the Artillery Corps.
- ◆ The Glen of Imaal Artillery Range was opened by General Roberts in 1899.
- ◆ Leitrim Barracks in the Glen was positioned to protect the old Military Road over the mountains which the British used in sorties in search of rebels.
- ◆ The Artillery Corps was established on 25 - 3 - 1923 at Island Bridge Barracks with seventy-three all ranks, nine guns and ten horses.
- ◆ The Artillery Corps' first public appearance was at the Wolfe Tone Centenary at Bodinstown wearing the white lanyard and mounted.
- ◆ It has been said that firearms probably came into Ireland in 1483 when the Earl of Kildare is said to have received six muskets from Germany.
- ◆ In 1487 it is reputed the Kildare family used 'cannon' as Artillery against Balroth Castle.
- ◆ The Artillery used to bombard the Four Courts during the Civil War was borrowed from the British Government Forces.



BT 33 Firing Unit - its simulator can be used indoors or outdoors (Photo: Comdt P. Walsh (Retd))





CATIES operational scenario

are recorded on cassettes. The target echo, with the inclusion of any interference is controlled by the normal operating devices of the radar. A maximum of five paths and one jamming can be presented simultaneously. Use of this simulator permits easy training of the Radar Crew, Combat Leader, Radar Operator and Operators, without the aid of expensive and weather dependent target aircraft.

In the area of Air Defence (AD) Gun crew training, a Dome Trainer has been in use for almost 40 years. This allows for gun crews to be trained to engage aircraft carrying out different attack sequences. The target is projected onto the roof and walls of the dome giving an engagement arc of 180° with a maximum elevation of 90°. Extra realism is provided by a sound generator which simulates the sound of both attacking aircraft and the firing of the AD Gun. This is a first generation Dome Trainer, a number of attempts have been initiated over the years to replace it, but none have reached fruition, the main obstacle being finance. The Annual Live Firing Practices are conducted on the AD Range in Gormanston against a towed Drogue Target with a near miss indicator, continues to provide the best training value for the AD Gun Crew.

The RBS 70 Simulator is used for the training of operators for RBS 70 firing units. The simulator permits practice of target acquisition, launching and target tracking in combination with Identification Friend or Foe (IFF) simulation. Aiming practice is possible with both simulated and real targets. The design of the simulator resembles the firing unit to the extent that it also has the requirement for practice in transport and preparations for action. Training can take place both indoors and outdoors. The 'missile' of the simulator consists of a recoil generator the purpose of which is to familiarise the operator with the recoil disturbances which occur when a live missile is launched. The Instructor from a target path unit controls the sequence, sets target path parameters, selects probability of own aircraft, starts and stops the exercise, monitors the target tracking operator, examines the hit pattern and recalls the aiming errors computed by the target path unit. The target path unit can also be used unmanned thereby allowing the missile operator to

initiate target sequences.

It must be said that simulation when used has a distinct training value in that it allows personnel to be trained and familiarised with all aspects of their duties, thereby reducing the amount of ammunition required for training. A factor which must also be considered is that in general simulators can cost more than the real equipment itself, therefore their acquisition has to be fully considered *vis-à-vis* cost, realistic training value, and maximum usage. Currently all Defence Forces and FCA Bys carry out annual firing practices, while every 3/4 years the Artillery Corps carry out a major firing programme. The overall result of these exercises is excellent training with each gun crew gaining maximum benefit from live firing. The current use of practice flash shells with the 105mm Light Gun has resulted in the saving of live ammunition. There is no denying that British soldiers can be trained and tested under conditions very similar to live firing when using simulators. However, the gun crews are not really tested during live firing, with the crews handling ammunition and experiencing the same conditions and the situation away from the field of firing. The same, flat, solid and small and safe, test of practice is not only what can be properly trained and qualified Gunners, whether they are Officers or Subaltern Personnel. Simulators, whether it is the Westland Indirect Fire Trainer or the excellent Weapon School or the IFF 33 of the Artillery School, simulators, cost training, and improve the performance of our personnel and as a result complement live firing practice but in no way replace them.

## Cadet Class Golden Jubilee

A Golden Jubilee Reunion Luncheon in the Defence Forces Headquarters Officers Mess, McKee Bks, Dublin will commemorate the formation of the Fifteenth Cadet Class enabling the surviving members of this 1941-1943 Class to recall their Cadet days and exchange notes on details of their subsequent experiences.

Of the initial membership of forty-four, sixteen have passed away - RIP - and will be remembered at Mass in the Garrison Church at 1230 hrs on 2nd October, the chosen date. Timings are: circa 1315 hrs photo opportunity with lunch at 1400 hrs.

This Cadet Class, it will be remembered with pride, produced the following high ranking appointments: COG; QMG; GOC COM; ACS; Senior Aide to the President; four Brigade OCs and other senior rank appointments in the Defence Forces as well as many appointments in the United Nations.

Further details will be sent personally to the circa twenty members who it is hoped will attend.

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# RSM Patrick Devereux

by Comdt P. A. Pakenham

Whereas the Artillery piece is the moral anchor of a furious battlefield, the Regimental Sergeant Major is the anchor man in all Artillery Regiments and RSM Patrick Devereux of 2 Field Artillery Regiment is no exception to the maxim.

Frederick the Great, concerned with the possibility that one of his Generals may order the Artillery to fire before the enemy was within range, directed that such orders had to be obeyed provided that the guns were to fire as slowly as possible. The reason was not to save ammunition but to ensure that the gunners were not to be upset by excited officers who wanted to shoot prematurely. When RSM Devereux is on the line, so one gets excited, everyone remains calm and the rounds hit the designated targets with devastating results. As the Artillery Corps has seen, the presence of RSM Devereux on any Mission will guarantee success.

A native of Waterford, he was initially posted to 1 Anti Aircraft Regiment in Magee Bks, Kildare, in February 1960. Although his designation has changed, his first Unit is unique within the Defence Forces in that it has retained its integrated status having both Regular and Reserve elements since 1959. He has served with both the Regular Battery and with one of the FCA Batteries - 3 Bty in Limerick, which initially drew its members from 49 Inf Bn.

The year of his enlistment in the Defence Forces also witnessed the deployment of the first Irish soldiers with a United Nations Peacekeeping Force. His extensive United Nations Service has spanned thirty years and commenced with 35 Inf Bn, in the Republic of the Congo, now Zaire.

The principles of United Nations operations were developed in the Congo and the experience gained by the Defence Forces there ensured that operations could be extended to Cyprus, in 1964. He again served with 18 Inf Gp in Cyprus in 1970, supervising the cease-fire lines of the Cypriot National Guard and the Turkish and Turkish-Cypriot Forces.

Following the invasion of Lebanon by Israel in 1978, the United Nations Interim Force in Lebanon (UNIFIL) was established. RSM Devereux first saw Tibnin and Aytazzait, as a Sergeant, with the Heavy Mortar Troop of 44 Inf Bn. According to RSM Devereux the traditional Artillery qualities of loyalty, devotion to duty, gallantry, competitiveness and technical skill, combined with the ever present *esprit de corps* comprise a valuable asset to any Unit serving overseas. He also feels that the stabilising influence resulting from UNIFIL's deployment and the successful humanitarian projects implemented by Irish Battalions justifies the deployment of Defence Forces personned with UNIFIL.

After seven tours of duty with UNIFIL, he is the first to acknowledge the numerous advantages which accrue from UN Service - training, association with other nationalities and working in a hostile environment. However, he emphasises the vast experience which should be exploited by junior leaders, especially Corporals, who have the unique opportunity of leading men at Checkpoints, Observation Posts and on UN Patrols. RSM Devereux's Peacekeeping experience has been marked by his strength of mind and purpose to persevere in the performance of his duties under the Blue Flag.

Throughout his career, he has also endeavoured to keep fully abreast of modern military developments thus he continues to expand his professional knowledge and experience, especially in Artillery matters.

For twenty years since 1969, he was involved in the training of Officers, NCOs and Gunners at the Artillery School, Magee Bks, Kildare and although he had an impeccable reputation in the art of Regimental survey, he longed to serve on the Gun. He firmly believes that it is not necessary that every Gunner, NCO or Officer should be a "scientific expert", but it is necessary that all should be "practical Gunners". In this regard, RSM Devereux replaced his Bearing Picket with the Aiming Post, closed his mathematical tables, centralised the 'T' and 'D' scales of his slide rule



and concentrated on Trunnions, Field Clinometers and Quick Fire Cartridges, rather than Projections.

Junior Officers, attending Young Officers Artillery Courses at the time, were relieved to see the RSM on the Gun line rather than assisting the Instructor in Gunnery at Leitrim Observation Post.

Since Gustavus Adolphus put cannon on wheels in 1631, the responsibility of educating Officers, NCOs and Gunners in the art of Gun Drill and associated subjects, has only been invested in the most proficient NCOs and RSM Devereux is one of the many fine NCOs who have instructed on the deployment of Field Artillery pieces in the Artillery School. Accuracy, speed, competitiveness and rivalry were the hallmarks of his instruction techniques. His expertise did not stop with retarding valves, the buffer and recuperator system or with alignment tests with the 3.7 inch, the 4.5 inch, the 25 pounder, or the 105mm pieces. He was one of the initial Instructors on the Milan Surface to Surface Anti Tank Missile and the RB 70 Surface to Air Guided Missile in the early eighties. As an Instructor, he effectively imparted the knowledge and expertise required to maintain the highest standards of training with the Artillery Corps.

In January 1989, he was promoted to his present Rank and Posted to 2 Fd Arty Regt in McKee Bks, Dublin. He immediately accepted the onerous responsibilities commensurate with the appointment and as the senior NCO in the Regiment, he expects his NCOs to carry out their duties in an enthusiastic and energetic fashion.

Over the years he has witnessed many changes in the Artillery Corps - equipment such as FACE, AWDATS, Laser Range Finders, GUNCOS, and MORCOS. He now firmly believes that NCOs must be prepared to assume greater responsibilities as they will have a more demanding role in the Defence Forces of the future. He encourages junior NCOs to develop their leadership skills and expects everyone to work hard in the pursuit of high standards and good *esprit de corps*.

Since his arrival in the Regiment, he has made a substantial impact on the Unit. His strength of character, appetite for work and the conscientious manner in which he carries out his duties inspires all members of his Unit and many more besides.

He generates devotion to duty and leads by example. He is a firm believer in tradition, teamwork, and *esprit de corps*, he advocates that NCOs must be respected by their subordinates, "Integrity, loyalty and an understanding of your men are the hallmarks of a good NCO". He has inspired all ranks both inside and outside our Corps and may he continue in this vein throughout his career.



The President, Mrs Mary Robinson, escorted by Capt Joe McCatchon, inspects a Guard of Honour drawn from 8 Inf Bn (FCA) at the opening of the Ballydon Community Festival. (Photo: Sgt V. Murphy)



Historic Presentation. Lt Col Michael Duggan (Retd), on the left, is seen here presenting a copy of 'A History of the Irish Army' by Lt Col John Duggan (Retd), who is no relation, to Alderman Ron McCullough, Mayor of Mount Lu, Queensland, Australia. Also pictured (centre L/R) are Aisling Robinson and city librarian Ms Trudi Zastrow. Lt Col M. Duggan (Retd) is a regular visitor to the city. (Photo: Courtesy North West Star)



Col Kevin Knightley, D Can, pictured with Fr Fergas O'Connor, a 42 year old former Comd from Arlene, Dublin, who on his return to Ireland, celebrated a special Mass for family and friends in the Parish Church of our Lady of Mercy in Arlene on Sun 25 Aug. Fr O'Connor was ordained a priest by Pope John Paul II in Rome last year.

Commissioned into the Gun Corps in 1968, he served with 1 Armd Gar Sqn at the Curragh and with the IDF Force in Cyprus. He spent some time at the French Armd School in Saumur and was later a Gun Instructor in the Irish Military College. For a number of years he was OIC of the Gun Corps Motor Cycle Display Team, which gave demonstrations at the RDS Horse Show, the Rose of Tralee and other festivals.

After he retired from the Defence Forces, he spent some years as Project Director for new premises for the Anchor Youth Club in Murrington Park, Arlene, which were officially opened by the Taoiseach, Mr Charles J. Haughey, in 1988. (Photo: Robert Allen Photography)



2 Gm S&T Coy Horse Show involvement. 2 Gm S&T Coy continues its involvement this year in the Annual RDS Horse Show with the provision of a transport fleet drawn from Units throughout the country. The drivers are responsible for the transportation of the participating teams (Ireland, Great Britain, France, Switzerland, USA and Germany), individuals and international vets and judges. The Director of Supply & Transport Corp, Col W. McNally inspected the vehicles prior to the commencement of the Horse Show.

Pictured L/R are Col W. McNally, D SGT: Capt Paul Conroy, AOC 2 Gm S&T; Lt Ian Byrne 2 Gm S&T, CQMS (on Clarke (partly obscured) 2 Gm S&T, Cpl John Burns, 2 Gm S&T and Pte Pat Murphy C Comd S&T Coy. (Photo: Anna J. Dolan)



Brewery Award - 2 Fd Arty Regt man, Ger Grand Kelly, a native of Carnlough, Co Antrim, was recently presented with a Certificate in recognition of the bravery he displayed when rescuing two neighbouring children from a blaze at their home. On the 25th Aug '89, a serious fire occurred at the home of Lannan and David McAulay at Croft Close in Carnlough. Although one of the children's brothers managed to escape, Lannan and David were trapped inside in dense smoke. With a total disregard for his own safety Ger Kelly entered the house and, crawling along the floor managed to locate and rescue the two children. The victims spent a long time in hospital recovering from burns, but were present when Gerard received his Certificate. The award was presented by the London based Society of the Protection of Life from Fire. (Photo: Sgt Tony Hudson)

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# Ack Ack – Sixty Years Dedicated to Service

*In 1928, four 3" medium Anti Aircraft guns were delivered to the Ordnance Depot, Islandbridge Barracks, (now Clancy Bks).*

*Three years later, Defence Force Regulation Number 57 of 1931 was issued to establish an Anti-Aircraft Battery in the Artillery Corps. That Defence Force Regulation and the decision to establish the AA Bty followed a Dail question to the Minister for Defence concerning those AA guns lying idle at Islandbridge.*

*The AA Bty was established on 16 September, 1931. Ten years later, in the early years of World War II, the Army and the Ack Ack were expanding to meet the new international situation.*

**A**T FIVE MINUTES to three on the lovely afternoon of 16 September, 1941, sixteen young men of the Defence Forces, drawn from the Artillery Anti-Aircraft Battalion and of the Corps of Engineers, lost their lives. They were on a training course in the Glen of Imaal and their instructor, Lt Michael McLoughlin, a Belfast man, was demonstrating just one of the techniques of the warfare at that time ... how to mine an approach route by enemy tanks or carriers. The class of all ranks stood around him as he finished planting three mines, and just as he was about to show the eager young Gunners and Engineers the final setting of the lure, two Gunners had moved slightly to the rear of the group. At that moment the mine exploded. These two were among the survivors.

Against the desperate millions of Britain and Germany, against the background of the Battle of Britain, the war in the Desert, the death by misadventure of sixteen young Irish soldiers in a lonely valley seemed very small indeed. What brings it all home was that they were our own soldiers who died on Irish soil.

On 14 Sep 1986, a ten foot stone monument was unveiled by the Minister for Environment, Mr John Boland, in memory of the sixteen members of the Defence Forces who died in the premature explosion of forty-five years ago. The memorial was erected by the Anti Aircraft Artillery Association, whose members are drawn from those who served in the AA Battalion. The monument itself bears the names of those who died on the fatal day back in 1941. They will always be remembered by their fellow comrades. May they rest in peace.

Despite this tragic loss the Ack Ack continued to grow in numbers and equipment, and took on many new tasks. It became the AA Battalion and

it was the largest Unit in the Defence Forces during the Emergency.

The following account of the air defence situation in Dublin by Comdt Philip R. Eager (Retd) gives a clear picture of the role of the AA Battalion.

## List of Names Inscribed on the Monument

### Anti-Aircraft Battalion

Lt John J. Brierton  
Lt John D. Fennessy  
Lt Thomas O'Neill  
Sgt Thomas Stokes  
Cpl Edward J. Kennedy  
Cpl William Shannon  
Cnr James McDonnell  
Cnr John Murray  
Cnr P. O'Hagan  
Cnr James Osborne

### Depot and School Artillery

Coy Sgt P. McMahon  
Sgt Michael Scullion  
Cpl Denis Cleary  
Cpl Colin Hoffmann  
Cpl John Taylor

### Corps of Engineers

Lt Michael McLoughlin

In the Dublin area the following outposts were occupied and prepared for action (for the preservation of the neutrality we had opted for):-

Ballyfermot (before the new housing was started); Hibernian Schools in Phoenix Park (now St. Mary's Hospital); Brown's Barn, close to Baldonnell; Dalkey; The Bull Wall; Stillorgan; Ringsend; Clontarf; Brackenstown, near Dublin Airport; Dublin Airport; The Hill of Howth.

The Duty Officer in each Bty and Searchlight Outpost had the full responsibility for engaging enemy aircraft from the countries involved in the war once he had identified them as hostile. (He did not have to request permission from any higher authority.) The result was that, as the German/British/American air operation increased in 1941, 1942, 1943 and 1944, we opened fire on several occasions on aircraft identified as belonging to the air forces mentioned, in defence of our neutrality. The first case of opening fire occurred on St Stephen's Day, 1940, when a German Heinkel twin engined bomber plane was identified flying over the city from East to West. 6 AA Bty, located in Ballyfermot, engaged the bomber until a flight of Gloster Gladiator fighters took off to engage - but the bomber entered large dense clouds and escaped. Shrapnel from the exploding 3.7" rounds fell on Clondalkin village. Other Allied and German aircraft were engaged by the Batteries in Stillorgan, Ringsend and Dublin Airport in 1941, 1942 and 1943. On the two nights that Belfast was heavily bombed by German aircraft (they flew up along the East coast and over Dublin) they were engaged by the Battery of Bofors near Dublin Airport.

The most spectacular (and most tragic and serious) engagement took place during the early morning hours when a German bomber remained over the city for some time and dropped a 1,000 lb land mine on the North Strand area (killing 38 people). Most of the Dublin Gun and Searchlight Outposts were in action that night.

Aircraft engaged during these years included a Sunderland flying boat, a Blenheim twin engined bomber, a Hawker Hurricane fighter and an American Flying Fortress bomber. This US bomber had lost its bearings and the crew thought they were over



The Giraffe Mobile Search Radar

France – fuel was running out so they decided to land at Collinstown, but not before it had been engaged by the 3.7<sup>th</sup> Battery at Ballyfermot. This was in 1944, and as the war had moved to Eastern Europe the number of Byover incidents declined almost to nil and the guns were to remain silent until future practice camps were held in Gormanston Camp.

Central to the AA Regt's development is the possession of the necessary guns, missiles, radar, etc., to enable the gunners to keep pace with the technology of today's air defence systems. The 40mm Bofors gun was one of the most successful guns this century. Like the AA Regt, it began in the early 1930s and it continues to this day. However, more than guns are needed now in air defence and fortunately the AD Regt continues to have at least some of this modern technology. Two of these equipments are illustrated here, the RBS 70 Missile Launcher and the Giraffe Radar.

The Giraffe is one of the most sophisticated pieces of equipment in the Defence Forces today. Giraffe is a mobile search radar system which provides up to nine firing units with target data in the form of speed, bearing

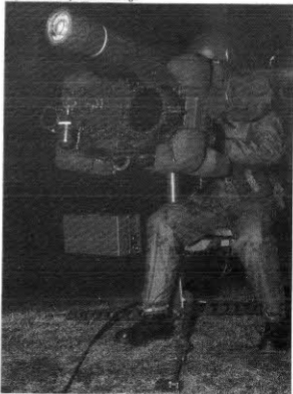
and position. Its range is up to 40 kilometres and is operated by four personnel. In recent years the Regiment has also been equipped with a state of the art Surface to Air Missile system, namely RBS 70. The RBS 70 is fully integrated with the Giraffe early warning system. 1 AD Bty now consists of a light troop of guns and a missile troop providing very effective low level air defence.

Regimental Headquarters and 1 AD Bty were heavily involved in organising and participating in events during 1989 to celebrate the 30th Anniversary of the integration of the Regt. In conjunction with the PCA ranks, they organised a very successful air defence demonstration at Gormanston AD Range on 5 July 1989. 1 AD Bty also provided an air defence display at the Air Spectacular in Baldonnel on 13 August 1989. This proved to be a high-

ly interesting static display with approximately 20,000 spectators viewing the various equipments on display. The Battery also participated in the Artillery Corps Day on 16 Sept 1989 held in Magee Bks, Kildare.

The Officers, NCOs and Gunners are proud to be associated with what has been achieved by AD personnel since 1931 and will continue to improve its expertise and maintain its fine tradition in the years to come.

**Editor's Note:** By kind permission of OC 1 AD Regiment, this summary of the Ack Ack has been compiled from articles written by Lt Col E. Barry (Retd), Lt Col K. O'Halloran (Retd), Comdt P. Bager (Retd) and Lt R. Coffey, which were published in 1 Air Defence Regiment Commemorative Magazine, 1989.



RBS 70 with clip-on Night Device. The clip-on Night Device designed by Bofors Aerotonics in co-operation with Swedish Ordnance will be used to upgrade existing sights as well as becoming an integral part of new RBS 70 systems. The Clip-on Night Device has a mechanical interface making it very easy to fit onto the RBS 70 day sight.

(Photo: Bofors Aerotonics AB)

# Guns and Gunners

by Col P. F. Nowlan

*The Pike will be always associated with the Irish Rebellion of 1798. It was the main weapon of the citizen armies raised by the United Irishmen in Ulster and Leinster, and later in Connaught when the French Forces landed. Irish armies placed their hopes of success on the shock power of massed pikemen in close quarter fighting. Of course they had some old guns that had survived from the National Volunteers of the 1780s. In Leinster the United Armies captured guns and howitzers from the Crown Forces and in Connaught captured guns were added to the few guns brought in by the French.*

**G**UNS, howitzers and mortars are the three separate types of ordnance used by the Artillery. Each type had special design features or characteristics relating to the particular task it was required to do. Guns were used to engage Infantry and Cavalry beyond the range of one's own small arms. For this they needed high muzzle velocity to get adequate range and hitting power. Howitzers were used to engage targets behind cover and mortars were also used for high-angle fire exaggerating the characteristics of the howitzers. High muzzle velocity was not necessary for howitzers and mortars.

Until the 17th century the major use of artillery was in siege or static situations. The ordnance or cannons developed for those situations were heavy and cumbersome and lacking in mobility. During the Thirty Years War (1618-1648) innovative commanders such as Prince Maurice of Nassau and King Gustavus Adolphus of Sweden recognised the value of mobility in artillery on the battlefield. To obtain effective firepower at the critical place and time Maurice of Nassau initiated the practice of deploying light guns with each of his infantry battalions. Gustavus Adolphus adopted the procedure and practised it consistently.

At first, very light guns of about 3-pounder (pdr) calibre or less were used. However, as a light gun with greater hitting power was needed, a renewed impetus was given to the search for improvements in gun manufacture.

Guns consist of three components – the barrel or piece, the wheels and carriage and thirdly, the sighting system. Improvements were needed in all three components to produce a really effective light gun for employment with an infantry battalion.

Initially, wrought iron was used in the manufacture of the barrel. The procedure for hollow-casting a barrel in a mould which was developed in the 16th century was replaced by solid casting in 1747 when the Dutch perfected the procedure for drilling solid metal to produce the piece. These developments reduced the size and weight of the barrel and also allowed for the use of brass or bronze in its manufacture. Lighter than iron, bronze was used for light guns for field artillery and the cheaper iron was used for siege and garrison artillery.

The barrel had to be carried into battle and used and manoeuvred there. For this it required light, but strong wheels and carriage. These were developed in this period also. General Gribeauval standardised the French artillery in the mid-eighteenth century using the Austrian as his model. He designed a gun carriage so that it could be used for guns of different weights using standard size axes and

wheels which also fitted the limbers and ammunition caissons.

The main improvements in the sighting system occurred in the eighteenth century. Early systems were lacking in accuracy. The development of the elevating screw and the tangent sight proved the means to elevate the barrel to a precise setting to give the necessary range to the shot. In engaging targets at close ranges with grape shot these were not used as the gun could be aimed directly at the target.

To bring the gun into action it was brought on to a flat surface and then aligned on its target. When it was fired the force of the recoil caused the gun to run back about four to six feet. Before it could be fired again it had to be brought forward to its firing platform. As even light guns weighed over half a ton this action required considerable muscle power in the gun crew.

Most of the field guns in Ireland in the eighteenth century were of British origin and were probably made in the



The Gribeauval designed gun carriage at the Musée des canonniers séculaires de Lille, France.

Woolwich Brass Foundry, which was established in 1716. Twenty brass 6-pdrs that had been made in Dublin were test fired in December 1755 in the Phoenix Park.

The developments in artillery that had spread throughout the Continent of Europe in the 17th and 18th centuries had also spread to Britain. As early as the civil wars of the 1640s it was the practice in English armies to attach light guns to infantry battalions in battle. In the 18th century Britain, being more concerned with colonial wars, concentrated its efforts on developing light guns, mainly the light 6-pdr gun made of brass or bronze. General John Armstrong, who died in 1742, was probably the designer of the British light 6-pdr. Because it was subsequently mounted on a carriage designed by General Congreve it is often referred to as Congreve's 6-pdr.

The basic design of the light 6-pdr did not differ greatly from other field guns. It was a smooth bore muzzle loader with elevating screw and tangent sight, axle and wheels and a double bracket carriage, the standard carriage of the period. This carriage consisted of two timber planks, called cheeks or brackets, placed on edge, almost parallel (narrower at the axle) and joined together by four cross-pieces called transoms. In action the carriage was lifted and moved using two hand spikes. The light 6-pdr carriage could be moved by one man. In the 1790s General Congreve designed a single block trail which made it even easier to manoeuvre.

The emphasis on lightness and manoeuvrability were the dominant factors in the design of the British light 6-pdr gun. It could be drawn by three horses carrying its full complement of ammunition, equipment, stores and tools whereas the French 4-pdr in full marching order required four horses. The 6-pdr also had a small wheel called the Hanoverian truck which was placed under the trail of the carriage when unlimbered to make it easier to move the trail when aiming the gun in action.

The guns in Ireland were under the control of the Royal Irish Artillery Regiment which was established in 1760. In 1794, the year after the establishment of the Irish Militia each regiment was ordered to provide an Officer, Sergeant, Corporal and twenty-one men to be trained as gunners. These were trained in various centres: Chapelizod, Belfast, Limerick and Kilkenny. When they returned to their units two light guns were issued to each battalion. In 1797, most militia battalions were issued with two light 6-pdr guns and about 320 militia Sergeants, Corporals and Privates were trained as gunners. The threatened French invasion at Bantry Bay in 1796 had emphasised the need to prop-



*An Officer of the Royal Irish Artillery c 1775. The blue coat had a red collar, cuffs and lapels; turnbacks and lining were white. Epaullets and lace were gold with gilt buttons. A crimson sash was worn over the right shoulder. The waistcoat and stockings were white; breeches buff. The black bicorne hat was edged with gold lace and carried a black cockade and a gilt button.*

erly train and equip the forces in Ireland. At this time also the Royal Irish Artillery Regiment received some new guns and the establishment of a Corps of Drivers attached to the artillery was planned. The Royal Irish Artillery Regiment then numbered 2,085 all ranks of which 1,430 served in Ireland.

In addition to these preparations a detachment of the British Royal Horse Artillery arrived in Ireland in December 1797. These developments gave the government forces in Ireland a considerable amount of artillery. However, as late as May 1798 some militia units had not received their battalion guns and many garrisons had older type guns rather than contemporary pieces.

The rebellion began in May 1798. The insurgents attacked Naas, Co Kildare on 24th May and were defeated by a small force of Armagh Militia equipped with one light 6-pdr outside the jail in the centre of the town. On the same day the rebel forces failed to defeat weaker Crown Forces at Tara Hill. Again, the light 6-pdr gun gave

the advantage to the Crown Forces. In June, at Bunclody (Newtownbarry) the rebel army, with the aid of a 6-pdr and a howitzer they had captured some days before, drove out the garrison. This rebel victory was soon turned to defeat when the garrison returned to the attack and with grape shot and musket fire retook the town.

These type of incidents were repeated in various locations. At Tubernoseer, Co Wexford, Crown Forces under Colonel Walpole were ambushed and suffered heavy casualties including the loss of two 6-pdrs and a howitzer. One gun crew with Walpole coolly brought their gun into action under fire in an effort to dislodge rebels from their ambush positions. Despite the gunners initial success they were captured eventually.

At New Ross, one of the hardest fought encounters of the rebellion, both sides used artillery but again the advantage lay with the Crown Forces. The United Army under Bagenal Harvey began the battle by an assault on Three Bullet Gate. There, an attempt to overcome the defences by driving a herd of cattle over them, a tactic which had been successful at Enniscorthy, was defeated. The defenders were aided on this occasion by two guns firing grape shot. However, the Wexford men eventually breached the defences and fought their way into the town. In doing so they captured four guns. But without trained gunners the guns were of little use. Two crews were organised - one to man a howitzer and the other the gun.

A Protestant farmer named Boxwell, a former member of the Royal Irish Artillery, commanded the howitzer. Wounded through the bungling of his crew he had himself tied to the howitzer which he continued to direct until he died. A prisoner, an artilleryman, captured some days before was forced to fire the gun in an attempt to destroy a strong point in the town. When he fired too high he was shot by his captors.

The artillery of the Crown Forces fared better. One strong point had two ships guns under a Sergeant Hamilton of the Donegal Militia. They held out against many major attacks throughout the day using grape shot to cut lanes through their attackers.

The guns deployed with the Clare Militia within the town enfiladed and raked shot the street through which the rebels advanced towards the town centre. These forces also continued to resist and the rebels were unable to dislodge them.

When the United Army retreated from New Ross they left behind a lot of artillery. Without trained gunners and an organised supply system to provide the necessary gunpowder and shot, the guns were mere ornaments



and status symbols. The absence of effective artillery was a major drawback to the insurgents at Arklow, Vinegar Hill and elsewhere, just as it had been at New Ross.

In Ulster too, this deficiency in artillery would be sorely felt by the United Irishmen. Initial successes against smaller garrisons in Co Antrim gave the United Forces control of Kandalstown, Larne and Ballymena. Henry Joy McCracken's army advanced into Antrim with two brass guns inherited from the Volunteers of the 1790s to be met by about 150 of the 22nd Light Dragoons with two 6-pdrs. McCracken's guns, poorly mounted and poorly supplied with powder and shot, did some minor damage before the insurgents fled from superior fire power of the Crown Forces.

As McCracken's force disintegrated the rising began in Co Down. Henry Monroe of Lisburn was chosen to lead the 7,000 men of the United Army of Co Down. Their arms were similar to those of the Wexford men and they set up camps at Ballynahinch, Saintfield, Newtownards and Kilgobbin. Their artillery consisted of six 1-pdrs, or swivel guns, mounted in pairs on horse-drawn carts.

General Nugent assembled a force of about 1,500 men, six 6-pdrs and two howitzers and marched on Saintfield. Finding it deserted he burned it and advanced on Ballynahinch which he bombarded with his two howitzers for some hours. The main body of Monroe's army was attacked at dawn by Scotch Fencibles with two 6-pdrs from a flank. Driving in the outposts the Fencibles poured grape shot from the 6-pdrs on the main body. Many attempts by the insurgents to charge the guns failed as they were "blown from the mouth of the cannon like chaff". In a short time General Nugent advanced almost unopposed into Ballynahinch. The revolt in Ulster was at an end.

The long awaited French forces arrived in Killala on August 22nd 1798. This small force of 1,500 men under General Humbert had three 4-pdr guns, i.e. a gun section for an augmental battalion. The French were joined by Irish insurgents and advanced on the Crown Forces concentrated at Castlebar. Reaching Castlebar on 27th August, Humbert had only one gun, two had already broken down. Nevertheless, he attacked what appeared to be a well defended position.

The Crown Forces deployed at Castlebar included five 6-pdrs and one howitzer of the Royal Irish Artillery Regiment, the battalion guns, i.e. two light 6-pdrs of the Kilkenny and Longford Militias and of Frazers Fencibles giving a total of twelve pieces. The Franco-Irish force under Humbert captured all of this artillery.

Some accounts claim sixteen pieces and a semi-official report stated fourteen guns were lost. Maxwell wrote - "The artillery taken in this disgraceful defeat consisted of fourteen pieces, of which four were carriage guns".

Despite the rout of the Crown Forces at Castlebar, some of them, especially the artillery, acquitted themselves well. This extract from "A Short history of the Royal Longford Militia" by H. A. Richey, BL, tells of one determined stand by the Longford men under Lord Granard. "These officers then took post on the bridge with their small party, and a carriage gun well served and directed by Corporal Gibson of the Royal Irish Artillery, and with great gallantry and good judgement defended that pass for above half an hour against the main body of the enemy". This action ended when the

artillery men were either killed or wounded and the gun was rendered useless. General Humbert stated that he "had not seen a more obstinate engagement, even in La Vendee".

Humbert left Castlebar on September 3rd. On September 8th he was forced to surrender in Ballinamuck. The only check to his march to Ballinamuck was at Colooney on September 5th. There the Limerick City Militia used their two light 6-pdrs to good effect until the Irish under Humbert captured them by a flanking charge.

Next day at Dromahair, General Humbert discarded most of the captured artillery as it was slowing them down.

On 8th September 1798 the French

Continued on page 22 >



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Collins Bookings Office will close on 11 October 1991. Thereafter Bookings must be made at the National Concert Hall.



Practice makes perfect. Pte John Murray (left) and Pte Joe Cullen (both 6 Inf Bn) practice their 88mm ATR Drills prior to Overseas Service. (Photo: Press Offr W Comd)



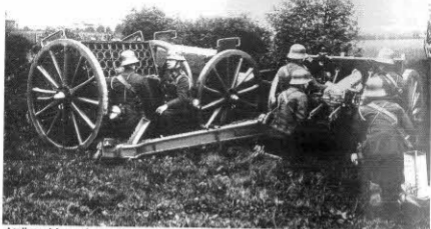
Peacekeeping Duo. "Heading" up the Western Command Coy for UNFIL Service with 70 Inf Bn. No prizes for guessing who is the "Head" man; Comd'r Tom Croxall - Coy Cdr and his 2IC Capt Pat Quintin in Costume Bkx. Addline on 4 Sep '91. (Photo: W Comd Press Offr)



Leaver and Masseur. CQMS John Foster underwent a sponsored Slim in aid of the Donegal Hospice, losing two and a half stone and raising £600 in the process. He is pictured presenting the cheque to Mrs M. McNulty of the Donegal Hospice. (Photo: Cpl R. Brennan)



Two Troopers? Also involving with C Coy will be from L/R. Rear: Troj Jay Casey and Fowler Maguire (4 Cav Sep) and Front Ptes Mark Fox and Paddy McElroy 28 Inf Bn, seen here undergoing Milan Weapon Training. (Photo: Press Offr W Comd)



A well concealed gun emplacement. This picture was taken in 1930, inactive ammunition, and shows a team with their split trail 18 pdr and attendant limber. Check the helmets and canvas packs.

All Photos courtesy of Military Aviation

## A Pot Pourri of Memories

by Lt Col D. Burke (Retd)

**A**FTER I was commissioned in 1938 and assigned to the Artillery Corps I found myself with the Ack Ack Contingent in McKee Barracks. I enjoyed the Exercises in Gormanston in the Summer of 1939, but it was nose to the grindstone from September on. War had broken out in Europe and 'The Emergency' was declared at home which lasted for the duration of the War. While AA defence positions were being sited and set up for the Air Defence of Dublin, all available AA guns were mobilised and manned and put out in temporary positions in the jumping enclosure and the Barrack Field.

It was a boring operation for most of the day for the detachments but training programmes helped to while away the time. Entertainment programmes *in situ* were arranged for after normal duty hours.

Almost a daily feature of these programmes was a tannoy broadcast with current affairs ad-libbed by Sgt Gilmartin, a man of great ability, talent, likeable disposition and very glib of ideas and tongue. His contribution

helped in no small way to pass away many a dreary waiting session in the Barrack Field gun position.

He usually opened up his programme with an exhortation to the troops to be of good heart and courage in the performance of their onerous duties. He assured them that times would not always be so bad and that if they kept the country safe a rise in pay could be expected. He gave a synopsis of the weather report, the current fuel factor for the ammunition, corrections to gun data to compensate for the weather and atmospheric conditions. All concerned were warned that such data was purely fictitious and was only issued for entertainment purposes. Indeed such warning was superfluous as the corrections issued would have caused missfires in 'Big Bertha! Of course they provided great programme padding. If you were the well off type you might even get the closing prices in Wall Street.

He usually signed off by making the following announcement "And if any of you fellows are broke next Tuesday evening, report to your good friend Sergeant Gilmartin for he'll be broke too".

Note: Wednesday was pay day in those days - so Tuesday was the day to go for broke.

### Warning Shots

The year was 1941 and I had a pair (Section) of Bofors located in the Hibernian Schools, Phoenix Park (now St Mary's Hospital). Gun emplacements for them had been coaxed near the playing pitches across from the Fifteen Acres. These positions were only occupied when the alert system was activated. Dublin City and environs were by now designated a Gun Defended Area and was out of bounds to all aircraft except our own military types.

Collinstown Airport (now Dublin Airport) was running a passenger cult airmail service a few times a week to England but the route to and from was well clear of the Dublin Area.

In the early hours of a cold February morning in 1941 this Gun Section was alerted and manned the positions. No enemy appeared however, and a stand down was ordered except for one skeleton crew. At about 11.30 this

skeleton crew engaged an unidentified aircraft approaching at low altitude over the grove beside the main Park Road, gracefully the aircraft banked and disappeared over the Fifteen Acres. I was later discussing the incident with the Section Sergeant when a bystander and bicycle approached and having duly excused the intrusion volunteered his version of the action. He agreed that the aircraft flew in low over the gun and that when it turned sideways over the Fifteen Acres he could clearly see the 'Swastik' (as said) painted on the side. Being reasonably well reared I thanked him for his contribution and he left a happy man.

Shortly after, the Field Telephone Orderly approached me with a message just received, 'Sir, from Air Defence, be on the look out for the air mail, she is flying low and off course due to the fog'. Radio Eireann announced on the one o'clock news that warning shots were fired to alert the airmail that it was flying over a forbidden area. The Sgt and I put pen and paper together and submitted the required report.

If I may use an expression of Les Dawson's 'Well Thank God for that'. But I'm afraid the warning shots were not from 'Blankety Blank'!

#### Back to the Field

Mid 1941 and we were back in Kildare's newly built barracks and hard into training for what became to be known as 'The Big Manoeuvres of 1942'. The Summer Exercise period usually commenced in April and ended in September each year. Troops were all under canvas during that period. Brigade Commanders sometimes took an impish delight in springing surprise situations and problems on



Battalion Commanders. This was to test reaction and the state of readiness of the troops.

The set-up at the time was for a Battery of Artillery to be assigned as gun support element to each Battalion during the training period and mine was allotted to the famous 'Bloods'. Major Mick Higgins, a popular figure and brilliant tactician was the Commanding Officer.

While camped between Waterford and Tramore on one occasion, and in the pre-dawn pitch darkness, the alarm was raised and the Battalion Commander presented with the problem of repelling a party of 'enemy paratroops' which had been 'dropped' in on the Back Strand at Tramore.

We were hurriedly assembled, some bleary-eyed and searching for note pads and pencils, and the Battalion Commander called attention for

orders. It was pitch dark and no lights were permitted.

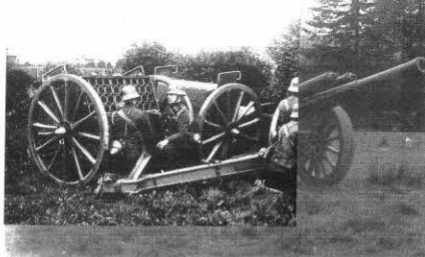
The CO, however, was allowed the use of a well cowled torchlight so as he could see where he was going with his orders.

Orders commenced: 'Pay attention! What is estimated as a Company of enemy paratroops has landed on the Back Strand, Tramore'. An unidentifiable figure with a well lubricated voice stepped forward from the ranks of the assembled Coy Commanders. 'Shoes me Sir, and pardon me for saying it, but I have just come back from the back -- from the Back Strand and there isn't a cricket knocking around there only courting couples. And that's the truth Sir'.

Well as they say, 'orders are orders', and the Exercise went ahead as planned. As far as I can remember it was quite satisfactory, and all the



What's an ACMAI? Members of an Artillery Unit on manoeuvres during the period. Yes they are testing a gun (left, submerged) and they say the Infantry got all the mucky jobs!



No Manpower Shortages? The crew of a 60 pounder taken in the Glen of Inaal. The soldier to the left belongs to the Gun's limber (ammunition container).

courting couples rudely awakened! We got off the following day till 12 noon.

#### Crossing the Blackwater

I was still in Support Battery with the Bloods in 1942 when the All Army Manoeuvres took place. Artillery Units of the Brigade were in position covering the crossing of the River Blackwater to meet "enemy forces" to the South. A Signaller and myself tagged on to the Advance Elements of the Battalion. Our means of crossing was by a crudely constructed boat made of a wooden frame and covered with canvas lorry covers to assist flotation and safety of voyage. Two stalwart swimmers, Lieut Andy Moore and A.N. OTHER (Sgt) stripped and each with the running end of a tow line attached bandolier style across the chest swam across to the South bank. Due account was taken of the triangle of forces because of the strong current and both reached the South bank - spot on target.

"Good show lads" I said to myself. What a relief to everybody. We had all waited with fingers crossed and bated breath as we watched the two intrepid dolphin-like watermen surging forward through the strong current, heads plunging under the water and with naked hind quarters bobbing up over water they looked horribly like something out of the "Spitfire" Image!

The canvas boat was then laden with its cargo of troops and pulled across river by the two men. To see two naked images in the grey midsummer dawn dressed only in birthday suits pulling a canvas contraption laden with wet-footed soldiers was to me an

eerily spectral apparition.

I will finish this piece by saying that the above Andy Moore was one of the finest fellows I had the privilege of knowing and serving alongside. God Rest you Andy. You and your fellow haulier did an excellent job of work that morning.

*Uí bheith bhur leithidís arís ann.* (Note: I wish I could give the Sgt swimmer a mention but I never got his name.)

#### The Week in the Clear Air

The early Summer of 1943 found me in the appointment of Camp Commandant in charge of a Turf Cutting Camp between Kildare and Athy. We had quite a large contingent under canvas there with all the necessary installations and trappings required for the turf cutting campaign. I think nearly all Army Units cut and harvested their own turf requirement that year.

Few of us knew anything about the tactics of drainage, skimming the top sod and preparation of banks, but we were in the very capable hands of one Gunner Tom Broe whose expertise in matters of cutting and harvesting turf made the operation so easy and simple for all of us. It was the aim and object of all the cutters to emulate the skill and craftsmanship of Tom's slane work. Few could equal him - he was a good one. We just did what Tom suggested and demonstrated and our Camp in the bog was a happy place to be.

We had all the necessary equipment and installations for troop comfort from the humble bivvy to tents and large marquees. A corrugated iron structure substituted for the conven-

tional cookhouse and all ranks were on field rations.

It was a very still bright evening with little sound about. The day's work was ended and most of the gang were resting after tea. There was one solitary skylark doing his damnest to entertain us with his party piece just overhead the cookhouse - or maybe he had some important message for us somebody thought. Maybe it was the leftovers from the tea session he had his eye on. Sgt Jim Hughes came up with the solution "It is a great sign of the weather", said Jim, "to see a skylark soaring and singing like that". We were all delighted with the prospects of a fine spell as things had been mixed enough up till then.

The date was 10 May, 1943, and on that very night the message of the lark was made manifest - one of the heaviest snowfalls of any Summer this Century covered the country in a thick blanket and all turf cutting ground to a halt. The ridge-pole of one of the large marquees was cracked and the roof collapsed; bivvies looked a sorry sight and everybody seemed stunned and mesmerised at the very thought of snow in Summer.

I exercised my prerogative and gave a pardon to Sgt Hughes for putting the wrong interpretation on the skylark's behaviour and we continued with the turf cutting as soon as the weather improved.

Now everytime I hear the signature tune of Ciarán MacMathúna's Sunday morning radio programme it takes me back to the "The Lark in the clear air" and the "Goose in the Bog".

Isn't soldiering life full of great memories?



**Now Pay Attention.** This is Eoin O'Sullivan of Ballysodan who at 4 years of age demonstrates a first class technique in "hands on" weapons instruction on the square in Sarsfield Bks, Limerick. He was there as a visitor during the Barrack Open Day. Not sure about the last though Eoin.

(Photo: Limerick Leader)



**If at first you don't succeed, Commit Pat Healy (GTD C Comd) Overall Defence Forces Orienteering Champion surveys his prize which was presented by Col T. Dunne (OC 2 Inf Bde). We are reliably informed that this was his eighteenth attempt. Yes eighteenth! Brings a whole new meaning of the phrase "well earned".**

(Photo: S Comd Press Off)



**Best All Round Potential.** 15 Inf Bn (PCA) recently completed a POC MCCs Cse in Bere Island and the top student was Cpl Fergal Kirby A Coy, Listowel. We cannot think of a more pleasant location to run such a Course. Eagle eyed readers will spot Lt Eithne at anchor. Seems to be everywhere these days, the Naval Service!

(Photo: S Comd Press Off)



**"His Cup Runneth Over".** DCI Cde Sgt, Cernit Niail Doherty surveys the Southern Command Combined Wymn Cup, after his Son had a class win, winning Rifle, GPMG and BAP Competitions. Comdt Daly is no doubt updating his UN colleagues in Angola on the details.

(Photo: Cpl O'Mahoney CTDOS)

# Down the Indus Gorge

by Comdt M. Verling

*It was never my intention to drive this gorge - a fanciful thought was to raft it, but no information was available on the subject. What in fact happened was that with a few free days leave to spare in November I flew to Gilgit, a beautiful flight where the pilot flies between the mountain peaks and edges the Fokker into the narrow valley approach to the town. With such a tricky airport and even more unreliable weather, return flights are uncertain to say the least. The rule is that passengers from a cancelled flight have priority the next day. Therefore it was no surprise to me to be told two days later "Your tickets cannot be confirmed Sahib, perhaps tomorrow". Having only 24 hrs to spare before my next duty, the drive back to Pindi/Islamabad was inescapable.*

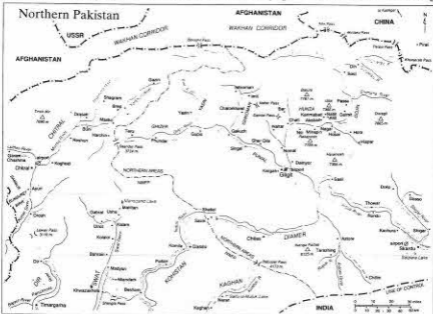
**S**O AFTER A FEW phone calls, a shared car was agreed to and a departure time of 0600hrs. With the prospect of a 14 hour drive tiring me already. I shared the last of my "Irish" with the only Irish Gilgit resident, Dave Dolan of the International Labour Organisation and rested prior to the journey.

Promptly at 0600hrs a battered Toyota Saloon arrived (the entire population of Northern Pakistan seems to move on Toyotas) and we pulled out on to the Kara-Koram Highway. This

road, highway is definitely too grand a title, is a marvel of engineering and a monument to courage and determination. Stretching 500 miles (approx) it connects Pakistan with China and follows one of the ancient Silk Routes. Completed in the recent past it claimed 1000 lives (official figures) during construction, and as we swung onto the first series of bends just below Gilgit where the Hunza and Gilgit Rivers meet the Indus, it was not difficult to see how this is so. The road is cut into solid rock with terrifying

overhangs and a drop of 1000ft to the river below. The roads of Pakistan are the responsibility of the Army and every now and then squads of Army Engineers work at bulldozing gravel slides off the road or re-building buttress supports. We marvelled at the danger signs: "Start of Kara Slide" "Relax, end of Kara Slide" and so on to the next. If a slide did occur it could contain half a ton of loose gravel or a thousand tons of rock and slimy mud or clay.

After two hours of breathtaking





*The Khyber Pass. A general view of the historic Pass looking West, typical of the terrain over which the author travelled. The traffic flow problem is addressed in a practical manner. Of the parallel roads in view, one feeds traffic East and the other carries Westbound vehicles.*

All photos: Cemal M. Verling

bends the road swings West towards Chillas where a massive suspension bridge at Raikot crosses the Indus and the driver points out the towering peaks which are at a height of 15/18000ft. We are hoping to see Nanga Parbat at 26,000ft the "Sleeping Beauty" of Pakistan, but she is well clothed in mist and cloud. This terrifying series of spirals which only gets you to the snow line, is now replaced by a jeep track. Just beyond Chillas where the beautiful Indus sand is thrown onto the banks in huge beaches, it is shipped up into occasional

sand storms and mini high altitude deserts.

Pakistan drivers will wash their cars and trucks in any water but it still came as a surprise at 7,000ft to see four truckers happily washing their "moving art displays" in hot water which was flowing freely from the mountain springs - we had arrived at Tato Pani hot water springs. Curiously no effort has yet been made to commercialise them. Here and there we marvelled at the cultivated fields of corn (maize) and the orchards of apple and apricot clinging to the hillsides. Just before

Chillas the driver stopped to show us the petroglyphs, or rock carvings, which are very plentiful at this point. First started by early pilgrims they were added to by passing traders, travellers and tourists ever since. The best ones are near the bridge at Thalpan, one showing a warrior slaughtering a goat dates from the 1st Century BC. At Chillas the road to the Kaghan Valley leads off over the Babusar Pass. This is mainly a jeep road climbing to 14,000ft and is closed from October to May. The road continues West through towering peaks and rushing torrents and delicate suspension bridges cross to the terraced fields on the other bank. Occasionally you get a glimpse of the traditional cowhide rafts used by the locals to take passengers and produce to market.

Finally, we swing South to Dassu where, after eight hours of driving and yet only half way, the driver halts for tea. Dassu is a sleepy untidy place but the hot sweet tea is welcome. We don't have much appetite as we have been chewing dried apricots on the way down. These apricots are a feature of Gilgit and Hunza and very nourishing, anyway, a heavy meal on these bends does not sit well. Of course a simple refusal of food is not accepted. I had to inspect the open cookhouse beside the "hotel" and view the "Sear Kebab" and the cooking on the open clay ovens and fires.

Another three hours and we reach Besham, which has a Pakistan Tourist Development Corporation hotel and is a normal overnight stop on the journey. Besham has a small bazaar with the usual Chitral hats, scarves, waistcoats and long coloured socks. It is a Mecca for geologists who come to



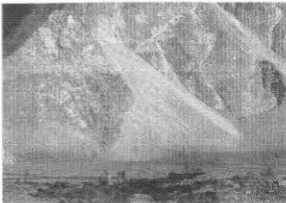
*Passage to India. This bridge, a fine example in the use of local materials is sturdier than most. The water it spans is at a low level, though fast moving. Later in the year as the level rises the local children will not have the opportunity to take in the scenery. The photograph was taken in the Kaghan Valley.*



study the meeting of the earth's "great plates" where the Indian plate pushes under the Asian plate. This geological action causes the mountains to rise a quarter of an inch per year and accounts for the many rock slides and tremors.

Leading off to the West is the road over the Shangla Pass joining the Indus and Swat Valleys. Some intriguing valleys like the Dugu and the Korian peep into the Indus and invite the explorer and trekker. Shortly after Besham we cross the "Chinese Bridge" with its ornamental dragons and lions and leave the Indus to its long journey to the sea. We continue through expertly tilled terraced fields, through the pines near Battagram and on to Mansehra and Abbottabad. At Mansehra we have just enough light to coax the driver to take us to the Ashokan Edicts which are cut into rock. Written in the 3rd Century BC, they exhort the traveller to give alms to the poor, honour their parents and friends and to avoid waste. Humbling words from one of the world's greatest Emperors 2250 years ago.

Finally at nine we make it to Islamabad and rest, so ending the journey of a lifetime. One thinks of the number of farmers, traders and war-



The Big Country. The sheer scale of the landscape may be appreciated in this view.

riors who have made it before us. In a Mission where all journeys are exceptional whether it be from the famous city of Herat, North to the Russian border or skirting the city remains of Balk on the Oxys River, the images of the landscape will last forever.

*Editor's Note: Condi M. J. Verling served in Afghanistan with LINGOMAP (United Nations Good Offices Mission in Afghanistan and Pakistan) from April 1988 to January 1989. He continued to serve until March 1990 mainly in the North Western Province and Baluchistan in Pakistan.*

## > Guns and Gunners

Continued from page 14

surrendered at Ballinamuck after a short engagement against superior forces under General Lake. In his report Lake stated that he took three light French 4-pdrs and that in pursuing the Franco-Irish force he had pressed them so hard as to compel them to discard 'nine pieces of cannon which they had taken in former actions with His Majesty's Forces'. This left at least two pieces in the hands of the Irish.

At Castlebar 53 members of the Longford Militia had, after the defeat of the Crown Forces, joined General Humbert's Franco-Irish force. Two of these, Casey and Magee, manned the guns at Ballinamuck. The last stand made by Magee, after the French had surrendered, is described by Dr Ricard Hayes:

'Humbert's surrender had taken place and the slaughter of the insurgents there had commenced'.

On the roadway near Gaig, Gunner Magee with a small body of pikemen was still making a forlorn stand. Soon after the blowing up of the English magazine, his supply of ammunition became almost exhausted. To supply the deficiency, camp pots and kettles were hammered to bits, and the metal mixed with grape and cannister. And

when once more an English cavalry squad tentatively approached, a discharge of these caused such confusion in its ranks that it was forced to retreat. Preparations were being made to load again the last remaining French gun, but a ball from the English lines struck it and broke the stock of one of its wheels. To render it capable of being fired, however, four insurgents heroically stepped forward and the gun was placed on their shoulders. Magee having applied the match, it boomed out, but the gallant volunteers were killed by the recoil. An enemy corps then moved rapidly towards the spot without opposition and, capturing the gun, made Magee a prisoner. A drumhead court martial on the battlefield subsequently condemned him to execution "as a deserter from His Majesty's army". A French account described it thus:-

'A short time later he (Humbert) was presented to General Lake. All this time the Irish rebels were being 'mopped-up'. It is not for this history to give the details. Suffice it to salute in passing the heroic pikemen and improvised gunners hacked to death at their guns, the last cannon of the Army of Ireland'.

**What type of gun did Magee fire?** There are two possibilities. One is that he fired a French 4-pdr. The other is that he had a 6-pdr gun and that this was one of the Longford Militia battalion guns captured at Castlebar. The

term "French gun" is used in the folklore accounts of Ballinamuck and could imply French possession rather than French manufacture. Whatever gun was used Magee's defiant stand, similar to Corporal Gibson in Castlebar, was honoured in 1939 when the Artillery Corps named its major Barracks in Kildare after him. He is further commemorated in the "Magee Gun Trophy". This is a model of a smooth-bore gun with a double bracket trail with its right wheel broken to recall the scene at Ballinamuck. Made in bronze by the late Coy Sgt James F. Scanlon it remains a reminder not only of Magee, but also of the guns and gunners of '98 and the spirit of Irish gunners past and present.

The role of Artillery in 1798 in Ireland was minimal. Nevertheless the flexibility and usefulness of the 6-pdr was confirmed once more. In conventional warfare also it proved its worth. Napoleon Bonaparte thought so highly of it that he introduced it to the French artillery in 1803. The practice of slotting guns to battalions was ended in 1801 and infantry would eventually acquire its own heavy weapons. Single gun actions such as Magee's at Ballinamuck and the Royal Irish Artillery at Tuberneering were destined to continue and would feature in every theatre of war in World War II.



**Family Ties.** Mr David Carrut, Grand-acceptor of Eamonn Carrut, recently visited Cadet Officers Mess, Curragh, where he was presented with a plaque. He is pictured here in the grounds with his wife Nuala, daughters Clodagh, Deirdre, Denise; Brig Gen T. Wall, GOC C Conn, Col J. Leach and Lt Col J. Murphy.



**Pedalpushing Trio.** Lt Col J. H. Murphy who presented the prizes to the Town Winners of the 100km Invitation Annual Cycle Race held at the Curragh recently. Pictured L/R are Lt Col J. H. Murphy, Cpl Gerry Martin, Pte Declan Grey and Pte Peter Lusk.



**Student of the Year.** 2 Lt Des Finlay (centre) General Training Depot, Curragh, who was Best Student of the 1990/91 Cadet Class, recently received his National Diploma with Distinction, in Military Studies. He is pictured here with Lt Col John Martin, Comd of the Cadet School and Capt Sean Fitzpatrick, Class Officer of the 66th Cadet Class.

## BABIES OF ROMANIA APPEAL



**Romanian Destinies.** Comd O'Byrne, C Conn and Capt Tom Byrne, DFHQ, pictured at the Curragh with Maria Fosterick, Ballinater (Babies of Romania Appeal), and in the background the bus filled with provisions and toys which they will be driving to Romania.

# Civilian to Gunner

by Gnr T. Ó Flannagáin

**B**ACK IN 1988, I was working as a Computer Aided Design (CAD) systems engineer for a computer software house in Dublin and we won a contract to install a CAD system for a joint Army/Naval Service project to provide graphical output for data from their computer-based Fisheries Protection Information System (FPIS).

I was duly despatched to both install the System and to train, mostly Naval personnel, in its use. I spent a week doing this at Defence Forces Headquarters in Dublin and this gave me an insight into Defence Forces life.

The week had made a deep impression on me as I was not only in awe at the ability and enthusiasm of these personnel and Officers but I was also very taken by the convivial atmosphere and ease of teaching such a captive audience. So I decided without delay, that due to an already inherent fascination with Artillery, life in the Defence Forces could prove very interesting.

Unfortunately, I was soon brought quickly down to earth when I discovered that at 31 years of age I was already too old for a Commission and I more or less resigned myself to my extant profession.

However, on moving to my present job in Galway I ended up working with a colleague who had been in the FCA in the Corps of Engineers for 16 years and although he tried to persuade me to join his own Unit, I decided that this was the perfect compromise and opted predictably for the Artillery Corps.

So, in September 1989, after being sworn in, I was assigned to 4 Bty of 5 Fd Arty Regt, W Comd (FCA), and shortly afterwards attended my first evening training session at Dun Ui Mhaoliosa in Renmore.

Training was each Tuesday night, usually from 2000hrs to 2200hrs and in the Winter months, this was almost entirely given over to small-arms training, complemented by additional training at least one Sunday morning per month.

As the Spring months progressed, there were opportunities to compete at shooting competitions and to visit Defence Forces Camps in the main artillery firing range at the Glen of Imaal, Co Wicklow.

The initial training included square-bashing and drilling yet it was appreciated by most of my younger peers that the ability to follow commands instantly and reliably was an important factor in developing the level of teamwork required to fire high-explosive ordnance in a safe and mature manner on the firing range.

All commands were in the Irish language and I felt that this was both fitting and proper and did not provide any problems to anyone not especially proficient in the language as you soon got to know which ones were most important. Again, for reasons of safety, most commands at the firing range were also repeated in English where appropriate.

Of small-arms training, I can only say that I enjoyed every single minute of it. I was trained to understand how to handle a rifle in a responsible and competent manner and gained experience not only with the FN 7.62mm semi-automatic rifle, but also with the Lee Enfield .303" bolt action rifle which I had an opportunity to fire in competition. I was also trained in the use of the Swedish Gustav 9mm sub-machine gun, but unfortunately missed out on training with the .303 Bren light machine gun which is the standard section light support weapon of the FCA.

As well as training on a gun crew, I was also specifically trained how to 'lay-out' a 4 x gun Battery of 25 pdrs using an



*Cnr Tomás Ó Flannagáin is pictured here operating an Artillery Director at Leirion OP in the Glen of Imaal. (Photo, Comdt M. Duffy)*

optical artillery director (rather like a theodolite) and to use a Marconi systems hand-held computer to calculate bearing and elevation for each gun in the Battery. When I visited the Glen of Imaal in July 1990, we joined two other Artillery Units to engage in simulated targets in a three Battery shoot with live ammunition.

Safety was the single most important feature of all instruction which was as much as possible provided by FCA NCOs, but always under the direct supervision of FCA Officers and the ever attentive eyes of the Officers, NCOs and Gunners of the PDF.

The one thing about the FCA that always impressed me was the attitude of the Officers and personnel of the Regular Defence Forces. Their interest in the recruits was completely genuine and they would go to endless trouble to give us the benefit of their much broader professional knowledge and

experience. However, it was the way they went about this that was most impressive of all. The average age of a new recruit in the FCA is usually around 17 years and it would have been easier on some occasions to cope with one or two of the less motivated recruits simply by applying more discipline. However, as much as possible, the intention was to foster a responsible attitude, to the use of firearms in particular, in a professional but convivial manner. In essence, my own personal experience was that everyone generally enjoyed themselves thoroughly, even when marching or drilling on a wet night in the middle of October. If it was unusually cold or extremely wet, training was always moved indoors, as again, the experience was intended to be perceived as enjoyable rather than as an unpleasant obligation.

Probably the most significant corollary to this was the fact, nevertheless, that if you were extremely keen to learn, then there was virtually no limit to the helpful advice and encouragement that was available from all of the Instructors.

Finally, I never failed to be amazed at the regular presence of the Regimental CO at almost every single training session and firing practice. The presence of such a senior Officer gave, I believe, added credibility to our role and helped to generate a more serious and dedicated approach to the proceedings - especially among new recruits such as myself.

I must say that even on a wet, stormy night I genuinely looked forward to my Tuesday night training. One of the guys in the house where I stayed was also in the FCA (S&T) and we would often be both furiously polishing away at our boots shortly before heading out. There was always a parade inspection each Tuesday night and it was common for even the most stubborn of recruits to be well turned out with gleaming boots and a neat appearance. I believe that if nothing else this was one of the most valuable influences for the younger recruits as it was impressed upon us that care of our clothing and equipment was an important factor in staying alive in wartime. These habits once reluctantly adopted became second nature and would also permeate through to other aspects of life.

I think I was especially impressed with the sense of pride which, though never expressed by any of my comrades, was all too evident nevertheless in the care and dedication they demonstrated especially when on parade in dress uniform on ceremonial occasions.

In general the atmosphere was extremely good especially when we were on Summer Camp or when small numbers of us would visit other Camps for shooting competitions or the like. The camaraderie was enjoyable and I was, in general, very impressed with the level of maturity of those around me and their consciousness of how to behave in public when wearing the uniform.

For myself it is true that I was a bit on the old side to be a recruit and it was a very humbling experience to have to take orders from someone almost half my age and to have to wash dishes, clear refuse and brush floors in the Glen of Imaal. However, one of the reasons I joined was to learn a bit of humility, and to this end it was a very useful complement to my more self-assertive civilian lifestyle.

One of the greatest benefits to me as a newcomer to Galway was the opportunity to meet many new friends and to have a regular interest outside my daily job. In addition, when visiting other Camps I met many new friends from all parts of Ireland and this helped to provide a greater awareness of the varying roles played by the Regular Defence Forces throughout the country.

Of the Regular Defence Forces personnel, all I can say that it has been my privilege to be permitted to serve with them and I understand now why those men and women have been so well received and well-liked as Peacekeepers for the United Nations.

In November 1990, I was sent by my company in Galway to our US parent HQ in Minneapolis, Minnesota, on a Westinghouse Technology Transfer for 9 months. During my time in the US I happened to be introduced to one of our

employees who is a Lt in the Minnesota National Guard. By coincidence Lt Jeff Cades, who works as a Network Analyst, is in the 1st Battalion, 175th Field Artillery Regiment, which is part of the 34th Infantry Division. After explaining that I was also in an Artillery Unit in Galway, Ireland, Jeff arranged for me to spend a day with his Unit touring 'Operation Raging Bull' field training exercises at Camp Ripley in Northern Minnesota.

I arrived at Camp Ripley at 1030hrs on 17 June and was met by Jeff who told me that I had been assigned transport for the day and that if I had no objection, a photographer and assistant from the 147th Signal Battalion had been assigned to interview me and to take one or two photographs of me during the course of the day. Sgt Dawn Acris did the interview and I was photographed by Staff Sgt Stan Krogman. After the interview, where I gave a brief outline of the role of the FCA in Ireland, I was taken by jeep to where one of 4 x 155mm howitzer Batteries was already in action.

I must admit that I found the 155s extremely impressive both from the point of view of size and sheer firepower. I was invited to fire a round and was duly informed that it had landed approximately 12 miles away.

I was then taken to a Battery of 4 x 8" self-propelled howitzers and I was completely taken aback with the difference in scale between this equipment and our own small 25 pdrs back in the FCA in Ireland. However, on being informed that these complex pieces were out of service for 30% of the time and that one Battery required a full four man team to service them, they suddenly became only realistic more for strategic warfare than the tactical missions we would perform during training in Co Wicklow.

I think the one thing that amazed me most of all was the similarity of functions and roles for those in charge of laying out the guns and setting up fire missions. Almost all the terminology was identical to that with which I was already familiar and the equipment for laying out the guns was almost identical - although in the US the gun directors are referred to as 'aiming circles' which are set up at an orienting station at a known grid point.

For comparison sake, they took the charge temperature and they used Radar Chronographs to measure the exact muzzle velocities for each fire mission.

They were equally impressed to be told that the FCA makes use of other range finding equipment at the Observation Post for making adjustments during a mission and I was pleased that we were ahead in training in such a high-tech aspect of modern artillery.

For perimeter defence, the ubiquitous Browning M2 0.50" heavy machine gun was very much in evidence as were the jeep and utility-vehicle-mounted 7.62mm M60s. Stemming back to the original 1917 design by John M. Browning, the big .50 must by now be the oldest Infantry weapon still in service in the world.

However, there was no shortage of ordnance in evidence and there appeared to be no limit to the extent or variety of fire missions.

Safety again was paramount and everyone I spoke to was extremely knowledgeable about their role. I was also very interested to observe plotter boards in evidence as a backup to computer based systems in case of the effects of Electro Magnetic Pulse Radiation (EMP).

One aspect which I found quite interesting was that I was informed that 28 was the average age of men serving in a Minnesota National Guard Artillery Unit, as most prefer to stay on for quite some time.

Unlike in Ireland where the FCA has primarily an adventurous dimension most people who join the National Guard do so purely for the interest value.

It was quite a long day and quite a lot to take in in such a short time. However, it was a once-in-a-lifetime opportunity and I thoroughly enjoyed every minute of it. I couldn't see us ever having a need for the 8" guns but look forward to the day when we in the FCA progress to the howitzer 105mm.



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## AA 999



The start of the "South Coast Dragon Championship" off Glandore Harbour on August 24th as viewed across LE Ciana's Animals Ring. LE Ciana acted as Guardship and Committee Boat for this week-end event.  
(Photo: Lt J.F.M. Leach)



Polish Autumn Collection. Two Polish Cadets pictured recently in Cork dressed in different rigs. On the left the Watchkeepers rig and on the right an example of Rigging rig complete with safety harness for going aloft.

(Photo: Lt/Sea Tom Smyth)



Potential Watchkeepers. Pictured as the Oath is administered by Lt (NS) Paddy Whitty during the Commissioning of 30 Naval Cadet Class are Lt/R Cadets Martin Brett and Anthony Georgey. Having completed a normal Cadetship they will spend the next two years either at sea or in the British Royal Navy College, Dartmouth, where they will undergo the 9 month International Sub Lieutenant's Course. Thereafter, they will sit their Watchkeepers Examinations and on successful completion of these, they will be qualified to assume their duties of Officer of the Watch on board Naval Service vessels.

(Photo: Lt/Sea Tom Smyth)



Hello, Hello, Hello! Lt/CK Pascal Luby in the grip of the long arms of the law. Pascal (in right) is seen exchanging plaques with the Captain of the local Police Force team prior to a soccer match which took place in Kier, Garrysway. LE Director was on a Training Cruise in the area. The sailors won 4-0 - the first time in ten years of "Kier Week" that the Police team was defeated.

(Photo: A/Steve Tony Reddin)



Rock Hour? A Scudier plies away from LE Anife off the SW Coast. The Skellig Islands make an impressive backdrop.

(Photo: S/Lt Ian Brennan)

# A Challenge for Peace

by Col Michael Moriarty

*"In Angola, the chances of a child growing up to reach its fifth birthday are among the lowest in the world. From their first breath of air, Angolan infants face a volatile combination of vicious morbidity patterns, common to many developing countries, but which have been intensified by a long, tortuous war in which civilians are the principal victims. In Angola, 172 of every 1,000 infants die within their first year of life, compared to 66 in Botswana, 22 in Mauritius and only 5 in Japan.*

*Peace has eluded the people of Angola for more than a quarter of a century. After 13 years of struggle against the Portuguese colonial forces, the country was plunged into yet another conflict against South Africa and foreign backed rebel groups on the very eve of its independence. The "Second War of Independence" has proved a devastating conflict which has held to ransom social and economic progress in this potentially wealthy country for over 15 years.*

*An entire generation of Angolans has never known a single moment when one hostile force or another was not battering at its borders, terrorising its citizens, sabotaging installations or trying to crush its nascent institutions. The war has siphoned off scarce resources and manpower, inflicting material damages estimated at \$30 billion since 1980 alone and causing half a million deaths, of which 330,000 were children.*

*Remarkably, Angolans have remained steadfast in the face of years of threats and internal difficulties which would have broken the spirit of others elsewhere. Ngola, the Kikongo word for iron from which the country takes its name, seems truly to sum up the character of Angola's sons and daughters.*

*Today, Angola stands at the crossroads. For the first time in nearly 30 years, there is a real possibility of peace and renewed hope for speeding up the pace of social and economic development. The New York Agreement, signed by Angola, Cuba and South Africa, provided the basis for scaling down and eventual termination of hostilities in the sub-region. The Agreement formalised South Africa's withdrawal from Southern Angola, the independence of Namibia under UN Resolution 435 and the phased departure of 50,000 Cubans, mainly armed forces personnel, from Angola. A diplomatic process to reconcile the Angolan Government with the rebel group UNITA, was launched by 18 African Heads of State in Gbadolite, Zaire in June 1989.*

*The road ahead is fraught with uncertainty but there is no lack of national commitment to a lasting peace. The long-drawn conflict and the disastrous upheavals which it has entailed pose a formidable challenge to those seeking to assist in reconstruction measures, particularly in the rehabilitation of the most vulnerable groups."*

- Ibrahima Dou Fall, UNICEF Representative in Angola, Sao Tome and Principe.

**A**NGOLA HAS ONCE MORE COME INTO FOCUS here at home with the dispatch in July with the first of a group of Officers and Gardai to form part of the new United Nations Angolan Verification Mission (UNAVEM) - or UNAVEM II as it is being unofficially described. The original UNAVEM Mission had as its objective to verify the withdrawal of the Cuban Forces from Angola, starting in January 1989 and finishing (slightly ahead of schedule) on May 1 1991. No Irish Military or Police Personnel took part in the Mission although there was one Irish Field Serviceman at the HQ, in Luanda.

The new UNAVEM Observers will be required to verify that the Monitoring Groups were carrying out their responsibilities, to undertake some patrolling and to investigate alleged violations of the cease-fire. There will be up to 360

Military Observers and 90 Police deployed over fifty assembly areas and twelve critical points in six regions throughout the country. They will be unarmed and their security at any given time will be the responsibility of those forces in whose areas of control they happen to be.

The Angola Peace Accords will be implemented through a Joint Military-Political Commission composed of representatives of the Government and UNITA as members, with representatives of Portugal, the Soviet Union and the United Nations as Observers. In addition there will be a Joint Verification and Monitoring Commission having the same composition as the Joint Military Police Commission, but with the addition of a representative of the United Nations. The Joint Verification and Monitoring Commission will be responsible for implementing the cease-fire through the for-



Bringing home the water - the daily ritual.

All photos: Courtesy of UNICEF, Angola

many years of neglect. Many bridges will also have to be rebuilt. The telephone system, like the postal, works after a fashion, but will require great expenditure and effort to repair the damage done by years of warfare. Because of the years of neglect or stagnation in industrial activity, stocks of badly needed construction materials, steel, cement, timber, etc., held within the country are likely to be completely inadequate, and it will take a long time before the necessary works can get underway. UNAVEM will indeed have great need for their helicopters and fixed wing aircraft.

The electricity and water supplies are erratic and the distribution processes for petrol, oil and lubricants are so primitive, that the very simplest of patrols can turn out to be a nightmare of logistic difficulties for UN personnel accustomed to a more ordered situation. There is at present a serious outbreak of a new type of malaria which appears to be resistant to the normal drugs. It has spread across many African countries and is causing great concern to the UN and health authorities in the region.

All is not gloom however, combined teams of Government and UNITA engineers have been seen working on the main routes, *lifting mines and booby traps*, clearing barriers and attempting to repair damaged bridges. The road from Lubango towards Benguela and Lobito has been cleared and work continues towards Huambo in the midlands. It may shortly be possible to drive from Luanda along the coast through Benguela and Lubango, continuing on to Namibia through the Border crossing at Oshikango. It has not been possible to drive between Luanda and any of the main urban centres for many years, unless of course accompanied by a large military escort. UNITA has been so successful in interdicting government communications by road, that the only feasible supply route has been by air. Because of this there is a quite well developed airways system, with airports or airstrips at almost every city and small town, while some really top class military airfields have been provided, particularly in the South, at Namibe, Lubango, Cahama and Cuito Canavale. Scheduled flights by Angolan Airlines now include flights into Windhoek from Luanda, while some small private internal airlines are also starting to operate.

There was great joy - quite understandably - in Angola at the announcement of the cease-fire after nearly thirty years of suffering brought on by the War of Independence first, and then the Civil War, which itself was compounded by successive waves of South African invasions. In June Luanda was the scene of great enthusiasm with singing and dancing in the streets to greet the arrival of Jonas Savimbi to the capital. As in the Middle East, it is also in Angola the custom of soldiers to fire very large quantities of rounds into the air, as their contribution to the festivities. One report states that up to eight people may have died in Luanda at that time

## ANGOLA

Population:	8.5 million
Area:	481,351 sq miles (larger than Spain, France and Italy combined)
Capital:	Luanda
Terrain:	75% of the country over 3,200ft
Annual Population Growth:	3.5% - population doubling time estimated at 20 years.
Population Density:	18 inhabitants/sq mile
Life expectancy:	(male) 42 years (female) 45 years
GNP per capita:	\$831
GNP for Defence:	14.3%
GNP for Education:	5.2%
Religion:	90% Christian, 9% traditional beliefs, 1% others
Infant Mortality:	172/1000
Major Exports:	Vegetables, Animal products, Petroleum, Natural Gas, Coffee, Diamonds
Literacy Rate:	28%
Lowest temperature:	64°F (August)

mation of Monitoring Groups.

A Monitoring Group will be present at each of the fifty Assembly Areas - 27 for Government troops and 23 for UNITA troops. 32 airports and 22 ports will also be covered by the Monitoring Groups, some of which are co-located with Assembly areas.

The logistics of organising and establishing this very complex organisation will be quite formidable, particularly in view of the conditions prevailing throughout Angola. The railway network, even if fully operational, would be of little benefit as the Benguela Line runs from Zambia, through the centre of the country to the sea at Benguela and was never linked either to the line running from Menongue to Namibe through Lubango or to the smaller one in Luanda. The 75,000km of roads are at least 85% unpaved, and the paved roads that do exist are in a very poor condition following



because of this dangerous practice.

Jonas Savimbi, a native of Huambo, second city of Angola, draws support from the Ovimbundu peoples, one of the largest of the ethnic groups in Angola, related to the Ovambos of South Angola and Northern Namibia. He originally set up UNITA, it was to be a political party and not a guerrilla army but the events leading up to and succeeding Angolan Independence in November 1975 forced him into conflict and into the bush. He established his HQ at Jamba, a place not to be found on any map. It was merely a collection of huts under the trees in the SE corner of Angola, somewhere near Mavinga. From here, with the financial and logistical support of South Africa and the United States, he waged a long and successful guerrilla action against Luanda. He gained complete control over much of the South East and disputed control of much of the rest of the country. He never succeeded in holding any major city or town for long however, and the few that he did capture he was driven out of again fairly quickly. From South Africa his supplies came principally by road from the Caprivi Strip while the US supplied him by air from Kamina in Zaire, a base well known to many Irish soldiers from ONUC days.

#### IMPORTANT DATES

##### Portugal and the Slave Trade

- 1843 Diogo Cao anchors in the Zaire River
- 1483 First sugar plantation established in Sao Tome
- 1550 First plantations in Brazil
- 1576 Foundation of Luanda
- 1641-48 Dutch occupy Luanda and Benguela
- 1683 Portugal establishes rule over seaboard
- 1858 Abolition of slavery in Portuguese Provinces
- 1878 Introduction of forced labour

##### Consolidation of Colonial Rule

- 1883 Portuguese occupy Cabinda
- 1902 Bailando War
- 1903-29 Construction of Benguela Railway
- 1912 Discovery of diamonds
- 1926 New State replaces the Portuguese Republic
- 1937 First coffee plantation established
- 1956 Foundation of the MPLA
- 1961 Angolan uprisings in Luanda, Malange and Kongo lead to abolition of forced labour
- 1962 Dr Agostinho Neto elected MPLA President
- 1963 MPLA opens second front in Mexico
- 1966 Discovery of oil in Cabinda

##### Independence and War

- 1974 Armed Forces Movement topples Salazar-Caetano regime in Portugal
- 1975 War breaks out between MPLA, UNITA and FNLA  
November 11th: People's Republic of Angola is declared independent under the Presidency of Dr Agostinho Neto
- 1976 FNLA forces defeated, South African troops withdraw from Southern Angola
- 1977 MPLA-PT adopts Marxism-Leninism at First Party Congress
- 1979 Death of President Neto who is succeeded by President Jose Eduardo dos Santos  
South African jets bombard Lubango  
South African Forces invade Cunene
- 1981 Lusaka Accord
- 1986-7 Battle of Cuito Cuanavale
- 1988 December 22nd - New York Agreement
- 1989 June 22nd - Gbadolite cease-fire Agreement  
November - Namibian elections



*Rags and Ruin - a displaced boy poses in his flight.*

Eduardo dos Santos, leader of the MPLA - is Angola's second President, having succeeded Agostinho Neto who died suddenly while receiving medical treatment in Moscow in Nov '79. Reputed to be a moderate, he was said to have disagreed on occasion with the policies of the Military members of the Politburo with regard to the conduct of the war. He announced in early 1990 that an opposition party would be permitted in "a few years", and that elections were a "possibility" later on.

His principal negotiator in the implementation of the Peace Accords appears to be Senhor Lopo di Nascimento. Lopo di Nascimento was the first Premier of Angola, but appears to have fallen from favour around the time of Neto's death. He was returned as Commissario to his native Lubango, where he ran the Province of Huila and the city of Lubango in an effective and efficient manner. Unlike Savimbi, however, he does not speak English.

The lack of an infrastructure of rapid and easy communication - road, rail, postal, telephone, so modern and so efficient in Namibia will make the normal electoral processes very difficult indeed. The tactic adopted in Namibia of bringing in electoral experts and supervisors will alone create great problems of accommodation and rationing in a country where hotels have almost ceased to exist and where

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*The long march - displaced in Northern Huila looking for a home.*

the military structure would have the greatest problems in supporting such civilian groups. There is little or no public awareness of what constitutes a political party or a public representative as no such entities were allowed since 1975. Television - there is one channel - is limited to the main urban areas, and is not received at all by those remaining rural peoples, as most do not have electricity in the first place. Instructing the Angolans on political matters will, in itself, be a major undertaking.

Presumably at least two political parties will appear, based on the present MPLA and UNITA. In addition there may well be a party representing the remaining Portuguese - in 1989 in Lubango alone there were reputed to be as many as 2,000 Portuguese, many of whom of course were Angolan born. There may also be a re-appearance - in political form - of the National Front for the Liberation of Angola (FNLA) - which had been the third grouping involved in the War of Independence. Led by Holden Roberto - a brother-in-law of President Mobutu Sese Seko of Zaïre, his followers came from the Bkongo tribe of Northern Angola, and he was supported in the early days of 1975 by the US, some African nations - mainly Zaïre - and also by China, who supplied weapons to him. He also had the support of South African and CIA advisors as well as some dissident Portuguese soldiers who fought for him in the early days of his campaign in 1975 when he tried - and failed - to capture Luanda, striking from his base at Ambriz, North of the capital.

In Namibia, the election was held in a country relatively unscathed by conflict - apart from the Northern Border Zone - where for most of the population, voting was seen as a joyous culmination of a successful war of liberation. The situation in Angola is very different and the potential for violence will be great.

Civil War memories generally tend to die very slowly and no doubt many scores will have to be settled. It is doubtful if electoral jurists and political advisors will on their own

prove adequate for the task, there is every possibility that UN troops, or additional police may have to be brought in to provide the essential stability in the months leading up to the elections. Such UN Units, of course, will have to be virtually self-supporting logistically. They are not provided for in the present Accords.

The other major factors which make this Mission so different - to the Namibian experience are:

■ The question of private property and assets seized in the State from the Portuguese and from the Churches. While some church property has been returned already (the State has long ago surrendered on its avowed aim of abolishing religion), the return of the very large buildings in urban areas, to which the original owners still have deeds of possession, will be crucial to a restoration of confidence in the business community.

■ The international ownership of the diamond industry, led by de Beers of South Africa will have to be accommodated in the new State plans, being an area of industry in which Angola can earn very large sums in badly needed hard currency.

■ The oil industry, operated by European and American interests, the source of further hard currency earnings will have to be assured of stability and relative freedom of action in the new arrangements.

Finally, the little known Front for the Liberation of the Cabinda Enclave (FLEC), has once more raised its voice and may well intensify its efforts leading up to the elections next year, thus adding another very powerful element into an already difficult situation.

*Editor's Note: Col Michael Moriarty was Chief Liaison Officer UNTAG Angola and OIC Monitoring Base, Lubango 18 Mar '89 to 9 Feb '90.*



*Smiling Happy People. This picture says it all. Personnel from B Coy 69 Inf lie.*



*SISU in Sita. Though equipments change, the scene remains very familiar. The APC crew on this checkpoint carry the same as the locals go about their business.*



*'The long and winding road'. Life in Lebanon has its own pace, a fact not lost on our four legged friend. Personnel manning the checkpoint stay 'switched on'.*



*'They meet halfway'. UN presence at 'Fish Junction', Southern Lebanon. Opening relations with the locals is part of every overseas trip.*



*Loads of Letters. Ptes Tom Mansfield (Waterford) and Declan O'Connor (Adlowe) with a selection of the letters that form one of the major morale boosters for any UK serving overseas. Not only are they eagerly awaited but are read and re-read on off duty moments. Remember too that 'Acrogram' type airmail can still be sent from home for the princely sum of 1p - so you have no excuse.*

(All Photos: Neil Gentry)

# Post-Conflict Mine Clearance

by Capt J. O'Dea

*Under the shadow cast by the smoke pall rising from the burning oil wells of Kuwait a battle still goes on ... While the focus of the world media's attention has switched to Moscow, and Kate Adie and Martin Bell have returned their respirators to stores, the casualty figures quietly mount in the desert. The likelihood is that these figures will surpass Allied casualty figures of Operation Desert Storm itself. This battle is being fought against an unseen, unfeeling enemy hidden in the sand. The battle is that of mine clearance and the enemy is the mine.*

*During the most recent Gulf War the Iraqis used upwards of thirty six different types of anti-personnel and anti-tank mines bought from all over the world, many of these fitted with highly sophisticated fuzes mechanisms. While the Allied side made little use of tactical minefields in the course of the conflict, a vast array of air dispersed sub-munitions and bomblets were dropped behind the Iraqi lines. (One of the delivery systems used was the Multiple Launched Rocket System (MLRS), it can deliver a dozen rockets each of which when fitted with the M26 warhead carries 64 M77 fragmentation bomblets weighing 213g each.) Combining these statistics leads one to appreciate the scale of the clearance task currently being carried out in Kuwait.*

**B**ATTLEFIELD CLEARANCE operations in Kuwait graphically illustrate the extent of the mine clearance problem world-wide. They serve to put in context any examination of the counter-mining options which may be employed in the post-conflict era. In the article "Mines - the hidden legacy of Battle" in last month's issue of *An Cosantair* the author dealt with the problem posed by mines to combatants and non-combatants alike. In this article he examines the range of options available for countering the mine threat and clearing the battlefield.

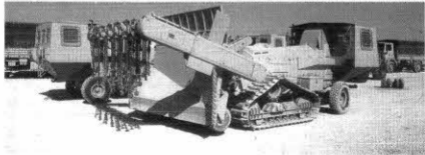
Mechanical clearance is the most widely used option in modern mine clearance and consists of a whole family of equipments most of which are mounted on armoured vehicles. The advantages of mechanical clearance

are; the protection offered to the clearance team, the relative speed of operation and the actual proving of the clearance by the passage of the vehicle. Mechanical clearance systems are based on three main principles:

- Plough
- Flail
- Roller

The mine plough consists of an angled blade mounted on the front of a medium or heavy tracked vehicle. It is designed to lift the soil with the mines and throw it out of the patch being cleared. Because of the tractive effort required track width ploughs tend to be favoured to full width ones which can generally only be deployed on heavier vehicles. However, the Israelis have learned to their cost that

ploughing with only track width ploughs in sandy conditions can lead to the belly of the tank grounding in the centre and actually detonating contact mines. Therefore, it seems likely that full width mine ploughs will be the order of the day in Kuwait. Already reports have been received of an advanced version of the mine plough being used by British Forces in the Gulf. This equipment has a segmented blade, each segment being allowed float hydraulically and thus follow the contours of the ground. It can therefore scoop mines out of hollows which might well have been missed by a single straight blade. It is reported that such ploughs were used, during Operation Desert Storm, to clear MLRS bomblets from the route chosen as the Divisional Main Supply Route (MSR) and after the war cleared a



The Aardark - a Flail system which is operated by SEWIDENCOY in UNSIFIL and was used widely by British Forces in the Gulf.

430m breach through one of the more sophisticated Iraqi minefields.

The Flail equipment may well be familiar to Defence Forces personnel who have served in Lebanon with UNIFIL as Flail units are currently in service with SWEDENGOY. The Flail was originally designed in fact for service in the Western deserts during World War II by a South African engineer serving with the Allied Forces. He proposed that a rotating drum be mounted across the front of the tank. Attached to this drum would be a series of weights suspended by chains. As the drum rotated, powered by an auxiliary motor, the lengths of chain would be whipped through the air to beat a patch before the tank. While the Flail proved to be a success throughout that war it faded from popularity afterwards because of its limitations, namely that it tends to be both noisy and slow.

While these may be serious flaws in combat equipment they do not impinge on its effectiveness as a mine clearance device in the post-war period. Thus, 16 Flail units were procured for service in the Gulf of the same type as that deployed with SWEDENGOY i.e. Aardvark. The Engineer in Chief of the British Army described this equipment as the 'single most effective system for dealing with such a wide range of mines'. Calculations show that every square inch in front of the vehicle is beaten at least twice to achieve this level of performance.

Another popular solution to mechanical mine clearance has been the mine roller. The roller assembly is pushed in front of a tank and, through its weight, it is designed to detonate pressure activated mines. The rollers are constructed typically of several heavy discs aligned side by side. This allows individual discs damaged by mine detonations to be replaced. To withstand the explosive force of the standard anti-tank mine, rollers are usually very rugged and heavy e.g. the roller assembly currently in use with the US Forces is close to 10 tons.

All the above mentioned equipments of course have their limitations. The tractive effort required to plough to a depth of 300mm necessitates the use of a vehicle weighing 60 tons. Since the



Pearson Engineering have developed a version of the Mine Plough with a hydraulically operated augmented blade. It is designed to sweep mines out of hollows and undergrowth where they might be undisturbed using conventional mine ploughs.

heaviest vehicles on the battlefield weigh between 60 and 70 tons it is not practical to clear to greater depths at present. This may allow more deeply buried mines to go uncleaned.

The flail, may be defeated by more sophisticated mine fuzes which rely on the magnetic signature of the tank to detonate them. Finally the roller may be defeated by double impulse mine fuzes which are only armed by the first passage of the rollers and may then detonate under the tank tracks.

Good reconnaissance of minefields is therefore vital in deciding the correct form of mechanical clearance to be employed in the particular case.

It should be obvious from the description of the various mechanical means of mine clearance that they are most suited to open ground. The clearance of mines laid around installations and in ground impassable to armoured vehicles will still necessitate clearance by hand.

The use of hands, prodders and mine detectors is the basis of clearance by hand, it is a slow and dangerous business but also the most thorough and effective.

Clearance of mines by hand can really only be considered for limited tasks because of the time required. Also in the context of a post-conflict operation the level of casualties may be unacceptable. This was graphically illustrated by the cessation of mine clearing in the Falkland Islands after serious injuries had been incurred by members of the Explosive Ordnance Disposal (EOD) Teams.

Mine dogs were first used widely for mine clearing during World War II and continue to be used for this purpose in many armies, indeed SWEDENGOY also operate two mine dog teams in Lebanon. They have proven

effective in searching along wire fences and in other areas where conventional metal detectors would be useless e.g. in the detection of plastic mines.

There are a number of problems associated with dogs. Firstly, dogs can only be worked for relatively short periods of time, they lose interest if they find too many mines or too few. Secondly, certain types of strong smelling ground, such as peat, defeat their sense of smell. Finally, a dog cannot tell you its having an off day: the handler may find this out too late.

However, one remarkable story of mine clearance using dogs has come out of Afghanistan. In 1989 a team of 14 Thai trained Alsatians successfully cleared 120km of roads, finding over 700 mines in the process. Not one single casualty was suffered during the operation either among the dogs or the Afghan handlers. Some of the mines detected were buried up to a metre deep in the ground while others were reckoned to have lain undisturbed for up to seven years. Remarkable indeed.

Most explosive clearance methods are designed to breach a minefield rather than clear it i.e. make a gap in order that friendly forces can pass through the obstacle. The more common methods rely on either destroying mines in the immediate vicinity of the explosion or by detonating pressure activated mines close at hand by creating an overpressure from the emanating shock waves.

A simple example of such a device would be the Bangalore Torpedo. This man-portable device consists of explosive filled tubes which can be screwed together to form a length that can be pushed forward into the minefield. The device is then detonated to clear a narrow pathway approximately the length of the tube.

## Artillery Club

For information regarding the Artillery Club's Membership and activities contact:

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Mine dogs were widely used throughout WW II - here dogs are being used to search a stretch of railway line.

The Giant Viper deployed by the British Forces in the Gulf consists of a flexible explosive filled hose. Approximately 228m long, which is towed in a wheeled trailer behind a suitable armoured vehicle. It is projected across the minefield by means of a cluster of rockets and an initiator fires the explosive charge after the hose has landed.

Explosive methods were widely used by US Forces against Iraqi minefields prior to the launch of Operation Desert Storm. One such weapon was the BLU 82 (Daisy Cutter). This is a very large concussion type bomb developed initially for clearing helicopter landing sites in Vietnam. It weighs 6800kg and is dropped from an MC130 Hercules aircraft. It is detonated just above the ground by a 96cm nose probe and creates a 10000lb/sq in over pressure.

A more significant development in terms of explosive clearance of minefields has been the use of Fuel Air Explosive (FAE). Also used in the Gulf, FAEs use the surrounding air as an oxidiser for an explosion. The fuel carrying cluster bombs are dropped from a dispenser and they are slowed on their descent by parachutes. At a predetermined height the bombs are detonated and this causes the fuel to vaporise in the air. When the fuel-air mix in the aerosol cloud reaches the optimum, sensors cause the cloud to be ignited resulting in an explosion. The clearance results from the overpressure and corresponding shock waves created by the explosion. FAEs are probably the most powerful non-nuclear weapons in the US arsenal.

Many modern mines no longer rely

on contact to detonate them; instead they have electronic sensors which detect the passing tank by its magnetic, seismic or acoustic signature. Therefore, the creation of pressure on the surface whether by mechanical or explosive means may not cause them to detonate.

One solution to the clearance of these types of mines is by duplicating the signature of a tank. This can be done by generating a strong electromagnetic field just in front of the tank detonating the mines before the tank travels over them.

A version of this system called Magnetic Influence Mine Induction Coil (MIMIC) was deployed by the British Forces in the Gulf. The Soviets also have a similar system; EMT, which can be fitted in combination with their KMT-6 conventional mine plough. The use of such combinations is designed to counter the widest possible range of mine types.

30 million mines and tens of thousands of casualties give an indication of the size of the problem facing the people of Afghanistan as they try to return to their homelands. Currently there are over a million Afghan refugees in Pakistan and Iran. Because of the extent of the task and the fact that sending in foreign mine clearance experts would be unacceptable in the context of the ongoing civil war a radical approach was required.

In the Summer of 1988 the United Nations Office of the Co-ordinator for Afghanistan (UNOCA), which covers all humanitarian aid for the return of Afghan refugees to their country, initiated a project soon to be known as Operation Salam. Expert mine recon-

naissance teams from the UK, France, Turkey and the US were sent to Pakistan to assess the problem and examine the feasibility of training the refugees themselves to clear and neutralise mines.

At the beginning of 1989 the first training camp was set up at Raisalpur Camp in Pakistan about 90km from the Afghan Border. The instruction programme began with mine awareness courses and then students graduated onto full scale mine clearance training. The third course offered trains Afghans to instruct on mine clearance activities. Mine awareness courses were also run for Afghan women and children. The aims of this course were to teach people to recognise the most common types of mines, what to do if caught in a mined area and how to mark and report the presence of mines. The success of such a programme may lead to it being copied in other trouble spots in the world and in future UN Mission areas.

Operation Salam was never intended to solve the mine problem in Afghanistan but it must be recognised as a major effort in the prevention of civilian casualties and self-help. Eventually when the military situation in Afghanistan allows an international operation to attempt the clearance of this plague of mines many of the methods mentioned above may be utilised. Already the possibility of mounting Flaits on farmer's tractors is being explored.

In *The Hidden Legacy of Battle*, the size of the mine clearance problem and the reasons for its growth were examined. In this article a range of mine clearance methods and attempts to alleviate the problem have been discussed. While the effectiveness of these methods may be limited by developments in mine technology they are further restricted by the logistical and financial investment required to deploy them. How much is an acre of cleared ground in Afghanistan worth? What price the deserts of Kuwait? How do you value the life of a Sapper?

The problem of mine clearance in the post-conflict scenario is not a static one of course. Technological breakthroughs will produce new counters to the mine menace which in their turn will be overtaken by newer more deadly mines. Mine warfare will be a constantly changing battle evolving at a frightening rate. Already intelligent mines are in production which can be programmed to pick and choose their targets and select the best course of attack.

In today's Defence Forces service abroad with the United Nations is constantly thrusting us into the dangerous gaps between disengaging forces. The creation of a high degree of mine clearance must be a priority in our future UN training. *Forewarned is forearmed.*

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