

THE RANGER

Newsletter of the Defence Surveyors' Association

Spring 98' Edition



Pictured above: WO2 Carl Saunders-RE Prize Winner, Lt. Cdr. Derek Swannick RN-RN Prize Winner, Maj. Gen. Eric Barton-DSA President, Col. Keith Prentice-RA Prize Winner David Wallis, DSA Chairman.



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DEFENCE SURVEYORS' ASSOCIATION

Formerly the Field Survey
Association

The DSA is a registered charity
whose objectives are:

- * to maintain a permanent liaison between officers serving in the Forces, retired officers and civilians working in the Defence domain who have an interest in Survey,
- * to keep abreast of current Survey issues,
- * to recognise the most significant contributions to Survey by serving officers through the award of annual prizes.

The Association publishes the RANGER newsletter and organises various social occasions and technical visits for members. The Council of the Association has plans for widening membership and improving its services to members. If you want to keep in touch with the survey profession and friends in the organisation come and join us.

The Articles of Association permit membership, subject to election by the Council, to all Officers and Warrant Officers who are engaged in *Survey* subjects and to suitably qualified civilians. In addition to these qualifications, a candidate for membership must also be known personally to at least two Members, who, as sponsors, must satisfy the Council that he or she is a fit and proper person to be granted the privileges of membership.

The cost of membership is a modest £10 per year payable by standing order on the 1st

January. New members, joining while still serving, get free membership for the remainder of the year in which they join. Those desirous of becoming Members should contact the Association at its registered address or telephone the Hon Treasurer on 01635 204 306

**DEFENCE SURVEYORS'
ASSOCIATION
CHAIRMAN'S REPORT
1997-8**

I am now part way through my second term in office as your Chairman to oversee the transition from the Field Survey Association to become in future the Defence Survey Association which took place as from the 1997 AGM, when an overwhelming majority of the membership agreed the name change.

At the AGM it was also agreed to increase the membership fee to £10 pa to enable the Association to do a more effective job by providing increased services as well as publishing a better quality and more comprehensive newsletter, which will in due course be published twice a year under the editorship of Jim Smith who has had a wide experience in the field of surveying related publications and was a one time a lecturer in surveying at Portsmouth University, he has been a member of our association for many years and looks forward to developing the Ranger and furthering its editorial coverage and circulation. Jim's message to the membership is " For a publication to be successful it must have the support of its readership, so please feed back information on topics and events that can be included in future issues of the Ranger as well as sending your comments"

Our thanks must go to Colonel Peter Walker RE and his successor Colonel

Chris. Dorman for their support for the development of the DSA as a more effective military related association, who's future objective is to bring together all branches of the three services who share a common interest in surveying and geographic information management to provide a networking forum that will bring benefits to the membership and further the development of social contacts, both inside and outside military circles.

We also thank the Commanders of 42 Engineer Group for providing the DSA with facilities for our meetings as well as office accommodation for our Secretary and Treasurer plus storage space for our archive at the Royal School of Military Survey, Hermitage, which is greatly appreciated.

1997 was a very eventful year in many respects, with the highlight being the 250th Anniversary of Military Survey, celebrated in September at Hermitage, which was a total success, there was an exceptional attendance of past and serving members of Military Survey. The celebrations were well and efficiently organised over the weekend with Saturday devoted to invited guests and the Sunday being a public day. The events took place in the main arena with demonstrations put on by various branches of the Services, as well as technical and historic exhibits set up in buildings and tented accommodation around Denison Barracks.

The DSA had its own hospitality tent at the 250th celebration weekend where

we met many of our members and provided them with a celebration glass of "Bubbly". It was also a great opportunity to enrol new members and we welcome the 16 who completed their application forms and paid their subscription in advance of being accepted officially by Council.

We would like to introduce to you our new Hon. Sec. Col. J. F. (Bill) Codd who took over from Clifford Brigden, who held the office for over three years, whom we must thank for all the hard work and dedication he put into the office of Secretary and the development of the Association, also the support he gave to me as your Chairman, paving the way to the changes which were necessary to make the transition from the FSA to become the DSA. Bill Codd is well known to many of you having served in Military Survey both in the UK and Continental Europe, later he was on Loan Service to the Sultanate of Oman as Technical Director of the National Survey Authority. On retirement from the army Bill was appointed Deputy Director of Ordnance Survey of Northern Ireland under the direction of Mike Brand, leaving there in 1996 to take up residence near Newbury with his wife Maureen. We wish Bill a most successful term as Secretary. I would also like to thank on your behalf our Treasurer Robert Dobbie who has been a tower of strength throughout my term of office and without his hard work and dedication your Association would not have achieved that which has been possible both organisational

and financially. I must also acknowledge the support received from Lt.Col. James Prain who has arranged many of our events and being the vital link between our Association and the Royal School of Military Survey from whose support we continue to benefit in so many ways.

Finally I thank all the members who have supported our events over the past year, not least those who attended the 250th celebrations at Hermitage. Please continue to give your support, as the real value of membership can only be derived from attending events and benefiting from the resulting social contacts.

David A. Wallis Chairman

NEW MEMBERS

A sincere welcome is expressed to the following new members:-

Tony Crighton, Northampton
Robert Flynn, Delta, BC.
Geoff Gathercole, Winchester, Hants
Bill Hunter, Carlisle, Cumbria
Charles Marks, Bristol
Phil Maye, Thatcham, Berks
Geoff Mortimer, Sudbury, Suffolk
Eddie North, East Dereham, Norfolk
Yvonne Oates, Marazion, Cornwall
Tom Phillips, Chandlers Ford, Hants
John Read, Beaconsfield, Bucks
Frank Smith, Epsom, Surrey
Mike Sowton, Winchester, Hants
David Stevenson, Petersfield, Hants
Peter Wood, Winchester, Hants
Jon Zorichak, Llanybydder, Cardigan

D S A PRIZES FOR 1996

ROYAL ARTILLERY

COLONEL KEITH PRENTICE

Col Prentice was appointed to the post of Deputy Project Manager, PHOENIX in October 1995. PHOENIX is an Unmanned Air Vehicle programme to provide the Army with a target locating and surveillance system.

ROYAL ENGINEERS

Lt. Col. R N RIGBY RE

Colonel Rigby was S01 G3 Geographics in Headquarters, Allied Command Europe Rapid Reaction Corps, known as the ARRC. As such he played a highly significant part in the production and distribution of all mapping for operations in Bosnia-Herzegovina.

ROYAL ENGINEERS

W.O. 2 CARL SAUNDERS

Mr Saunders undertook a 6 month operational tour as the Technical Control Warrant Officer in the main headquarters of the ACE Rapid Reaction Corps, based in Sarajevo. It was the headquarters land component of the Implementation Force (IFOD) which enforced the Dayton Peace Agreement. Working to the Chief Geographic Officer, Mr Saunders was responsible for the technical tasking of

geographic support to the three headquarters and the three assigned multinational divisions.

ROYAL ENGINEERS

MAJOR DAVID SWANN RE

Major Swann has been in command of Military Survey's Field Support Office since it was formed in January 1995. He has been responsible for the development of operational systems required by Military Survey's field units, and for their in-service maintenance and upgrading.

ROYAL NAVY

Lt.Cdr. DEREK SWANNICK RN

Commander Swannick is nominated as the outstanding student of 1996 at the Royal Naval School of Hydrographic Surveying.

He is a relatively senior non-seaman Meteorology & Oceanography (METOC) officer with significant General Service experience and has been the only METOC officer to attend the Interim Hydrographic METOC course since the recent merger of the hydrographic and METOC branches.

SNAPSHOTS FROM 250 YEARS OF MILITARY SURVEY

Part 1: 1747 to 1945

by
Alan Gordon

THE BEGINNING

Sometime in the Autumn of 1747, in the vicinity of Fort Augustus, a civilian contractor to the army named William Roy made the first measurements for the Military Survey of Scotland.



*Surveying and marking the 49th parallel. A 20 ft wide cutting was made through the forests in order to 'mark the boundary in a suitable manner'.
Royal Engineers Museum*

Although there had been many surveys carried out, and maps produced, by the army prior to the Survey of Scotland, it is this task that can be considered as the beginning of Military Survey. It was the first large scale survey of any country of the British Isles for a specifically military purpose; the pacification of the Jacobite inhabitants of the Highlands.

The number of people involved in the survey increased until there were six survey parties, each consisting of eight personnel, one of which was the officer's batman. Observations were made using a circumferentor, a compass with an alidade attachment, and distances were chained. The survey data was plotted at a scale of 1,000 yards to one inch; approximately 1:36,000, to produce what was known as the 'Original Protraction'. This in turn was fair-drawn in colour, principally by the water-colour artist, Paul Sandby RA, to form the 'Fair Protraction' which consists of 38 long concertina-folded sheets, running East to West across the country.

The Survey of the Highlands was almost completed when in 1752, it was decided to extend the task to cover the whole of Scotland. However, all work on the Survey ceased in 1755 as the military personnel were needed for the build up for what became, 'The Seven Years War.' The task was never resumed nor was the map ever printed. It now resides in the British Library. It is also of note that the entire survey was paid for personally by Lt Col Watson and that a bill for £4,690 16s 11d was still outstanding at his death.

THE GEODETIC CONNECTION WITH FRANCE

Military surveyors, and in particular the newly commissioned William Roy, carried out surveys during the Seven Years War and engineer officers produced a number of maps for the

American War of Independence. However, the next major advance in terms of technology was the Geodetic Connection with France.

The aim of this project was to connect the Greenwich and Paris Observatories. The English end of the scheme, under the direction of the now, General William Roy, started with the accurate measurement of a base line on Hounslow Heath in 1784. This was followed by triangulation down to the Kent coast at Dover Castle and Fairlight Down, the measurement of a check base at Romney by Lt Fiddes, Corps of Engineers, and subsequent observations across the Channel to the French stations.

The production of an accurate 3-foot theodolite by Jesse Ramsden specifically for this task, together with the rigorous approach, made this project the first truly accurate geodetic survey.

THE ORDNANCE SURVEY

Roy had advocated a national survey to cover all of Britain since the Scottish Survey but funding was not agreed by the time he died in 1790. However, a second Ramsden theodolite became available in 1791 and the Master General of the Board of Ordnance, The Duke of Richmond, purchased it and authorised the Trigonometrical Survey of Britain in order to provide an accurate map of the country for defence purposes. This 'Ordnance Survey' was staffed by a combination

of military officers from the Royal Engineers and civilians, a practise that continued until 1983.

The surveyors and draughtsmen of the Board of Ordnance working on the Survey were based at the Tower of London Drawing Room. In 1800 they were formed into a military unit, The Corps of Royal Military Draftsmen, and in 1805 this title was augmented to include 'Surveyors'.

Although the Ordnance Survey was charged with producing the national mapping, military staff were frequently detached overseas for other survey duties. This led to the requirement for an organisation to be responsible for collecting geographical and topographical information about overseas territories in which Britain had an interest. Consequently, in 1803 a separate department called The Depot of Military Knowledge was formed under the authority of the Quarter-Master General. The Depot consisted of a library and drawing office with two draughtsmen.

As part of the military run-down following the cessation of the Napoleonic Wars, The Corps of Military Surveyors and Draftsmen was disbanded, the number of personnel involved in the Ordnance Survey was reduced and the Depot of Military Knowledge remained a small operation.



Flash spotting from the trenches. Photograph of 'First establishment of flash-spotting post in a trench after an advance'. The flash spotter was accompanied by a telephonist who was in communication with headquarters. Royal Engineers Library

THE IRISH SURVEY

In 1824, the decision was taken to carry out an urgent survey of Ireland and Thomas Colby, the Superintendent of the Ordnance Survey, decided that soldiers were best suited to the task. Hence, on the 1st December 1824, a Royal Warrant was issued for the formation of a Survey Company to be numbered, the 13th. Sixty-two men were selected, trained at Chatham and moved to Ireland in March 1825. The employment of soldiers was considered so successful that two further Survey Companies, the 14th and 16th, were raised in 1825 and the establishments of Survey Companies increased to over one hundred men in each.

The training of surveyors, then carried out at Chatham, became more formalised at this time with the setting of standards and the writing of manuals. In 1840, a shortage of officers led to radical change in responsibilities in that the NCOs took over the task of carrying out the observations, formally strictly the remit of officers.

The Irish Survey was completed in 1846 and the three Companies moved back across the Irish Sea to be employed on the Survey of Great Britain; their main task for the remainder of the century. The size of this undertaking was such that the 19th Company of the Royal Engineers was reformed on the 1st April 1848 to become the fourth Survey Company.

A WORLDWIDE REMIT

The 19th century was the great age of exploration when many military surveyors were involved in great 'deeds of daring do'. Wherever the British set

foot in the world, so there were military surveyors to survey the features of the newly discovered lands.

These surveys were carried out for a number of reasons: for pure exploration - the plotting of journeys literally into the unknown, for the delineation of the boundaries of the ever expanding British Empire or to survey the routes for roads and later, railways. Military surveyors were also involved in the many surveys of the Holy Land which were carried out in the most appalling desert conditions. In addition to these 'peacetime' requirements, the sapper surveyors provided geographic support to the many colonial wars.

Literally dozens of boundary commissions took place throughout the world during the 19th and early 20th centuries. Perhaps the most notable were the three commissions set up to delineate the 3,000 mile long boundary between the USA and Canada. The majority of this border was to follow the line of the 49th parallel, irrespective of the landscape that it crossed which comprised virgin forest, swamp, prairie and mountain. In hazardous conditions and extremes of temperature, the entire border was cleared of trees to a width of 20 feet and monumented at regular intervals including across the Rocky Mountains.

EMINENT SURVEYORS

Among the many eminent surveyors of the 19th century were two who achieved national prominence in a wider role, Charles 'Chinese' Gordon

and HH Kitchener. Gordon made surveys during the Crimean War, was an assistant Commissioner on the Russo-Turkish Frontier Commission and explored the upper reaches of the Nile. Kitchener, synonymous with the First World War poster 'Your Country Needs You', made his military debut as a surveyor in Palestine in the 1870s and then became Director of the Survey of Cyprus from 1879 to 1882.

THE BOER WAR

The century ended with Britain at war with the Boers in South Africa. Officers and soldiers were detached from the four Survey Companies working on the Ordnance Survey to form four Survey Sections and three Mapping Sections deployed in the field. Captain Charles Close, commanding Number 1 Survey Section, purchased lithographic equipment in Cape Town which he then took into the field where it was used to produce the first ever complete map production in the field by the British Army. At the end of the Boer War, officers and soldiers either returned to their peacetime duties in Britain or scattered in small parties around the Empire as before.

SURVEY ON THE WESTERN FRONT

At the outbreak of the First World War the need for survey support to the field army was judged to be very small. At

that time, all plans were based on the needs of a small force operating under

therefore your head was above the parapet! Surveyors were also needed



Plane tabling in Iraq with PAIFORCE. Private collection.

favourable conditions in a developed country where locally produced maps could be purchased when needed. As a result, only 3 officers, 6 men, the 1st Ranging Section RE and a lorry load of maps, sailed to France in 1914 and 13, 14 and 19 Survey Companies were trained in other sapper tasks and then sent to Egypt.

However, once the trench system developed the need for uniformed Military Survey personnel rocketed as many new tasks were identified and the requirement for maps continually grew.

Field surveyors carried out flash spotting and sound ranging in order to identify the positions of enemy guns. This was a hazardous business because in order to spot a flash, and then make an observation to it, you had to see it;

to ensure that the many tunnels, or saps, that were dug to place mines under the enemy trenches went to the correct place. The war became one of massive artillery duels with each battery needing survey control for its indirect gun fire.

By the end of the war there were over 300 officers and 5,000 survey soldiers based in France, the Middle East and Greece and in excess of 34 million maps had been produced of the Western Front alone; a far cry from the token effort that sailed to France in 1914.

As ever, the army was quick to demobilise following the armistice in 1918. The soldier surveyors returned to their peacetime role of working with the Ordnance Survey and providing expertise to overseas survey tasks.

THE BRITISH EXPEDITIONARY FORCE IN FRANCE

In 1939, Military Survey mobilised headquarters staff and four companies to deploy to France with the British Expeditionary Force (BEF). The Companies carried out ground surveys to support a variety of mapping projects and the Royal Artillery, as well as producing and printing maps for the BEF.

All four Survey Companies continued to provide support to the BEF during the withdrawal to the Dunkirk beaches where they destroyed all their heavy equipment prior to evacuation. Some troops even carried their theodolites back to England. After Dunkirk, the Survey Companies were reorganised and re-equipped, taking into account the lessons hard learnt in France.

THE WAR IN THE DESERT

In 1940, Egypt and the Western Desert became a major theatre of operations as first the Italians and then the Germans under Rommel attempted to take the Suez Canal. A major Military Survey effort was required to map this vast expanse of land and so 512 (Army) Field Survey Company landed at Port Said on 14 March 1940, followed by 517 Field Survey Company.

The first Italian thrust was defeated and the pressure on the Canal relieved. Elements of 512 and 517 Companies then formed part of the force sent to defend Greece. However, the rapid

German advance soon forced them to withdraw leaving many Military Surveyors as prisoners-of-war.

The Germans then joined the Italians in Libya and the situation in North Africa became so serious that five further Field Survey Companies moved to the Middle East during the next two years, as well as survey units from the Indian and South African armies.

The Topographic Sections covered thousands of miles in the barren Western Desert where they produced control for mapping tasks and plotted detail using the plane table board, alidade and clinometer. They also produced artillery control points, navigation assistance marks in the most featureless areas, and provided navigators for the Special Forces units that operated deep in the desert.

PERSIA AND IRAQ

Typical of an urgent requirement for Military Survey support to an area previously without a significant military presence, was the deployment known as 'The Persia and Iraq Force' or PAIFORCE.

In 1941, a pro-Nazi uprising in Iraq and the German attack on Russia made the entire area, with its essential oil reserves, a serious concern and so defence planning was urgently instigated. The initial survey support was provided by several Indian Field Survey Companies who were reinforced by Sections from 512 and 19 Field Survey Companies. These

travelled to their base at Ahwaz in convoy, some 1,700 miles across very sparsely inhabited deserts. However, by April 1943 the threat to the area had reduced and so the surveyors returned to Egypt.

During their time with PAIFORCE, 19 and 512 Companies carried out triangulation over many thousands of miles of mountain and desert. This information was then used to produce topographic and 'goings' mapping of some 220,000 square miles of Iraq and Persia, using both field and air survey methods. Much of this work constituted the first topographic survey of this part of the world.

SICILY AND ITALY

With victories in North Africa, the focus turned to Sicily and then Italy. 13 and 517 Field Survey Companies provided the direct survey support for the invasion of Sicily, which was followed by the landings in Italy and then a long campaign moving north until the end of the war in 1945. There was a very significant Military Survey presence throughout the Italian Campaign, involving six Field Survey Companies and numerous other specialist units.

D-DAY AND VICTORY

The project to map the northern French coastline, and up to 60 miles inland, at a scale of 1:25,000 was called 'Benson'. It was a massive undertaking; over 1,000 separate map

sheets had to be produced in little over one year.

Spitfires from 140 Squadron RAF flew 342, often hazardous, sorties over northern France between 24 July 1942 and 17 August 1943 to gain the initial complete photographic cover of the area.

An Air Survey Group was formed consisting of six newly raised General Field Survey Sections. They assembled the ground control and photography, and produced the photogrammetric control for each photograph. This data was passed, in blocks of 25 map sheets, to the UK-based Military Survey units who plotted the detail and contours, and produced fair drawings ready for exposure directly onto the printing plates. As the project progressed, so methods improved and 660 Engineer Topo Battalion of the US Army took over a share of the work.

The map specification was simple but very detailed. For example, all field boundaries had to be shown which proved invaluable during the subsequent invasion of France.

Military Survey units carried out surveys and provided the ever essential mapping throughout the advance across Europe that culminated in the Allied victory.

To be concluded in the next issue

OBITUARIES

Capt. Norman C Gray RE

26/12/18 - 12/9/97

FSA Secretary for 47 years!

Apart from seven years in the army Norman Cumming Gray spent his working life in the printing industry. Apprenticed as a lithographer and music engraver, it was only natural that he should progress to become Production Manager for Boosey & Hawkes, probably one of the best known names in the music business. He was the author of *A note about music engraving and printing*.

Serving with the BEF in 1940 he marched back to the coast and made his way back to this country after the major part of our army was evacuated at Dunkirk.

In 1942 when the Director of Survey was setting up Map Reproduction Units (MRS) with the second front in mind, Norman seemed an obvious choice for a senior position.

This was to be MRS 9 based in Pimlico where a comprehensive printing works was set up in a former garage in Lupus Street where Norman became second-in-command to Captain Pickles. It was here for the next 14 months, with the utmost secrecy, many of the manuals and charts for Operation Overlord (D Day) were produced. This operation was to continue from liberated Paris until the successful

conclusion of the war. Norman was by then a Staff Captain at SHAEF.

Following demobilisation he returned to the printing trade where he held several management positions before joining The British Printing Machine Manufacturers as their Secretary. This was a post at which his flair for organisation and managerial ability was fully realised. He became internationally known at exhibitions where printing was represented. Retired at 65 and being unable to submit to an inactive life he obtained the position of Services Manager of Isopad an electrical component manufacturer.

As a managing printer he had always shown a keen interest in the administrative and educational sides of the trade and was a Fellow of The Institute of Printing, having been Chairman of Council and various committees, in addition he was a trustee of the Printing and Paper gallery at the Science Museum besides being associated with a host of other print related bodies.

Complications with advancing years forced upon him a move to a bungalow in Radlett in 1993, his last four years were fully occupied in planning and seeing through the complete restoration of this new home; this was effectively completed shortly before his death.

He fought his illness with resolution, all his encounters with the many

specialists and consultants at various hospitals were meticulously chronicled; "situation reports" he said with the fervent wish that they would be able to help other people who found themselves following the same course of treatment.

The FSA was very well represented at the funeral and donations from all sources in lieu of flowers amounted to over £350. From this a donation will be made to the nurses fund at The Middlesex Hospital with balance being sent to the Imperial Cancer Research Fund.

Norman Gray is survived by his wife Eva, two sons, one daughter and four grandchildren. I have lost a good friend, the FSA a dedicated member.

Russell Spencer FIOP

Postscript

Norman and I first met some 40 years ago through the Institute of Printing, we at once became friends, this was eventually extended to both our families.

Accompanied by my wife we were honoured to be invited as guests to a great number of FSA AGM events, so often in fact that I was frequently mistaken, I suppose with some justification, as a member.

Being a member of the LST and Landing Craft Association and taking part in operations 'Husky' Sicily, 'Baytown' Reggio, 'Ferdy' Vibo Valentia, 'Shingle' Anzio and 'Neptune' D Day; I have some cause to be thankful for the accuracy of the survey work which preceded these landings.

Major J W Marshall

Major John Marshall died on 26 February 1997 from a heart attack after suffering from diabetes for several years. He was 76.

John enlisted as a boy trumpeter on 15 May 1935. Following a tour on searchlights in Plymouth he was posted to Norton Barracks Taunton, where in 1940 he met Kath whom he married in 1941. He attended a surveyors' course in 1948 and served in the Counter Bombardment Wing of the School of Artillery before spending some six years at RAGTE Hohne followed by further service at Larkhill. He also served in Egypt where he was awarded a 1953 Coronation Medal. In 1973 he was awarded the Field Survey Association Prize.

On his retirement in August 1974 he became Manager of the Royal British Legion Convalescent Home in Weston-super-Mare until retiring again in 1986.

Our deepest sympathy goes to his wife Kath, children Eve, Michael and Sue and his six grandchildren.

GEM

STOP PRESS

It has just come to our notice that one of our members, **Leonard George Lewzey**, MC, TD, FCIS, died peacefully aged 86 years on 21st April 1998 at Bexhill-on-Sea.

**A LITTLE BIT ON THE SIDE or
DIVERSIFICATION CAN BE
FUN!**

Alan Gordon
Gordonwood Associates, Andover

We recently project managed the celebrations to mark the 250th Anniversary of Military Survey. At the end of that project an opportunity arose to purchase the entire remaining stocks of the silk-like fabric maps dating from the early Cold-War period.

We have no wholesale or retail experience whatsoever but, it seemed too good a chance to miss as we thought that it might be fun to try our hand, part-time, at the whole new world of... selling things!

Our commercial thrust so far has led us to have dealings with some fascinating people. We have dabbled in the world of international 'Government Surplus' dealers, where some of our fabric maps were bundled with surplus Royal Navy cutlasses to be sold in the US. Then, we very nearly sold the entire 14,000 maps to a Paris-based dealer who was possibly a member of the Trotter family as he really did talk very seriously of "used fivers". At that stage, we thought discretion was the better part of business valour, and opted out.

There was an approach from two entrepreneurs who thought they might make ideal 'incentive' giveaways to

foreign clients. However, that came to nothing when one of them disappeared with his secretary. We have dipped our toes into the specialised field of antique map dealers. Here we spoke with people who still regret that they couldn't quite find the million or so for the Mappa Mundi. We thought this made our £5 Stalingrad escape map look a positive bargain!

The mail-order response has led to memorable conversations with people who used the wartime maps for real, another who wanted an unusual headscarf for the wife and one who bought several which were then sewn into an attractive, (so he said), waistcoat.

This is a long way from project milestones, critical success factors and the like... but a little bit of diversification on the side is really fun.

See the list at the end of this publication.

BOOK REVIEWS

FLASH SPOTTERS AND SOUND RANGERS

John R Innes

In World War One the artillery on both sides developed indirect fire into a battle-winning means. Effective indirect fire required survey of guns and targets. The enemy guns were targets so means of locating the enemy artillery became important. The task was given to the Royal Engineers and how it was done is described in the book: this reprint has been published for the 250th anniversary of the foundation of Military Survey.

The book describes how this task grew like Topsy. There was always a shortage of manpower: different formations used different organisations: new methods and new equipment kept coming along. Reading this book gives one a real insight into the problem when what was expected in peace is not what is needed in actual conflict. So, though it deals with 1914-18, it is worth reading now so that present-day officers are mentally prepared for whatever demands are placed on them.

New equipment was required so the book describes how Flash Spotting and Sound Ranging were developed by the front line people. It also deals with the soldiers, their attitudes, loyalties and conditions. Since many of the men were in isolated posts, with officers far away, they led a very different life from

most of the army and, maybe surprisingly (but not to me), had a high sense of individual responsibility.

The book was compiled by Captain Innes after WW1 from personal accounts of those involved. He included two contributions dealing with the German offensive of March 1918 when the locators had to turn themselves into infantry (a lesson to all of us who become too dominated by technology).

It has been reprinted privately and beautifully as a real labour of love. It should be compulsory reading for all those currently involved in locating (after WW1 the Gunners took over from the Sappers). It is well worth reading by those who may be pitchforked into technological change in peace or war (when 94 Locating had a Royal Signals troop authorised in 1961 all we got was a Staff Sergeant - no manpower cover! - and I had to acquire the radios by the backdoor for my gunners to work).

Brigadier Fraser Scott (retd)

A brief extract to give the flavour.

"The Earl of Cavan's Despatch dealing with the highly successful attack on the Italian Front in October 1918 shows very clearly how the Survey Battalions were indispensable in preparing for a surprise attack if it were to be successful. (This Despatch is given textually in

Chapter 3, p 75). He tells how the concentration of guns remained silent until zero hour and how "the bombardment and subsequent barrage were excellent."

It is, of course, an easy matter to put in the guns and allow them to remain silent, but every gunner knows that if this were the whole story, the "bombardment and subsequent barrage" would have been far from "excellent." Good shooting, particularly in the dark (the bombardment opened at 11.30 p.m.), can ordinarily only be done if the guns have been registered previously, and registration means firing *beforehand* at the target.

What is meant in this Despatch by saying that the guns "remained silent" is that the number of guns that needed to register were so few that the enemy were quite unaware that here was a whole host of new guns concentrated on the front. And it was possible to dispense with all this registering only by using the accurate method of laying provided by the Survey Battalions. In this attack the whole of this preparatory work was done by the 6th Field Survey Company, and the Earl of Cavan gives this work special mention. If it had not been for the services rendered by the 6th Field Survey Company, there must have been so much time

and ammunition spent in registering that the enemy would have been warned of the impending attack, as had happened so often before."

Reprint available from Colonel Mike Nolan, Tall Trees, Broad Layings, Woolton Hill, NEWBURY RG20 9TS. £16.

AN ILLUSTRATED HISTORY OF 250 YEARS OF MILITARY SURVEY

Y Hodson and A Gordon

1997 40 pages. ISBN 0 952 9730 07 Published by Military Survey Defence Agency. Price £5.75 with p&p £7.00 from GordonWood Associates, 1 Majorca Ave, Andover, Hants SP10 1JW

This fascinating little volume is elaborately illustrated and highlights all the major landmarks in the evolution of military survey since 1747. In particular it is a companion to the exhibition mounted for the anniversary celebrations but it readily stands alone.

Names that make fleeting appearances, such as Dawson, Denison, Jervis, Wilson, Arden-Close, Macleod and others all made their mark. Some remain legends in the minds of the present generation, for example, Llewelyn Brown and E

H Thompson. Arden-Close, with Winterbotham produced a text that was essential reading for some 40 years; Macleod later was very much involved in the formation of a Land Surveyors Division within the Royal Institution of Chartered Surveyors - an event that happened in 1948 but would have been some years earlier but for the second World War.

A very easy read detailing the many campaigns of the 19th century, then in the Middle East, Africa, the two World Wars, and the events of Suez, Cyprus, Iraq, Kenya and the Far East subsequent to World War II.

Interwoven with the campaigns, is an outline of the development of various aspects of military survey, the training, introduction of new techniques and changes of location.

This should appeal to a very wide readership. Certainly to anyone who has served in the forces but also to all those with a fascination for mapping and military history and all those who are simply looking for an interesting, easily digested insight into the production and use of mapping in a military context.

J R Smith

Quotable Quote

"Give me a map to look at, and I am content. Give me a map of country I know, and I am comforted: I live my travels over again.... old maps are old friends, understood only by the man with whom they have travelled the miles ... the appeal of an old map is to be the memory..... I recall our adventures together in storm and sunshinean occasion, perhaps, when the mist was thick and instinct and the map urged different ways, and I followed the map and came to safe ground again. Ah yes, maps are grand companions... If it is ever my lot to be cast away on a desert island, let it be with an atlas and a one-inch map of the Lake District."

From A Wainwright **A Penine Journey. The Story of a Long Walk in 1938.** London. Michael Joseph 1986.

DSA VISITS

Last year the Association had enjoyed the hospitality of our home base at Hermitage, where we have had the pleasure of being entertained and informed by kind permission of the Officer Commanding, Colonel Peter Walker OBE. However our first meeting of 1998 was away from home, in Dover on the 25th April. You would think after such a mild winter, with many spring like days, one could expect the third week in April to be a safe bet for a visit to a rather exposed position such as Dover Castle, however this was not be the case, it was in fact a foul weather day. Nevertheless the visit to Dover proved most successful and interesting. It incorporated a tour of the wartime tunnels (where the rain didn't

centre for the evacuation of the troops from Dunkirk. The party also penetrate) these were used as a military hospital, as well as the control experienced a most interesting visit to the Dover Coastguard Control Centre at the top of the White Cliffs, where the Controller Eric Mussen, gave us a detailed insight into the operation of the coastguard service, plus a tour of the hi-tech control and channel monitoring centre.

A party of 26, including our President General Barton and his lady, made the tour of the wartime tunnels and Dover Coastguard, with lunch in the Castle Keep Restaurant. To reward their endurance of the morning part of the visit, the sun came out after lunch enabling some of the party to view the more exposed areas of the Castle.

*Members of Council and their ladies
outside Dover Coastguard Control
Centre*



Geographical Information Systems and the Electronic Battlefield

The need to understand terrain has always been an essential skill for the military commander. This understanding has been supported by paper mapping for hundreds of years but was first approached in a form we would recognise today by Major William Roy in his survey of Scotland after the Jacobite rebellion of 1745. Throughout the next 250 years mapping methods evolved to better support the commander's decision making process and to take account of military advances such as motorised vehicles, aircraft, global positioning systems and now, digitisation.

Digitisation of the battlefield - "The Electronic Battlefield" - is now demanding the next technological leap - the embracing of digital geographic information (DGI) and the means of exploiting DGI, which is the geographical information system or GIS. While the exploitation of DGI on the battlefield may be new, the military has been using DGI for many years although its use has been confined for the main part to strategic and air systems. Its use on the battlefield has long been predicted but it is only recently that the first truly deployable systems exploiting DGI have emerged. They are only a small part of what will happen in the next ten years, as most battlefield systems become spatially aware and exploit DGI.

What is a GIS?

A GIS can be defined narrowly as the hardware and software that permit the analysis of geographic data. For the military commander GIS provides a mechanism for exploiting DGI in a predictable, repeatable way.

The next few years will see an inevitable growth in component-based GIS solutions. Instead of large, amorphous GIS packages that lend themselves to turnkey solutions we will see toolboxes of geographic components that can be built into larger systems. Systems that are built in a modular fashion stand a reasonable chance of evolutionary success. ESRI's products have always been based on this toolbox approach and the introduction of MapObjects software in 1995 builds further on this approach.

GIS - A Paper May Substitute?

The function of the map is to represent the real world (or the narrower focus of the battlefield) in a way that can be readily interpreted by the user. The map production process is extremely expensive and economics demand that all users get the same view or same map. This leads to the first major limitation of the map in that the same product cannot meet all the differing needs of different users. Every paper map therefore represents a compromise between the needs of differing users, none of whom receive the ideal product. GIS will allow users to create custom

products that depict information exactly as they need to see it. Although decisions still need to be made about the affordability of collecting and maintaining data users will still see enormous advantages as their map display emphasises information they need to better support decision making. GIS has an important role to play in holding a digital representation of the battlefield that can then be transmitted over the communications infrastructure.

What GIS Adds to Military Information Systems

A GIS provides the tools to create, maintain, analyse and distribute geospatial data. This covers a range of activities ranging from the simple "where is?" to the more complex "show me all (things) within (a distance) of (another thing)." There are many military requirements that clearly undertake this analysis and for which it is difficult to deny the need for a GIS.

Examples of applications with explicit GIS analysis requirements are cross-country movement analysis, intervisibility and radio propagation analysis.

As a major supplier of GIS software and services to the Ministry of Defence, ESRI (UK) has been involved in numerous projects which, in themselves, demonstrate the breadth of applications for GIS in the defence arena. These include:

- * Base Management

- * Office Automation
- * Intelligence Gathering and Dissemination
- * Command Information Systems
- * Site Selection
- * Tactical Information Systems

The Future for GIS

Defence GIS users currently see a representation of the real world as portrayed by a cartographer. There is some way to go before all users see the *same* representation of the real world. This is critical since without a common background there can be no common view of battle activities: the common operational picture.

The long-term vision is that users see the real world in the way that they choose to see it. Users have access to a contiguous high-resolution image archive that is constantly updated with change information.

In the future it is likely that interfaces to geographic information will be so natural and intuitive that users will not think of maps, GIS, current operational picture or even computers. They will just be immersed in commanding and controlling the battle. That doesn't mean that these components will not be present; it does mean that they will be so intuitive that they will be transparent to the user.

Terrain is the bottom line for defence and most personnel in defence will need systems that are spatially aware. This is likely to migrate down to the weapon

system and infantry section as technology evolves.

Weapon systems are likely to develop more spatial awareness. The advantages of having a weapon system that maintains awareness of the locations of friendly forces are obvious. Small, embeddable GIS software components that can be placed in systems ranging from defencewide Command Control Communication Information (C3I) systems down to individual weapon systems will ensure interoperability between systems. Above all they will provide repeatable and reliable performance in a wide range of mission-critical applications. GIS, whether defence appreciates it or not, will be a critical foundation technology for the electronic battlefield.

ESRI (UK) launches ArcView 3D Analyst and ArcView Image Analyst

... bringing powerful new features to desktop GIS for the military...

ESRI (UK) has launched two new powerful extensions to ArcView, adding substantial functionality to its fast selling desktop GIS (Geographic Information Systems) software. **ArcView 3D Analyst** and **ArcView Image Analyst** can transform the way GIS is used in today's military.

For a large majority of geographic data users this is the first time in the desktop

world that there is an affordable mechanism for viewing data from a 3D perspective. **ArcView 3D Analyst** offers high end topographic modelling - supplying a suite of high quality, easy-to-use tools for the creation, analysis and display of surface data. Much more than a 3D viewer, ArcView 3D Analyst gives users the power to manipulate and analyse data from a three-dimensional perspective, including 3D specific tools such as line-of-sight, grid and TIN creation and much more. Using the tools in 3D Analyst, users can rotate the scenes and "fly-through" them giving a whole new meaning to exploring data.

ArcView Image Analyst (developed by ERDAS) provides geographic imaging features - allowing users to take advantage of the wide range of digital image data that is available today or planned for the near future. This data includes aerial photography, digital orthoimagery of all types and small, medium and large scale satellite data that will be available over the course of the next year.

As this type of data is increasingly being used in the strategic planning process, ArcView Image Analyst is an exciting development in the field. It will allow users to access a wide range of image types and perform image visualisation and enhancement, map registration, feature extraction and image categorisation and change detection.

COMING EVENTS

The DSA has made arrangements for two visits, one in July to Portsmouth, to tour the historic dockyard and the Royal Naval Museum, including HMS Victory and the Mary Rose, this venue will also incorporate our AGM. The Association has also arranged an autumn visit to the underground Battle of Britain Control Centre at RAF Uxbridge, where Churchill sat and viewed the progress of the air battle over southern England in 1942.

Saturday 11 July 1998 AGM & Visit to Portsmouth Historic Dockyard

Saturday 24th October 1998 Visit to the Battle of Britain Control Centre, R.A.F.Uxbridge

50th Anniversary of 135 Survey Engineer Regiment R.E. T.A.

135 Survey Engineer Regiment R.E. T.A., now 135 Independent Topographic Squadron R.E. (V) was formed on the 5th of October 1948. To recognise its fifty years there will be an Anniversary Parade and celebrations at Ewell on Saturday 3rd of October 1998. It is hoped to arrange a parade through Ewell village followed by a social re-union in the Drill Hall. The Royal Engineers Band will be in attendance. Former members and friends are most cordially invited to this unique event. For further particulars please apply to Captain B.S. Tennuci R.E.(V), Permanent Staff Administrative Officer, 135 Independent Topographic Squadron R.E.(V), Minator House, Welbeck Close, Ewell, Surrey KT17 2BG
Tel: 0181 393 0981/2

Exhibition and Symposium

In conjunction with the International Federation of Surveyors Congress (FIG) in Brighton, 19-25 July 1998 there will be a weeklong exhibition The Art and History of Surveying. On Wednesday of the same week, 22 July, a Symposium 2000 Years of Measurement will be held in an adjacent lecture theatre. The venue is the University of Brighton, Sallis Benney Theatre on Grand Parade Brighton. Further details from the Editor, Jim Smith- see inside front cover.

Quotable Quote

Did you hear Dame Judi Dench on Desert Island Discs?

When asked what book apart from the Bible and the Complete Works of Shakespeare (much of which she knew by heart), said that what she wanted was the Ordnance Survey maps of the whole world!

And what is more, Sue Lawley promised to arrange it!

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LE2	BATTLE OF CORUNNA 1809 (Peninsular War 1807-1814). The Plan of the Battle of Corunna, 16th January 1809. Pencil, pen, ink and watercolour by H. B Harris.
LE3	PICTURE OF SURVEYING IN THE HIGHLANDS 1749. View near Loch Rannoch. Pen, ink and watercolour by Paul Sandby.
LE4	BOSTON, ITS ENVIRONS AND HARBOUR, WITH REBEL WORKS AGAINST THE TOWN, 1775. "From the observations of Lieut Page of His Majesty's Corps of Engineers and from those of other Gentlemen."

2. QUALITY REPRINTS (RP) - PRICE £ 5

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RP4	AVIATION MAP OF THE WESTERN FRONT 1917. A rare example of an early air chart using a perspective view to simulate the aviator's view. Size 76 x 76 cm.
RP5	SPION KOP. Two small maps showing the battle situation at different times.
RP6	LAKE RUDOLPH TO NAKORO. Fine example of the 19th century maps produced during the exploration of Africa. Size 21 x 50 cm.
RP7	TEL EL KEBA Beautiful Victorian cartography at the time of the Egyptian and Sudan Wars.

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- ME4 SIEGE OF MAFEKING, 1900. Sketch map showing the position of the defences at the time of the Relief
- ME5 RUSSIAN/AFGHAN BORDER, 1895. A fine example of a Victorian Boundary Commission Map

All enquiries to the Honorary Secretary, Col. Bill Codd

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7	Rome/Sarajevo	Tunis/Palermo	The Italian peninsula
8	Moscow	Ivanovo	The Russian heartland
10	Persian Gulf	Persian Gulf	An air chart: ONC H7
12	Teheran	Bushire	Iran
13	The Aegean	Sofia	Greece and the east.
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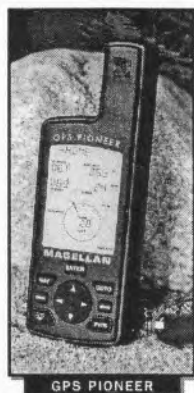
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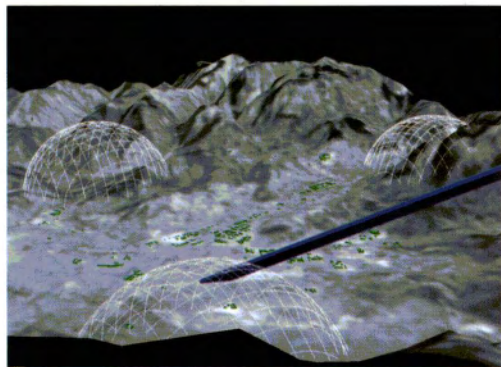
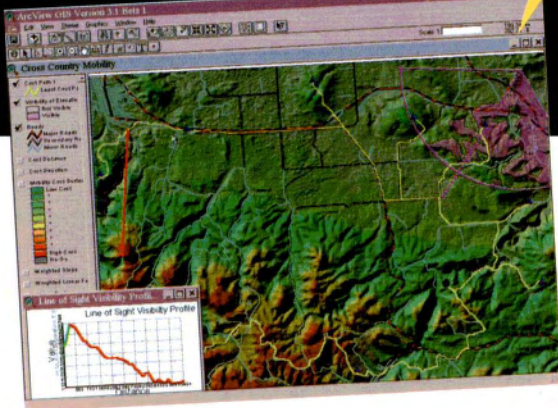
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