THE RANGER 2008

Journal of the Defence Surveyors' Association

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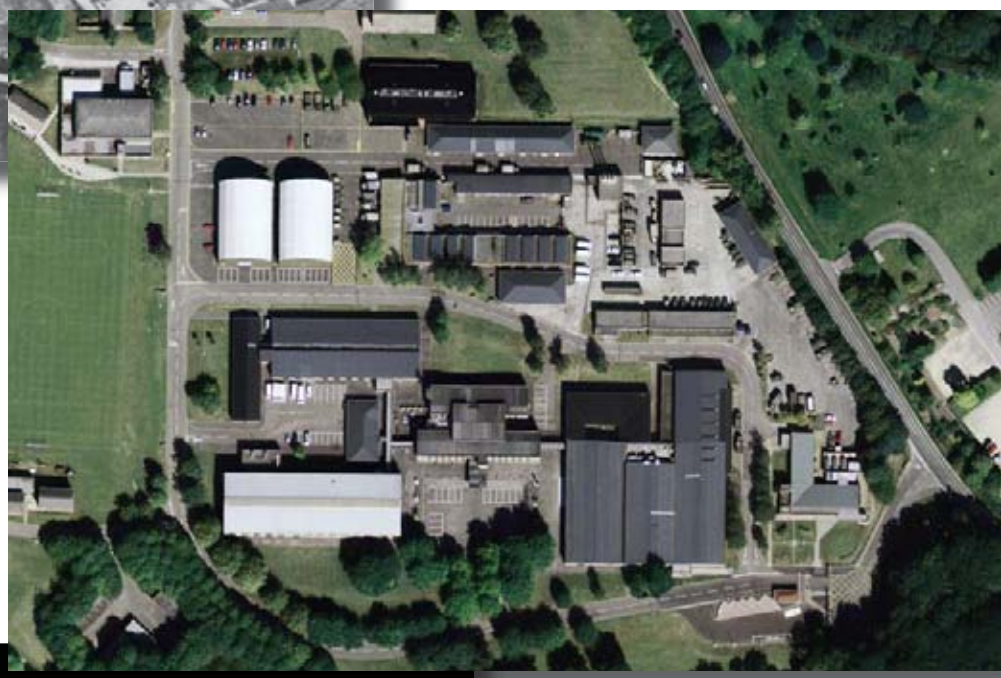
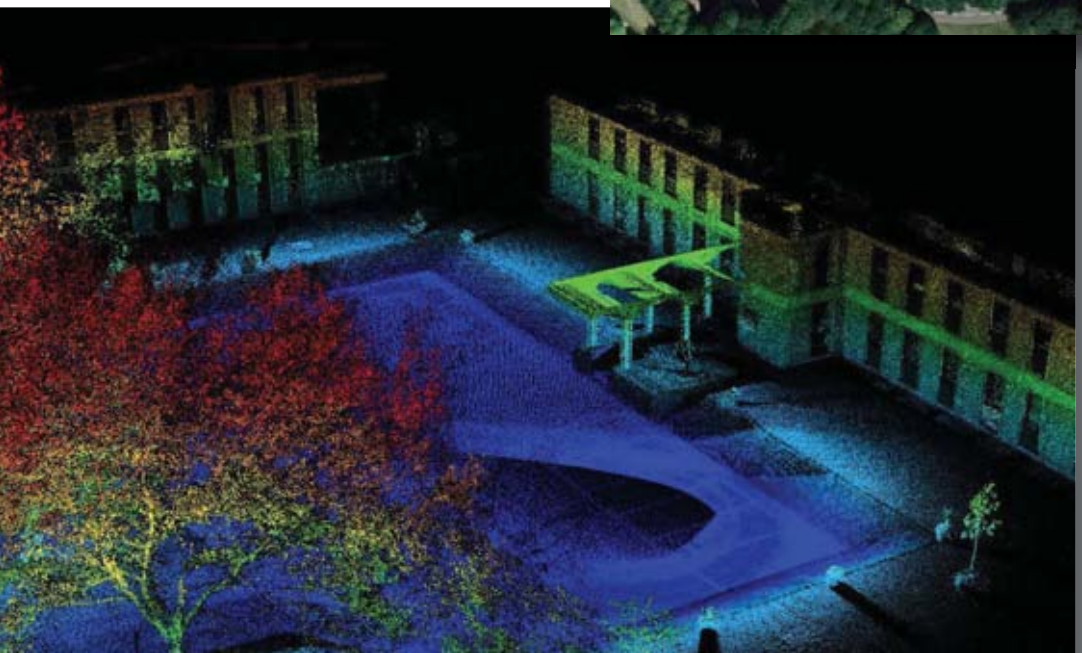
Hermitage Camp in the Sixties.

Royal School of Military Survey - Hermitage

Denison Barracks 2008 © GeoPerspectives.



"Rapid Surveyor™ created mobile LIDAR survey of HQ JAGO. Image Courtesy Infoterra Limited"



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Designed and typeset by David Johnson.

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In this edition of Ranger…

……we have an unashamed bias towards Military Survey/Royal Engineers (Geographic) in that we commemorate not one but two 60th anniversaries; the granting of the title 'School of Military Survey' and Hermitage as the home of Military Survey/Royal Engineers (Geographic).

The title was bestowed on the 1st of January 1949 and over the ensuing 60 years the School, now of course graced with the Royal accolade, has developed into a world-renowned geospatial centre of excellence. For decades now the heads of many national and international geographic organisations, as well as others who are or have occupied senior positions in commercial enterprises, leant their craft at the School. Unanimously they have fond memories of their time at Hermitage. Except for a very few elderly gentlemen, everyone who can claim to be a military surveyor or member of RE Geo has served in this small Berkshire village.

Throughout the Armed Forces, and indeed across the world, Hermitage is synonymous with military surveying, mapping and all things geographic. It is doubtful whether those first few soldiers who moved into a run down temporary former American hospital could have imagined what the camp was to become to so many over the next six decades. It is surprising to compare the move into the camp to how a move out would be managed. In 1949 the entire process was carried out on a self-help basis with major elements done by very junior ranks; a sapper did the initial recce, two sappers were responsible for dismantling and reassembling the presses and all the painting was done by 'volunteer' soldiers. Even the cricket pitch was cut up turf by turf at nearby Hampstead Norris, moved to Hermitage and re-laid by the students.

However significant the two 60th milestones may be, this issue is not totally immersed in either Hermitage or yesteryear as both Infoterra and Tenet describe up-to-the-minute advances that they are involved with.

Finally, I would like to put the spotlight on the DSA's own unsung hero – David Wallis. David has been actively involved with the Association for 40 years and is very much responsible for the good shape that it is in today. He has filled almost every appointment on the Council and been behind all the significant changes over the last forty years, not least the change of title to Defence Surveyors' Association. He has organised countless visits, each carefully researched and modestly priced, and he even rescued the accounts from a moment of crisis. We wish David a very happy retirement from the Council but look forward to seeing him and Audrey at future events.

Alan Gordon

Opinions expressed in Ranger do not necessarily reflect those of the DSA or the editor.

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DEFENCE SURVEYORS' ASSOCIATION

Formerly the Field Survey Association

DSA is a registered charity which maintains liaison between officers, warrant officers and senior non-commissioned officers, both serving and retired, and civilians who are working or who have worked in the Defence domain where the focus is environmental information, hydrographic, oceanographic and geographic surveys, locating and target acquisition, navigation, and geospatial intelligence.

The Association provides a variety of services to its members which include:

- A copy of each edition of Ranger magazine, published two times a year.
- Visits to a wide range of technical, military and historical sites, often not available to the general public.
- Opportunities to attend technical and historical seminars.
- Opportunities to attend events organised by other professional organisations working in related fields.
- Opportunities to network with senior personnel in the Defence environmental and geospatial sector.

If you would like to join the Association please complete the application form at the back of this edition or visit the Association's website (www.defencesurveyors.org.uk) where you can complete an application on line.

The Institution of Royal Engineers Honorary Membership

After the Council of the Institution of Royal Engineers recently elected Stuart Haynes and John Knight to honorary membership a suitable occasion presented itself at the Hermitage annual cocktail party for the Commander of the Joint Aeronautical and Geospatial Organisation, Col John Kedar, to present the two worthy individuals with their Corps ties. Stuart Haynes is the Director of the Defence Geographic Centre (DGC), formerly the Mapping and Charting Establishment and a Royal Engineer establishment. John Knight is the Principal of the Royal School of Military Survey (RSMS), again a former Royal Engineer establishment. It was highly fitting that these individuals should be so honoured as they both uphold and foster the links with the Corps, both from a heritage aspect and more importantly from the operational support to RE (Geo) provided by the DGC and in RSMS' role in training all RE (Geo) officers and soldiers. The Corps ethos in the DGC and School remains in excellent hands.

Stuart Haynes and John Knight sporting their new Sapper ties.

AGM and Brooklands Visit

By Tony Keeley

Once again David Wallis found us a splendid venue for the AGM at the Brooklands Museum, the birthplace of British Motorsport and Aviation. Some fifty DSA members, wives and prize winners gathered in the Bluebird Room of the Brooklands Club on the 19th of July. The business of the AGM was conducted under Peter Walker's chairmanship in its usual brisk efficient manner followed by the award of the DSA prizes for three recipients. Then it was the occasion to recognise David Wallis' singular contribution to the Defence Surveyors' Association over a period of some forty years. He has served in many capacities in the Field Survey Association and the DSA, including, chairman, secretary and events secretary. David has now decided to stand down as events secretary but I am sure we will see just as much of his ever smiling and welcoming face at events in the future. To recognise David's sterling service he was presented with a print depicting Ramsden. The President, Major General Patrick Fagan made the award and the assembled company showed their appreciation in no uncertain manner.

Then it was time for lunch and as David had promised us we were treated to 'the best fish pie you've ever tasted'. After this splendid lunch in very convivial surroundings we split into two parties for a conducted tour of the site. In reality you would need several days to appreciate the full extent of the museum collection but our guides, in about two hours, treated us to the highlights along with brief but very informative histories of the site. I for one, up to this point, had not been fully aware of the site significance in aviation development. The track itself was built in a very short time in 1907 as the first purpose built racetrack and it featured immense thirty-foot high banked sections which still exist today. The aerodrome was built in 1930 and was in regular commercial use until 1939 when also the last racing event took place as the site was put over to aircraft production.

Now to the exhibits. The highlight amongst the racing cars, and there were many, was the Napier Railton, a magnificent beast with immense power and speed, though preferably in a straight line! With an engine capacity of 24 litres (I no longer feel guilty about my modest little 4.2 litre Morgan Plus 8) it captured and held many records. We were shepherded past any number of cars deserving closer scrutiny, past the old bone shaker bicycles and finally to the aircraft. The 'R for Robert', a Wellington bomber which crashed during the 2nd World War, was found in Loch Ness in the seventies by an American group searching for Nessie, not the result they expected. It was recovered and painstakingly restored and eventually found its way to the Brooklands Museum. In contrast we were treated to the pleasure of observing Concorde, interesting that this was designed in an era when the slide rule reigned supreme. Our final pit stop was back inside the headquarters of the museum and the Barbara Cartland room. Dame Barbara Cartland was one of the early lady pilots who flew out of Brooklands. In all it was a memorable visit leaving one with the thought that a return visit is called for.

Bereavements

It is with regret that the Association announces the deaths of Colonel Simon Fraser and Harry Calder. An obituary of Simon appears in this issue of Ranger and Harry Calder's recollections of working with 14 Field Survey Company in the Falklands during the Second World War will appear in the next edition.

DSA Prizewinners 2007

The 2007 DSA prizes were awarded at two different locations with the Royal Artillery and Royal Engineers (Geographic) awards being presented by the Chairman, Peter Walker, to the winners after each had given a very interesting and professional presentation at the Maps and Surveys Seminar held at Hermitage on the 21st of June. It is worthy of note that WO2 Jason Cartwright, the Gunner winner, was the first person ever to be awarded a prize for the second time.

The Association President, Major General Patrick Fagan, presented the Royal Navy, Royal School of Military Survey and the UKHO prizes to the winners during the AGM held at Brooklands on Saturday the 19th of July.

ROYAL NAVY

Lieutenant Commander PR Newell RN

Throughout the past year, Lieutenant Commander Philip Newell has immersed himself in refining the process for defining the requirement for hydrographic and oceanographic surveys to meet the Royal Navy's worldwide commitments. Additionally whilst stepping in to assist in a gapped post, he has been fully involved with research and industrial institutions in taking forward new concepts, particularly regarding emergent Unmanned Underwater Vehicles and investigating synergies between Hydrographic Survey and Mine Countermeasures operations. He has also worked towards developing the doctrine and tactical use of the systems in future platforms looking out as far as 2023.

Lieutenant Commander Phil Newell receiving his award from DSA President Patrick Fagan.

ROYAL ARTILLERY

WO2 J Cartwright RA

Over the past year WO2 Jason Cartwright has been instrumental in driving forward RA survey policy and of particular note has been his deep and constructive involvement in the Urgent Operational requirement to successfully field the Lightweight Mortar Locating Radar. Jason provided advice and consultation regarding training, equipment capability and development issues to the IPT, HQ DRA Capability Branch, the US manufacturers, the RSA and operationally deployed key personnel. WO2 Cartwright identified areas for improvement of survey process to that being used by US operators that were adopted leading to improved accuracies by a factor of 10.

Royal Artillery 'double' winner WO2 Jason Cartwright and RE Geo winner Lance Corporal Stuart Kempster with DSA Chairman Peter Walker.

ROYAL ENGINEERS (GEOGRAPHIC)

Lance Corporal S M Kempster

Deployed to Afghanistan on Operation HERRICK from September 2007 to March 2008 LCpl Stuart Kempster was initially deployed to Camp Bastion as technical lead for the Battle Group(N) Geo Cell where he was responsible for task completion and technical development. Later in the same operational tour, Stuart was re-deployed to support a Danish led Battle Group which had never previously experienced the benefits of direct geographic support. His pro-active and determined approach was crucial to successfully establishing Geo as a key part of the Battle Group planning process. LCpl Kempster's self-discipline, dedication to task and consistent mission focus led to him being singled out as the top Geo JNCO on the deployment.

ROYAL AIR FORCE

Sergeant K Laurie RAF

Sergeant Ken Laurie receiving his award from Wing Commander Phil Speedy, OC No 1 AIDU.

During the last year Sgt Ken Laurie has filled the appointment of a gapped post of Office Manager at AIDU as well as his own appointment as Senior Editor in the Terminal Charts section. He has been instrumental in developing new chart production methods and, despite countless obstacles along the way, his enthusiasm remained infectious and the office and unit are now highly motivated towards achieving success in this field. The result will ensure that terminal chart production will not be tied to the LITES2 technology and will instead embrace modern and supported technologies.

ROYAL SCHOOL OF MILITARY SURVEY

Sergeant D Salloum and Sergeant M Sumner

Sergeants Dave Salloum and Mark Sumner have shown an innovative approach in delivering training on Full Motion Video (FMV). They collected mapping, imagery and DTED to replicate the situations that operators would experience in practice. The system, though not accredited software, is now being used to deliver training. For their tireless work and imagination the team has been awarded the 2007 DSA prize.

Sergeant Mark Sumner who, together with Dave Salloum, were the first members of the RAF to win the Royal School of Military Survey prize.

UNITED KINGDOM HYDROGRAPHIC OFFICE

Submarine Operations and Surveys Branch

Tim Auton, Terry Thatcher, Jonathan Wheelhouse and Stuart Booth are a small team working in the UKHO Submarine Operations and Surveys (SOS) branch, which provides geospatial support to RN submarine operations. The team has shown drive and determination in developing, testing and demonstrating a deployable digital vector capability based on ESRI's ArcPublisher/ArcReader at short notice to support, HMS Torbay, the first of the submarine fleet to be equipped with an electronic navigation fit.

Tim Auton represented the team that won the 2007 UKHO prize.

DEFENCE GEOGRAPHIC CENTRE (DGC)

Chris McDonnell

For his work in the development of an effective process for the printing of Low Flying Charts in which the number of impressions has been reduced from 11 to 6, hence enabling a single pass through the press. Chris's successful work on this project has resulted in a significant improvement in efficiency in terms of reduction in the number of printing plates used, less paper wastage and savings of over 50% in printing machine time. Chris has converted this process model into a standard procedure within the Pre-press Section to output all printing tasks to a six colour configuration, achieving yet further savings for the unit.

David A Wallis: 40 Years Service to the Association

The President presenting David with the framed print in recognition of his 40 years service to the Association.

On the occasion of the AGM at Brooklands the President, Major General Patrick Fagan, presented to David Wallis a reproduction of the oil painting of Jesse Ramsden and his Dividing Engine, the original of which is the property of the Royal Society. This was to mark 40 years of continuous service to the Association, formally the Field Survey Association (FSA) and more recently the Defence Surveyors' Association.

There is no record of when David Wallis joined the FSA but it was in the early 1960's when the membership fee was just a £1 and the Council met in the office of Ernest Hodnett near Bloomsbury Square, later to move to the London office of the Chief Hydrographer at Lacon House, Theobolds Road, Holborn.

David served his National Service in the RAF with the Air Fighter Development Squadron (AFDS), based at West Raynham in Norfolk, where he worked on many prototype aircraft in cooperation with RAF Boscombe Down. On leaving the service in 1952, he commenced running his own small company, Survey & General Instrument Co. Ltd. from a shared office at 329 High Holborn. In 1956 he was appointed the sole agents for Kern of Aarau, Switzerland.

When David joined the FSA, being the only member having served in the RAF, there was no social activity to bring together the membership with a programme of events, other than seminars at the RUSI, co-sponsored by the Association. There was no newsletter or any form of publication other than notices of meetings, of which there were very few, including the AGM. On joining the Council he proposed the membership fee should be raised to £5 enabling the publication of a newsletter, which he put together in his office and called 'The Ranger'. He also initiated a programme of social events, visiting mostly military establishments with a survey connection, always with a lunch to encourage social interface and also involving the ladies. As the membership at that time consisted mainly of the "Old and Bold" David came up with the suggestion to change the name from the Field Survey Association to the Defence Survey Association to try to make it more relevant to present day serving officers.

As Chairman in 1995/98 he worked tirelessly on raising the profile of the Association and after stepping down from the chair, he continued to take a very active role in Council affairs as the secretary. He finally served as the events secretary before retiring this year. In 1995/96 David was also the Master of the Worshipful Company of Scientific Instrument Makers and established the connection between his Livery Company and the Royal School of Military Survey, where the Livery Company awards annual prizes to the top students.

David is well known throughout the surveying profession and has been awarded many accolades for his services, being the only member of the Land & Hydrographic Division (now the Geomatics Division) to be made an Honorary Member of the RICS. He also organised the publication of the divisional magazine Geomatics World and is still a member of the editorial board.

He has been President of the Photogrammetric Society and for his services to photogrammetry was made an Honorary Member of the Society as well as a Fellow of the Remote Sensing Society and, for his services to cartography, he was made a Fellow of the British Cartographic Society.

For many years David Wallis worked with Professor Douglas Hodges at the University of Nottingham, Department of Mining on projects related to mine surveying and in particular underground correlation using precision gyro-theodolites. In recognition of his work in cooperation with the University, the Senate endowed the annual Wallis Prize to be given to the best student in mine surveying.

Besides his dedication to the application of surveying and photogrammetry he has made a personal contribution in teaching marketing skills to the profession. For a number of years he was President for the Croydon and North Surrey Branch of the Chartered Institute of Marketing of which David is a Fellow and is still a Chartered Member. David is also an associate member of the Medmenham Club, due to his involvement with photo interpretation.

Many of his military friends will recall the instruments supplied by the Survey & General Instrument Company including a lot of the equipment that was located in the Richmond Building at Feltham as well as all the Richards Light Tables scattered around JARIC and RAF bases in Northern Ireland and JHQ in Germany.

David retired from active business in 1996 when he sold the company to the management, which changed its name to Pyser-SGI Ltd. Today the company concentrates on the manufacture of military night vision devices as well as continuing with the production of prismatic marching compasses, which still have a considerable world market in spite of the advent of GPS.

For almost fifteen years David has been active in the International Federation of Surveyors (FIG) and is the Treasurer and Deputy Director of the International Institute for the History of Surveying & Measurement, which is one of only two permanent institutions within FIG. Working with his colleagues Professor Jan de Graeve and Jim Smith, they have established the Struve Meridian Arc as an International Historic Monument with UNESCO, the very first scientific monument ever to be listed. The Struve Geodetic Arc runs through ten European countries, a distance of over 2800Km. from Hammerfest in North Norway to Ismail on the Black Sea.

David has now stepped down from an active role on Council, as the distance to the present and future venues for the Council meetings is a very long way from Bexhill-on-Sea where David Wallis now resides.

More about 'Fougasse' or Fake: Military Survey's Emblem

By Peter Walker

In the last edition a very interesting article by Alan Gordon set out the story of the 'Fougasse' cartoon or 'Fred' used by Military Survey as its emblem for many years. As Alan included 'Fred' in a variety of poses I thought it would be interesting to add a few others which I have in my collection:

'Fred' in a battle - firing his rifle from behind the globe.

'Fred' frustrated about to smash the globe from over his head – probably a staff officer trying to deal with MOD!

'Fred' advertising the need for geographic information – used in the 1980s as the use of digital information was expanding.

''Fougasse' is also the title of the Military Survey march, a piece of music commissioned to mark the 250th anniversary of Military Survey in 1997. The march was composed by the resident composer/ arranger of the RE Band at that time, Sergeant Richard Hubbert, and was included in the CD 'Listen to the Band' recorded by the Band of the Corps of Royal Engineers in 1998.

Alan states that 'Fred' now only has three roles – for the Royal Engineers Association Military Survey Branch, as a symbol for Late Entry RE Geo Officers, and as a statuette presented to members of the Warrant Officers' & Sergeants' Mess at Hermitage. However, I am happy to report that 'Fred' is surviving elsewhere. The Officers' Mess at Hermitage also has a different statuette of 'Fred' which is given to Mess members, but most importantly 'Fred' still appears on the letterhead for 42 Engineer Regiment (Geographic) and is marching in the margin of operational products produced in Afghanistan.

Three different takes on the original cartoon.

Indonesian Confrontation

Readers, particularly those who served in 84 Survey Squadron in the 1960s, might be interested to learn that Pen and Sword have published a book on the 4-year long war with Indonesia. Entitled *"Confrontation: The War with Indonesia 1962 – 1966"* it is written by Nick van der Bijl, who was in the Intelligence Corps, and is illustrated with maps drawn by Peter Wood.

Maps & Surveys 2008
The Defence Surveyors' Association Seminar - 21 June 2008

By Michael Gowlett

How quickly the years come round, almost as quickly as the advance of technology. This excellent seminar certainly bridged the gap of centuries, let alone years. From 'Castles in the Air', about sixteenth century fortification plans, to the present day experiences of serving soldiers in Afghanistan the sessions took us on a journey through the ages. On the way we visited the East Anglian Invasion Coast in 1799, seaplane photography and the 'Cruise of the Pegasus' in the 1920's, how commanders interpreted the intelligence maps in the Ardennes Offensive in 1944, and, most appositely for the audience and location, 'Crossing the Digital Threshold' described a timeline fresh in the memories (and experience) of many of those present.

The seminar, introduced by the Chairman of DSA, Brigadier Peter Walker, took place at Denison Barracks, now the home of the Joint Aeronautical & Geospatial Organisation. In the 1940's Hermitage became the School of Military Survey, and the changes in the site and the methodology over those years reflect the theme of the seminar. There has been change and development in maps and surveys from 'Castles in the Air' to the present time. The incremental progress in map making down the years leads us to the present exponential pace of change, a key catalyst being the 'digital threshold' outlined by Alan Gordon.

The speakers from left to right: WO2 Jason Cartwright, David Stevenson, Rose Mitchell, Alan Gordon, LCpl Stuart Kempster, Yolande Hodson, Christopher Hunt, Mike Nolan and DSA Chairman Peter Walker.

'Castles in the Air' – sixteenth century fortification plans in The National Archives, by Rose Mitchell of The National Archives, Kew

Rose Mitchell set the scene for Maps and Surveys down the years by describing the very real invasion threats faced by England at that time from Spanish Holland, France, Spain, Scotland and Ireland. There was no standing army then, much less a military survey organisation, but there were 'military men' whose job it was to anticipate the threat and prepare defences against it.

She illustrated her talk with plans of a number of castle fortifications, skilfully drawn, many based on the south coast where the perceived threat from the continent was greatest. Some of the fortifications were never built (hence 'in the air') because dangers grew and receded, because of the cost, and as the century progressed, improvements in the range and accuracy of artillery rendered earlier plans obsolete. This brought about an Italian influence in fortification design. The star shaped architecture provided greater protection for the walls and better lines of sight for the defenders.

Mapping the East Anglian Invasion Coast 1799, by Dr Yolande Hodson, a DSA member

The year 1799 marked the start of the Napoleonic wars and England faced the threat of invasion along the south and East Anglian coasts. Dr Hodson illustrated her talk with examples of military mapping of East Anglia prepared at the time.

Of particular use to potential invaders would have been knowledge of road quality, relief, and potential landing sites – all of which would still surely be included in a modern day commander's brief. From this information, defence resources could be deployed to best effect.

In 1794, the Master General of the Ordnance charged Captain Thomas Vincent Reynolds with making a military map of the south eastern and East Anglian coasts. Working on horseback, Reynolds superimposed military specifications onto the existing civilian mapping, and produced one-inch maps of the coast, including East Anglia and Essex. Although the invasion danger was greatest in the south, in East Anglia the prize for an invading force would have been the strategically important city of Norwich.

Extract from an untitled reconnaissance map of the coastal areas of East Anglia, surveyed in 1799 by George Pink under the direction of Captain Thomas Vincent Reynolds. Scale one inch to one mile (1:63360). This map, and a similar map of parts of Essex, were a direct response to the threat of invasion. They were accompanied by written reconnaissance reports, only part of which survive, detailing the primary defensive positions to be taken up in case of invasion. This map was directly based on Hodskinson's map of Suffolk which was published by Faden in 1783. To the details taken from the printed base map was added military information such as where enemy ships could land, and a threefold road classification which distinguished between roads which could carry heavy artillery during the different seasons of the year. Reproduced by courtesy of The National Archives, MR 1/1415.

It was a commonly held view that the Ordnance Survey was founded as a result of the Napoleonic wars and that it produced maps in response to the threat of invasion, but in fact it was Reynolds' military mapping that provided the main topographical intelligence for the military chiefs.

The Cruise of the Pegasus - seaplane photography and the topographic survey of Hong Kong 1924, by Mike Nolan, a DSA member

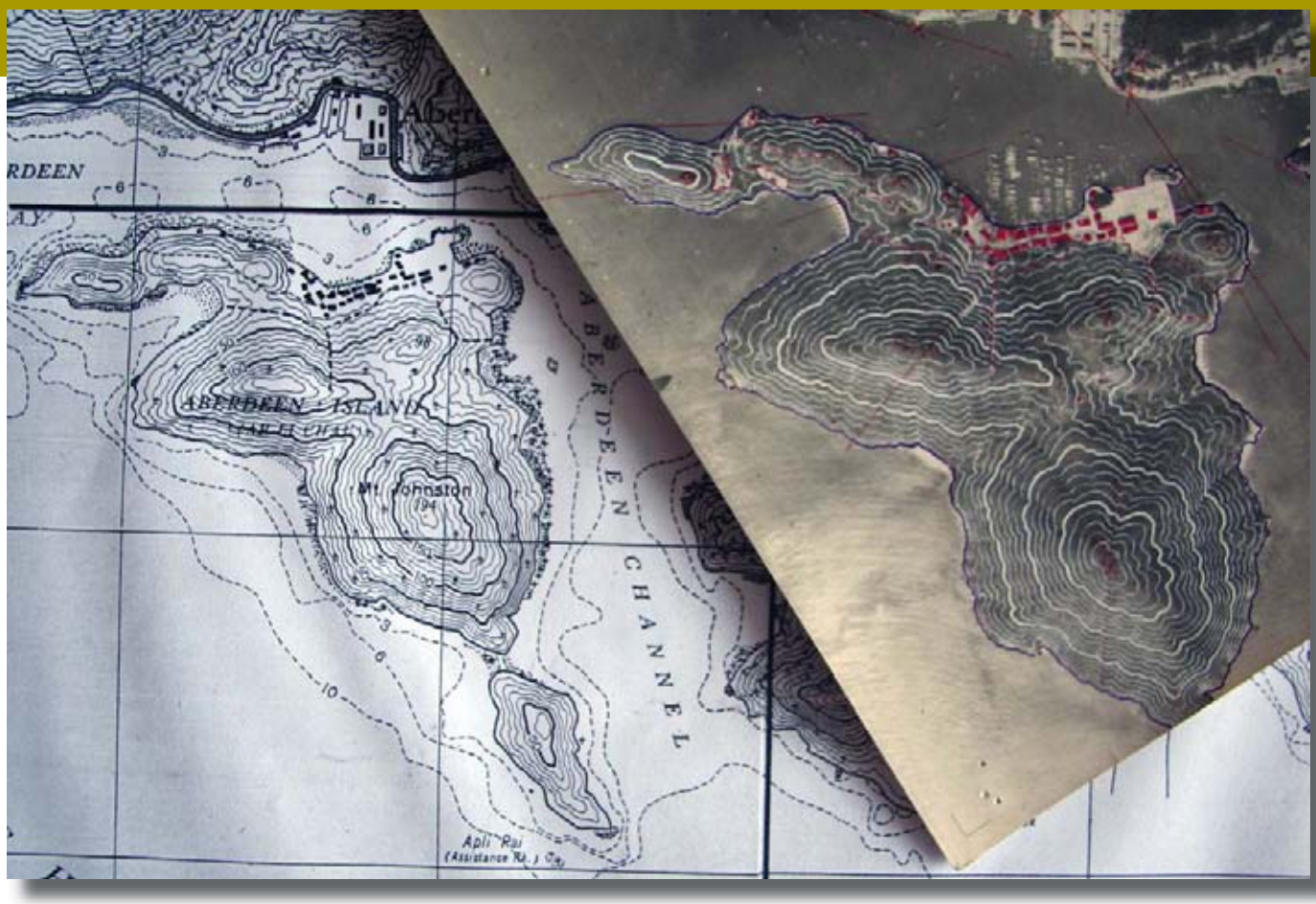
Mike's presentation took in the history of military mapping of Hong Kong and the first steps in military use of aerial photography for survey purposes. He began by sketching the history of map making in Hong Kong and he showed a number of interesting military maps dating from 1841 to 1924. Among these were a survey by Tate (1899-1902) at 1/84,480 and King's and Newland's 8-inch and 2-inch surveys respectively (1902-1904). This resulted in1/84,480, 2-inch and 8- inch mapping of the colony, much of it of 'doubtful accuracy'.

The world situation and Japan's rise as a military power identified the need for improved military maps of Singapore (selected as suitable for a naval base capable of supporting capital ships) and of Hong Kong, hence the need for GSGS 3868. Efforts to adapt existing mapping failed, so a new triangulation was needed, and because of the failure of the PWD to erect permanent trig monuments, most of Tate's and King's control had been lost.

Of particular interest (to me as a one time air surveyor) was the use of *HMS Pegasus* with her seaplanes and Williamson F8 camera. Mike described flight planning methods and showed various pictures of the *Pegasus* at work throughout the Far East. The mission included assessing the suitability of Hong Kong and Singapore for seaplane operations, and providing cover of Hong Kong with 1/20,000 scale vertical photography. The contemporary terminology is familiar to an air surveyor practising in the '60's and 70's, flight plans, tie strips, oblique photography, etc., but this work must have been at the very birth of military photogrammetry. *Pegasus* and her seaplanes successfully supplied full photographic cover of Hong Kong.

It was agreed that GSGS 3868 would be based on triangulation by Lt Henry Wace with three other ranks, with detail supplied by plane table survey, radial line plotting from the Pegasus aerial photography and perhaps more rigorous photogrammetric plotting, though the division of the work between these techniques is not known.

Mike provided much fascinating detail to illuminate his presentation. One can only admire the determination and skill of Wace in driving the project forward. As a one time sergeant, I had a sneaking



A map and annotated airial photograpgh of Aberdeen Island, one of the many excellent illustrations from Mike Nolan's presentation.

sympathy for Sgt. Johnston who was castigated for 'hopelessly inadequate' plane tabling in the New Territory! Was he sufficiently trained, did he understand what was expected of him, what resources did he have? Or was he plain incompetent? We shall never know, but surely his misdemeanours pale into insignificance against the failures of the Hong Kong PWD to provide permanent trig monuments for Tate's and King's previous surveys, despite having agreed to do so, resulting in the loss of much good order control. The PWD also agreed to pre-mark ground control for flying the Pegasus photography and failed to do so, scotching an idea well ahead of its time which would have been invaluable for the plotters.

The end result was a good quality gridded map series of Hong Kong, and much was learned about flying, processing and using aerial photography for survey purposes.

A Museum of Map Making

Just before lunch, David Stevenson, ex-RE Survey and a MSc student, introduced the concept of a museum which tied in with his studies. He asked members' to complete a questionnaire and this received a good response.

Intelligence Maps of the Ardennes Offensive 1944 - the allied assessment of the situation based on current intelligence-situation maps, by Christopher Hunt, of the Imperial War Museum

Christopher Hunt's absorbing talk dealt with the compilation and interpretation of intelligence maps leading up to the Ardennes Offensive in 1944.

He illustrated his talk with the map 'Enemy Order of Battle Western Front as at 16 December 1944'. He pointed out that the title should have been qualified as the 'Allied Intelligence Idea of the Enemy Order….'

The map was largely correct about the disposition and type of German forces. It showed the position of panzer, airborne and infantry divisions with the exception of one 'green' infantry division whose artillery regiment only arrived at the last moment. The intelligence shortcomings lay in the failure to anticipate the German intentions and about the quality and morale of German troops.

Christopher pointed out that the top officers in the Wehrmacht, who were behind the plot to assassinate Hitler in 1944, realised that if successful, they would need substantial forces to oppose the Nazi remnants who would try to appoint a successor to Hitler and carry on with the war. Thus large numbers of troops

were 'hidden' by the Wehrmacht in the Replacement Army. On the failure of the plot, Himmler was given control of the Replacement Army and he was able to create over one hundred and fifty divisions! This mobilised a million men.

Allied generals greatly respected van Rundstedt, the German commander in the west, and assumed he would adopt the accepted military tactics of the time. This would involve a limited attack followed by a slow retreat to a long defensive position on the Rhine. But Christopher pointed out that Hitler thought otherwise. His only hope was to drive through and separate the allied armies, take Antwerp, encircle the allies and negotiate a more favourable peace treaty. Desperate, but the alternative was certain total defeat and the destruction of Germany.

Allied intelligence had maps that reasonably accurately showed the disposition of enemy units but it failed to anticipate the impetus and ferocity of the offensive. This was partly because of over confidence and under estimation of German resources and morale, and because of close German secrecy regarding the offensive. In the event, with allied reserves stretched, as a distinguished former soldier may have said, 'It was a damn close run thing'!

Crossing the Digital Threshold – aerial triangulation and the early use of digital equipment in Military Survey, by Alan Gordon, a DSA member and editor of Ranger

Alan Gordon returned to the theme of air survey. Mike Nolan dealt with the early days of aerial photography in survey; Alan took us across the digital threshold which has brought us to the geospatial present! He traced a line from the arrival of Pegasus for geodetic computations through to stereocomparators that produced punched tape output ready for direct input to slightly more advanced computers, relating amusing anecdotes on the way.

Alan's and my career overlapped and we were both passing through this threshold. We knew something special was happening though I for one could never have anticipated today's developments. I served at JARIC from 1961-65 and to me it did (and still does!) seem like experiencing the 'white heat of technology'. I was familiar with Pegasus (and the always helpful Steve Fullom). Going back to Multiplex in Singapore seemed like leaving the 'white heat' for 'glowing embers', important though the work was.

Introduction to briefings on Current Operations, by Colonel John Kedar, Commander Joint Aeronautical & Geospatial Organisation

These were key contributions to the seminar but for obvious reasons I can't go into the detail. Colonel Kedar showed the disposition of JAGO forces world wide. It was music to my ears that there are as many JAGO soldiers attached to other forces as with survey units – clear evidence of the significance of the operational contribution of JAGO.

Royal Artillery Survey Support for Current Operations, by WO2 Cartwright RA of 5th Regiment RA – a DSA Prizewinner in 2008

WO2 Cartwright explained how his unit had developed techniques for gaining priceless seconds in locating enemy mortar positions and activity in Iraq and Afghanistan.

Direct Geographic Support in Afghanistan, by Cpl Kempster RE of 14 Geographic Squadron RE – a DSA Prizewinner in 2008

Cpl Kempster gave a general overview of geographic support to operations in Afghanistan, focusing on his own very impressive contribution at Battlegroup level.

Both these soldiers impressed with their presentations and seemed to 'punch well above their weight' in rank, in terms of their contributions in active service.

Conclusions

This continued the trend from previous years as an excellent seminar. The sessions were interesting and well presented and there was a logical thread to the day. Was there too little time for discussion and questions? Perhaps, but there would have to be a trade off. Perhaps outlines of the individual sessions could be provided as handouts but that would mean more work for already busy speakers. Let's leave well alone!

SMS: My Part in its Relocation!

By Thomas P Hartley Eur.Ing CEng

In January 1949, having completed the Surveyor Topo and Draughtsman Topo courses at Longleat, I was employed by the Chief Clerk Staff Sergeant 'Darky' Miln in HQ block whilst awaiting posting. The destination for the class would be either Germany or most likely Fayid in Egypt, neither of which sounded attractive. The first draft was kitted out with tropical gear, so the future appeared rather ominous. However, I was ordered to depart on a fortnight's detachment to the DCRE's office at Shrivenham for some undisclosed purpose.

Leaving most my possessions in the QM Store, I travelled by rail to Shrivenham, where WO1 Joyce installed me in the small drawing office. I was allocated a drawing board and was presented with a book to read entitled *'The Honeywood File'*, the saga of the relationship - in the form of correspondence - between an architect and his client, a member of the gentry, during the course of design and construction of a country mansion. I read it with interest but could still not grasp the purpose of my being there. I was then issued with a copy of *'Barrack Synopsis'* which details all the standard requirements of military installations such as the space allocated for each soldier is 80 square feet and 80 cubic feet, and that RA Survey establishments were entitled to additional football pitches! I stayed at Shrivenham for a short time and learned the rudiments of reinforced concrete design; the installation of utility services in the classrooms of the Military College of Science and a myriad other useful items of construction knowledge. The two weeks detachment turned into two months followed by an order to report to the CRE's office in Oxford. I departed Shrivenham much wiser but still ignorant of the purpose of my sojourn.

At Oxford I was informed my prime purpose was to quickly visit a number of used and unused military locations for the rapid relocation of the now renamed Survey Training Centre, from Longleat. The job involved a great deal of travelling which raised only one problem, I couldn't drive! I was provided with a civilian driver and commenced touring the area of the CRE South Midlands, visiting military installation still in use, sometimes to the displeased bemusement of CO's and adjutants, and others which were empty and unused.

One such camp was at Hermitage. It had been constructed as an American Base Hospital and designed on the 'standard' MOWP (Ministry of Works Production) format. Its last use had been as a resettlement camp for displaced Polish military personnel. I arrived and climbed over the locked main gate and, using a tattered layout map, explored the site. As I walked the covered footways feral cats emerged from the waist high grass. From the chimney of a small hut emerged wisps of smoke. I opened the door and frightened the life out a group of men sitting around a table. They leapt up in surprise and I explained the purpose of my presence and my intention to inspect the establishment. They show no interest.

All the buildings were open and I made notes of the state of the facilities. The general hospital wards had been used as dormitories for the Polish personnel; the venereal disease wards had been used as a social club - later to become the NAAFI. The medical facilities still contained disused equipment such operating theatre lighting. The staff accommodation, later to become the Officer's Mess and the WO's and Sergeants Mess, were all in reasonable shape. I was convinced the place was quite suitable for reuse. I visited the sewage disposal works where a solitary operator had maintained the facility in perfect working order. Although the incoming effluent was surface water infiltration, it was processed as soil water and the operator produced a glass and offered me a sample of the treated outflow to drink, an offer which I politely refused!

I reported back with my findings which resulted in a further visit accompanied by senior staff who agreed with my report and comments. Work was immediately commenced on transforming the place into habitable use. I learned a great deal of basic construction design and other matters. My initial report had mentioned the inadequate heating provided by the small stove in the female ablution block and the CRE instructed the Chief Draughtsman, Mr. Dawes, to enlighten me on the subject of female hygiene requirements! I only visited the site once more and that was as a bystander at a

View of the camp in August 1949.

meeting of local dignitaries with Colonel Collins, where I recall the Colonel explaining to the Town Clerk and Local Bus Company Manager that he did not wish his students to be encouraged to visit the "bright lights of Newbury"!

My time at CRE Oxford ended and I was posted to the Garrison Engineer's Office at the Base Ordnance Depot at Bicester, a truly wondrous place where I was put to work on design and construction works ranging from married quarters to small civil engineering schemes. Finally, someone at the War Office realised my two week detachment from Longleat had extended over three years of nomadic existence and a telegram requested my immediate presence back at the School of Military Survey. I quickly embedded myself in SSgt. Miln's office in HQ block until being wheedled out and placed on a cadre course through which I scraped and for the last twelve months of service managed to reach the rank of Sergeant, much to the bewilderment of RSM Robertson whose salutation and valediction were rearrangements of the question "what am I going to do with you Hartley?"

My five and a half years of army life were quite extraordinary. Of the five years and 118 days spent as a sapper I travelled just over two hundred miles between postings all of which were within forty miles of Stow-on-Wold. I learnt that the description 'Surveyor' covered a multitude of activities many of which I managed to perform and left me well prepared for return to civilian life.

My Time at Hermitage

By Nigel Kelley

I started an apprenticeship as a litho printer in Manchester in 1944, was called up for National Service in 1948 and did my training in 1949 with 9 and then 3 Training Regiments at Cove. I was then posted to Military Survey at Longleat and immediately joined 'Pool Labour' and was employed as the office runner in HQ Squadron where I discovered that the unit was to move to Newbury immediately after the August block leave.

People were required for the advance party and so I quickly volunteered and joined about 20 others for the train journey to Newbury and then by truck to the camp at Hermitage. As I remember, we entered the gate and the part of the camp on the left was occupied by squatters (Polish displaced persons) and so we moved into the right hand side. The only staff there at the time were an MT Corporal and a driver. We moved into a hut made of brick slabs with an asbestos roof. Our first job was to search the camp for weapons which we did find hidden in toilet cisterns.

Our main job was painting the huts. We started with the hut adjoining ours at the end of the long covered walkway and when that was finished we moved into it and started painting the next one …and so on down the long corridor. We got more paint on the floors and ourselves than on the

Nigel Kelley with room mates in front of the entrance to the NAAFI and the water tower. (Photo: Nigel Kelley)

walls and it was not emulsion nor did we have rollers. Then, as I was from Cheshire and a bit of a country yokel, I was given an additional job of looking after a string of horses that someone from RAOC Thatcham had brought into the camp to help keep the grass down. This was okay until one day when I moved the mares before the stallion – a day not to be forgotten!

Each week more troops moved into our freshly painted huts and equipment also started to arrive. The first courses commenced about the end of October and then I joined my Helio Worker course after which I was posted on my own to the Staff College at Camberley where I stayed until October 1950 when I moved to the RE Depot at Barton Stacey to be demobbed.

Memories of my time at Hermitage: a fantastic football side that beat the Berkshire Police 11 – 0, a good rugby team, plenty of sport, marching through Newbury on November the 11th 1949 and great friendships, some of which survive to this day.

In 1951 I joined 571 Troop of 135 Survey Engineer Regiment which was then based at Sloan Square in London and did camps with the unit at Fernhurst each year until 1954 when I left with the dizzy rank of Lance Corporal.

Recalling Moving in at Hermitage

By Taff Richards

I moved to Hermitage from Longleat on August the 15th 1949 and I recall paint – gallons and gallons and gallons of green and cream paint – doors, window frames and half way up the walls were painted green and the rest of the wall was cream. The walls of what became the camera department were decorated with murals created by the Polish displaced persons who had occupied the camp previously and in some of the buildings we found bits and pieces of metal frames for prosthetic surgery.

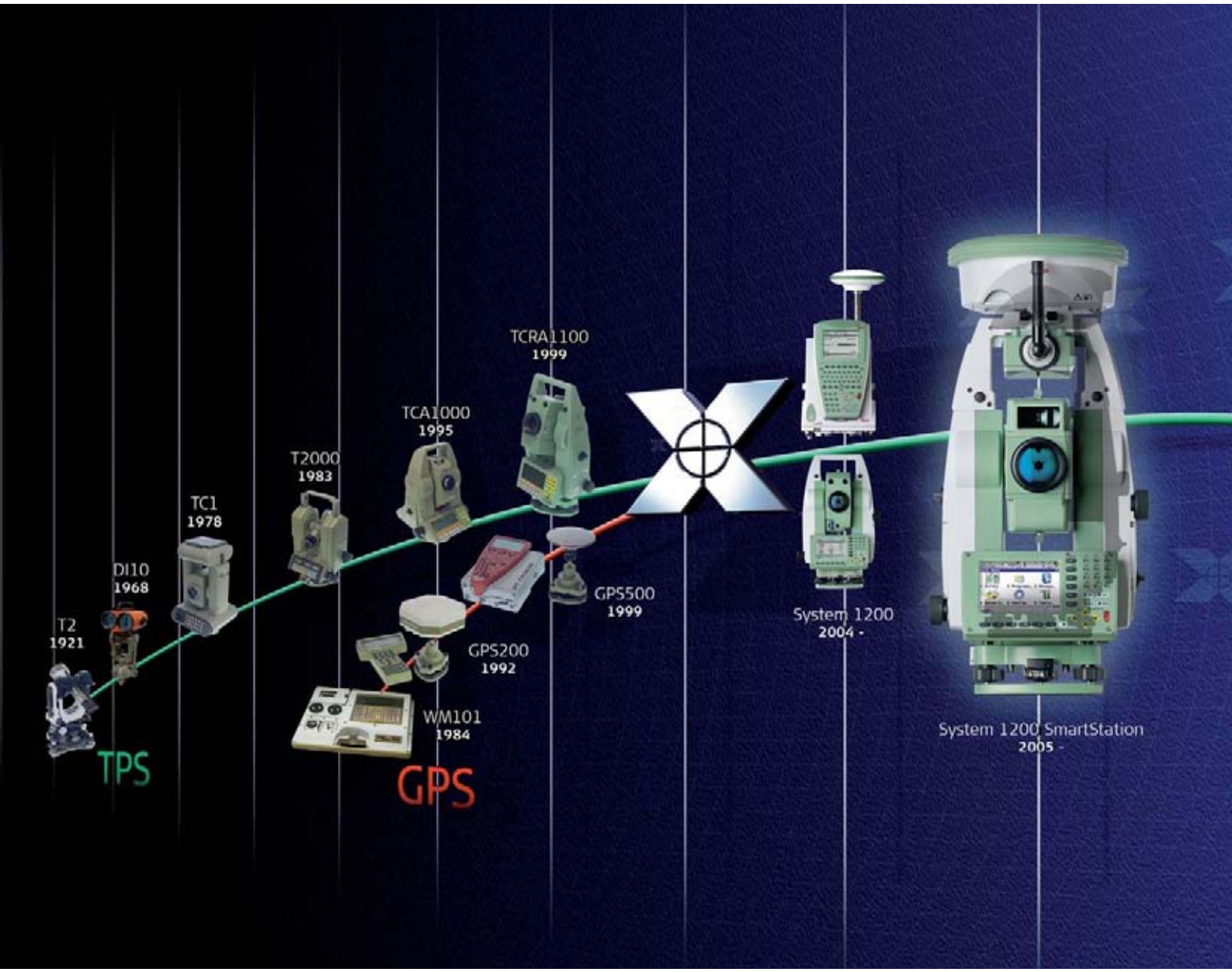
Prior to the NAAFI being opened our 'elevenses' were provided by a local mobile canteen which called daily. I have a vague recollection that for a short while we ran our own sort of NAAFI opening in the evenings selling soft drinks and confectionary in one of the wooden huts. The Other Ranks' mess was almost at the camp entrance near to a group of huts occupied by squatters. At that time Corporal, subsequently Major, EM (Dixie) Dean was the Rations NCO responsible for ordering supplies from Aldershot amongst other places.

Whilst still at Longleat two sappers, namely JW Glaum and P Martin, were sent to Leeds on a course at the factory of the printing machine manufacturers RW Crabtree in order to facilitate the move. Sapper Glaum then stayed at Longleat dismantling the machines and 'Peam' Martin went to Hermitage to reassemble them.

An Open Day was held in 1950 to which all the local dignitaries were invited to see just what happened at the School of Military Survey, an event that received a big write-up in the Newbury Weekly News. On the Sunday morning there was a church parade with we C of E's marching to Chieveley to the music of the East Lancashire Regiment band whilst RC's and ODs (other denominations) were transported to Newbury by truck.

There were initially no sporting facilities; we played rugby on a pitch at the Royal Navy depot at Hampstead Norris, which had previously been an RAF airfield, and several of us also played for Newbury RFC. In 1950 we moved the cricket pitch, turf by turf, from there back to Hermitage where it turned into an excellent pitch. The Corn Exchange in Newbury was where we went for a dance, often using Shank's Pony back to camp having missed the last bus.

For long service & good conduct...



Leica Geosystems congratulates the Royal School of Military Survey on its 60th Anniversary

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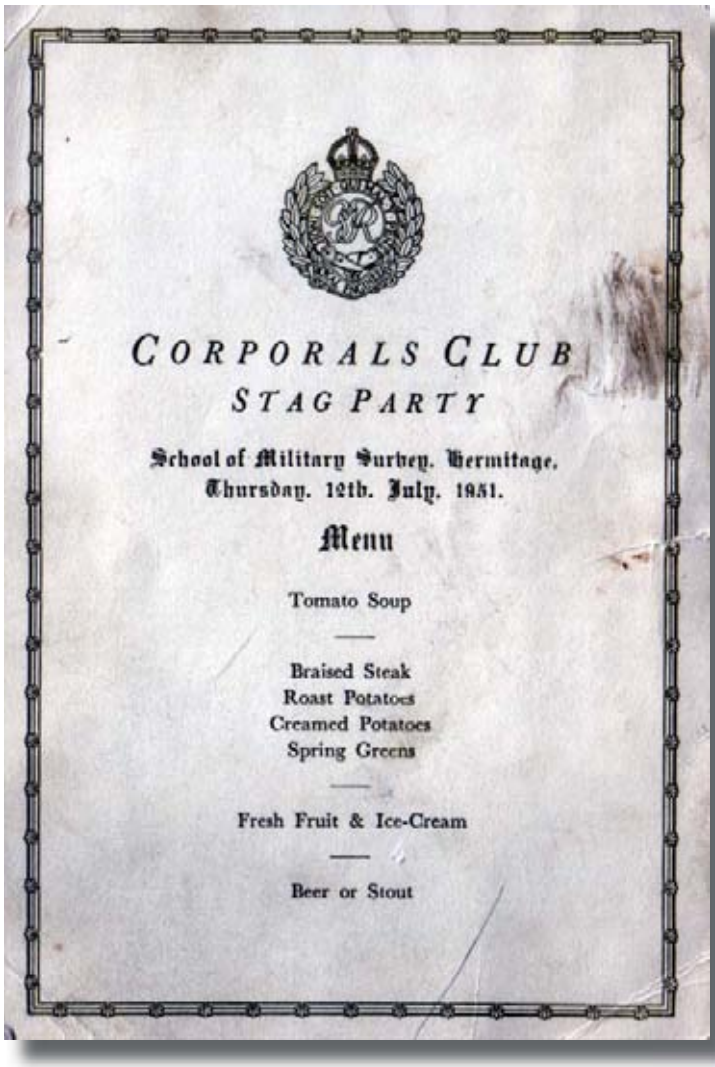
Entertainment was very much self-made: this group called themselves 'The Harmonica Rascals'. (Photo: Taff Richards)

The JNCO bar laid up for the 1950 Open Day. (Photo: Taff Richards)



CORPORALS CLUB
STAG PARTY

School of Military Survey, Hermitage.
Thursday, 12th. July, 1951.

Menu

Tomato Soup

Braised Steak
Roast Potatoes
Creamed Potatoes
Spring Greens

Fresh Fruit & Ice-Cream

Beer or Stout

The menu for a stag night laid on to welcome the US Forces to Greenham Common. (Photo: Taff Richards)

The Trade Test and Colonial Survey Block. In the background is a single colour Crabtree Demy size machine with a flatbed proving press in front of it. Note the coke stoves. (Photo: Taff Richards)

Everything Mechanised—From Map Making to Washing Up

School of Military Survey Shows 1,000 Visitors Its Secrets

The School of Military Survey at Hermitage had about 1,000 visitors on Saturday. At the invitation of the Commandant, Lt.-Col. M. O. Collins, O.B.E., R.E., they went to see how this small specialised Army Unit lives and works, and what the taxpayers get in return for their money. Some of them were parents of men undergoing their period of national service there.

They received a cordial welcome, listened to the British Legion band from Newbury, watched a physical training display, saw a map reproduction section going "into action," were conducted round exhibitions demonstrating the kind of work done at the School, toured the men's living quarters, inspected the feeding arrangements, social and off-duty amenities, and were hospitably entertained to tea in the officers' mess. Ices were also served. There were several sideshows, profits from which went to unit funds, as did those from a dance held in the Plaza, Newbury, in the evening.

Mobile Printing Troop.

The static exhibitions though technical were interesting. There were examples of maps produced under wartime conditions. Displays were given of a mobile printing troop going into action with up-to-date printing vehicles, of the same pattern as proved so useful in various theatres during the last war. The majority of the men in the physical training display had but a few months service, yet showed a high standard.

This camp was taken over by the School of Military Survey last September. Originally it was built for an American Army Air Hospital, later it was converted into a British Rehabilitation centre and afterwards became a Polish Resettlement camp.

The School has a strength of between 400 and 500 officers and men. They come here after completing a short period of basic regimental training. Most of them have been in the Army from four to nine months.

Brightening Up Camp.

Although the large huts where the men sleep are substantially brick built, and quite well furnished with comfortable beds, lockers and plenty of room to move about, the walls are drab and colourless. So some of the men are engaged in painting the walls and distempering. It is washable paint and makes the huts bright and attractive. "The men are very keen to do this job," explained the Adjutant. "We have to buy our own paint from unit funds, which are somewhat limited; so it has to be rationed. It is our intention to do the whole camp, which will probably take about a year." Another effort to improve the camp's appearance is the laying out of gardens around the principal buildings.

The N.A.A.F.I. made many visitors think that the present-day Army lads are much better catered for than their predecessors in the far-off days of the 1914-18 war. The canteens, rest and recreation rooms are most modernly equipped—including anti-burn tables. Facilities are available for billiards and table tennis. There is special room for visitors where the men can entertain women guests.

Modern Cooking.

Cooking is done under ideal conditions—all by steam, and there are washing-up machines and one for taking the eyes out of the potatoes! Visitors gazed with some awe at the bakers' ovens, the huge boilers and the "outsize" fish-fryers. The large dining-rooms can be steam-heated in winter or fan-cooled in summer.

Altogether, life at the School of Military Survey is as good as the Army can provide. The men get quite a lot of time off and can play cricket or lawn tennis. Many make their way into Newbury, and in this connection, the Commandant told the Mayor and Mayoress (Councillor and Mrs. J. H. Hole) that he was deeply grateful to the citizens of Newbury for the courtesy and kindness shown to the officers and men. Such kindness was not a matter for repayment if it were possible, but being able to enjoy the many delightful amenities of the borough, it was a great pleasure to welcome the Mayor and Mayoress and many of the residents to this "open day" at the School.

Cutting from the 22 June 1950 Newbury Weekly News describing the Open Day mentioned by Taff Richards in this article. Reproduced courtesy of the Newbury Weekly News Group.

Recollections of No.6 Long Survey Course

By Lieutenant Colonel (Retired) Ben Burrows

Having returned from a tour in the Far East in 1949 I was posted to the next available Supplementary Course at the School of Military Engineering at Chatham. The course was designed to provide those officers commissioned during the war with up to date training on all Royal Engineer activities. Topics ranged from calculating bond stress in reinforced concrete to sword drill on Brompton Square. Visits were organized to major engineering projects in various parts of the country and also to Royal Engineer establishments including the School of Military Survey which had recently moved from Longleat to Hermitage.

The camp at Hermitage was a collection of brick huts, with asbestos roofs, built during the war and had been derelict for at least five years, occupied variously by squatters and Polish refugees. Much had been done by the DIY efforts of the new occupants to rehabilitate the place but there was no accommodation for visiting students. Hotel accommodation was arranged in Newbury; several of us had rooms in the Chequers Hotel and we were ferried daily on a school run to Hermitage. This was a satisfactory arrangement, few people had motor cars in those days.

The people at the School made us very welcome and we received instruction on the origins of Military Survey, current organizations and deployments. The practical work included a plane table survey – to develop an eye for country – but otherwise it was geared towards engineer survey, large-scale survey including traversing, levelling and detail plotting. I still have a couple of my detail plots dated 8 December 1949. At the end of this part of the course I said that I would like to join Military Survey; I enjoyed the work, liked the people and the place. Then it was back to Chatham to complete the rest of the Supplementary Courses which ended in the Autumn of 1950. I was posted to the School of Military Survey to join No 6 Long Survey Course.

The Course assembled on 2 October 1950 and included six Royal Engineer officers, three officer cadets and seven civilian probationers, sponsored by the Colonial Office. Two of the officers 'lived out' and the other four were acccommodated in two brick huts, each divided into two bunks by improvised partitions and heated by small cylindrical coke stoves. Coke was issued when winter was officially declared. The ablutions were in a separate hut. The cadets lived elsewhere in the camp and the civilians lived in local lodgings. The Mess provided an ante-room, dining room, a games room and kitchens. There was no bar, as the then CIGS had let it be known that it was inappropriate for officers to stand about drinking at bars; therefore drinks were served through a small hatch in the anteroom. This was the cause of some congestion at times.

The introduction to the course began with explanations of the principles of survey: control, working from the whole to the part, independent checks and economy of accuracy. I have found these principles to be of value to many activities outside survey – even cooking. Practical work began with the theory and practice of plane table survey. Linen-backed Whatmans High Wet Strength paper was pasted and pinned to the table, allowed to dry out, then with a 6H pencil sharpened to a needle point a grid and control point were plotted and "penned-in" with waterproof ink. Then it was off to the field.

I recall such names as Unhill Bottom, Cow Down, The Fair Mile and with a series of resections and intersections, adjustments and interpolations a picture of the countryside appeared. The hills were very steep, a lot of contours had to be chased and this could be thirsty work. Happily the Beetle and Wedge at Moulsford was only a few miles away and became a welcome RV. I have not been able to find my plane table plot but I recall that it was nicely penned-in and presented.

For minor triangulation and traversing we first had to get to grips with Chambers 7-figure logarithmic tables of natural numbers and Shortredes 7-figure tables of logarithmic trigonometric functions. I very soon discovered the ease with which it was possible to make a time-consuming blunder by accidentally transposing a couple of digits, and hence the importance of independent checks. We practised driving theodolites and levels. Then it was off to the field again.

As I recall, our fieldwork area extended roughly from Beedon Hill north to Harwell village and east to Streatly then north to Cholsey. Again, happily the Beetle and Wedge was included in our area. The fieldwork was all by day, observations to OS-type canvas beacons with intersections and resections to church towers and other landmarks. We also observed a traverse into Blewbury

No 6 Long Survey Course
2 Oct 1950 - 5 Oct 1951

O/Cdt Landfear Mr Southwood Mr Jones O/Cdt Cochrane Mr Moffet Mr Neal O/Cdt Young Capt Ireland
Capt Kerr Capt Burrows Capt Halliday Capt Mann Maj Hutchinson Mr Woolhouse Mr Beautyman Mr Dixon

village. We used to work in pairs, taking turns to book and to observe – or to pull a tape or hold a stave. Then came the homework: obs books, diagrams, abstracts and files full of numbers.

Most of the early numerical work was done by logarithms with all the attendant hazards as mentioned earlier. Later during the course we were introduced to mechanical calculating machines which were operated manually by winding a handle – sewing machine fashion – which generated a loud crunching sound, no doubt giving rise to the expression 'number crunching'. There was also a machine, a twin Brunsviga, which could crunch sines and cosines simultaneously.

Having produced a control network to produce a map, we had already seen how to apply it to our plane table survey, however there were other options, so we moved from the Field Survey School to the Carto–Air Survey School where we were introduced to the geometry of photo-stereoscopy. Principle points, base-lining, homologous points (a term I had not previously encountered); parallax bars, minor control points, then chasing contours again on stereo-overlaps, this time without flogging up and down those hills. Slotted templates were used to provide control for the stereo-overlaps; the preparation of which was carried out under the close supervision of the instructors.

It now became necessary to examine ways of presenting all this graphical information relating to the earth's surface by some systematic method. The concept of map projections was introduced as the equivalent of flattening out orange-peel; something has to give. The properties of the projections used for topographic mapping and for navigation charts were examined and the factors affecting their selection were identified. This part of the course was essentially theoretical, including grid and graticule conversions and projection tables.

Now it was time to print some maps and we moved to the Photo-Litho School. Although I was familiar with the normal photographic processes the sizes of the camera and associated equipment were impressive. Negatives of the map components were obtained for each colour. The lithographic printing plates first had to be levigated (for me another new word) in a very noisy machine full of glass balls, emery powder and water; they were then transferred to a whirling machine to be coated with an emulsion said to contain egg albumen and a light sensitive chemical. The photographic

images of the map components were then printed down on these plates. After a series of checks the plates were fitted to the Crabtree rotary offset machines and production could begin. All these operations were demonstrated by permanent staff instructors. Students were not encouraged to become practically involved as some of the processes were time-consuming, perhaps messy and potentially hazardous.

A return to the Field Survey School required the acceptance of the fact that measurements of the internal angles of an observed triangle did not necessarily add up to 180° and to check this we tried to observe a large triangle of lamps at night. I recall such names as Beacon Hill and Inkpen but the weather was foul and the lamps intermittent. Our computations had to be based on other peoples' observations. The theory of orthometric and dynamic heights was discussed but practical work was limited to a big level with a parallel plate micrometer.

While with the Field Survey School we carried out a large-scale survey and I still have my plot. It is titled "Part of the Squatters Area Hermitage", Scale 1:500, Heights in Metres, Contour Interval 0.5m. It is fully detailed in colour and includes a section of levels around the traverse and the Bowditch Correction Graph. It is signed and dated 2 March 1951.

Astronomical work was also weather dependent. A line of observing points had been set up in the School and a lamp rigged on the water tower to serve as an RO. For observations, star programmes were prepared using the Star Almanac for Land Surveyors and all the equipment was then carried out to the points, including tables and chairs for the bookers. We took turns to observe and book and to practise azimuth observations using Pole Star Tables also close circum-polar stars. Observations for latitude and longitude using the position line method were also practised. Throughout the practical work observers could be heard chanting "coming up, coming up, coming up, coming up, UP". Occasionally the chants were less polite.

The end of the course was approaching and it was time to consolidate our acquired knowledge and skills. Land Registration and Cadastral Surveys were introduced by Mr A.D. Hamilton, who had been appointed by the Colonial Office to supervise the Colonial probationers and to coordinate instruction on cadastral and large-scale surveys for all students. Accordingly each student was assigned to an area of about two square kilometres of real estate and directed to produce a fully detailed contoured map of his area. Students were permitted to assist each other by holding the other end of a measuring tape or by gently rocking a levelling stave. The magnetic meridian was adopted for orientation thus avoiding the need for astronomical observations. We were transported daily to our respective areas and the travelling time seemed to waste a lot of summer daylight so Halliday and I decided to take lodgings in the nearby village of Blewbury and were thus able to get on with our field work.

Several days passed and we made significant progress but then a message was received that we were to come back to School without delay, and having returned we were subjected to the corporate wrath of the Chief Instructor and the PMC. We had been AWOL and we had failed to book out of the Mess. They were quite right of course, we had allowed our enthusiasm to cloud our judgement, but on the other hand it had been several days before we were missed. The task was completed on time and all the observations, computations, report and fair drawn map were submitted. I found my fair drawn map dated July 1951 recently and noted that the current OS 1:50,000 agreed with it, even allowing for the difference of scale.

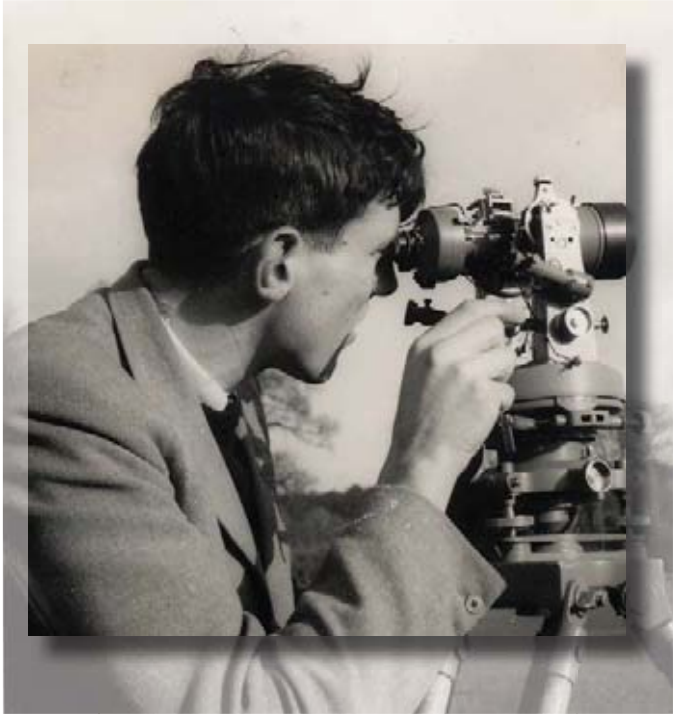
The final weeks of the course included demonstrations of various items of equipment including the wartime mobile map production vehicles. Pre-sensitized printing plates were being introduced thus eliminating the need for levigating and whirling machines. The Macca Base equipment was shown to us but not rigged; we used steel tapes in catenary to see how the system worked. During this period we were informed of our next postings; Halliday and I were to go to Zomba and join a small Colonial Survey party to undertake the primary triangulation of Nyasaland.

All this happened more than half a century ago and the fact that I am able to recall these events and activities is a tribute to the skills and dedication of the permanent staff at the School. The course had a significant influence on my subsequent career; six years after the end of the course Mr Hamilton became my father-in-law but neither of us was aware of this during that Estate Survey in July 1951.

Hermitage 1954-55: Reflections

By Alastair MacDonald

I joined No 13 Long Survey Course at the end of August 1954, fresh from Cambridge. I had done a lot of geodesy but not much practical work and the practical emphasis of the LSC was a great joy. Hermitage Camp was in its first incarnation, accommodation was pretty basic and the civilian students lived in bed and breakfast accommodation in Newbury whence they were collected by Army Land Rover every morning. Our driver used to regale us with stories of driving his motorbike to and from Liverpool on weekend leave without using the clutch pedal so expert was he in judging engine speeds. This came in quite useful when he turned up one morning clutching the gear lever in his hand and we had to get the vehicle moving and drive through Newbury in second gear.



The author observing with a geodetic Tavistock theodolite.

Though I was never "Army material", I found it fascinating to be introduced to the Army life without having to accept Army discipline and codes of behavior. Archie Hamilton was the Civilian Course Adviser and he insisted that the civilian students were treated as full members of the officers' mess. There was some tension when Robin Gardiner Hill proposed a motion to increase mess fees to a level which would allow officers to eat "to the standards of a decent country house". The civilians ganged up with the younger, less affluent officers to defeat the motion and, for some time, there was pressure to make us non-voting members but Archie would have none of it.

I was not familiar with the Army ethos and I can still remember how initially shocked I was when the CO reacted to the killing of some RE soldiers, ambushed by the Mau Mau while engaged on survey work in Kenya, not so much by sadness at their tragic deaths but rather by anger at the fact that they had stacked their rifles to one side and these were all taken by the Mau Mau. Of course, his concern was that this loss could, and probably did, lead to further deaths in the future.

There were three Army officers on the course, Ian Hart, Oscar Lines, and Doug Arnott. One day en route to the mess for morning coffee, we walked past some new classroom blocks about to open and Oscar grabbed Doug's very smart, leather bound swagger stick and shot it up under one of the corrugations of the asbestos roofing sheets, expecting it to come sliding out again. It didn't and Doug's stick was never seen again though he took its loss with his usual cheerfulness. Years later, when these blocks were demolished in the big rebuild, I very much wanted, but failed, to turn up to watch and see if I could find it in the rubble.

I played for a very successful School Rugby team which only lost one game all season (our first) and which was managed by the redoubtable Major Griffiths. He brooked no dissent and, when refereeing one match and having a decision questioned by a young sapper from 32 Heavy Engineer Regiment or some such, he sent for 'The Rules of the Game' at half time and read out the relevant rule to the mortified sapper who, when asked if he now agreed to the decision, sprang to attention and said "Yes, SIR" in proper style.

Griffiths was our cartographic lecturer and he made us draw endless rows of pothooks (slanting walking stick shapes) which, I have to admit, left me absolutely cold. Archie's practical sessions were much more fun in the surrounding countryside with lunch in the local pub. As our overseas postings approached, we pestered him for more and more advice – he solemnly told me to take a dark double breasted suit out to Africa "for funerals". Another character was Gaywood, an insurance consultant,

Base measurement outside the building where the swagger stick story took place.

who arrived in a vintage open Bentley, took us all out to the Bear at Hungerford for dinner and got us to sign life insurances at midnight while fairly drunk. He was a lovely man and my insurances paid for some splendid overseas holidays with my family when they matured.

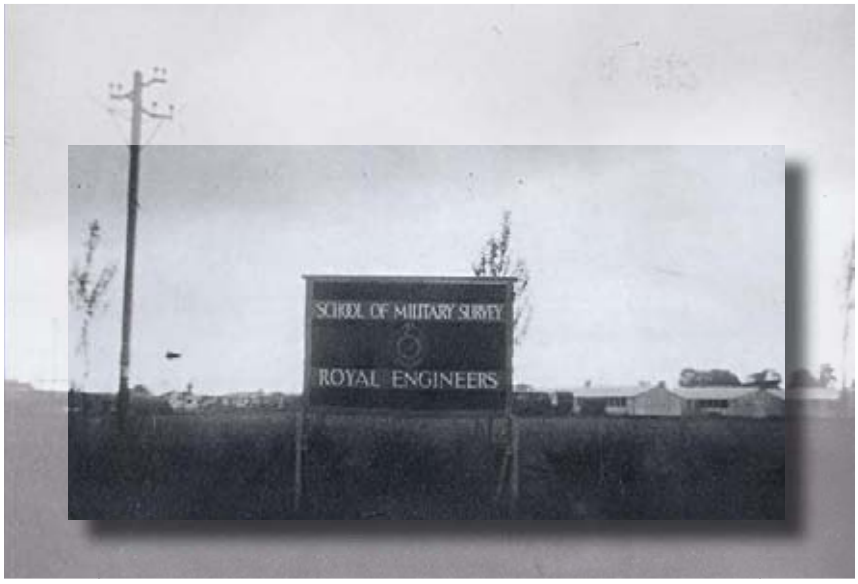
I have retained a very warm feeling indeed for Hermitage where I was very happy for all sorts of reasons and I still get a very special feeling when I return. I will feel very sad if and when the School moves to Chicksands.

Packed lunch in the classroom during the snow.

The estate survey was a highlight of the course.

August to December 1951

By Denis Carrington



The camp sign 1953
(Photo: Peter Webb)

I was four years into a seven apprenticeship as a lithographer when I was called up to report to 9 Training Regiment RE at Cove. After basic training I was posted to Hermitage to join the sixteen-week long OR 64 Litho Machine Minder course. This would not only keep me in my trade but gain an 'A' trade grading that would earn me, if my memories serves me right, an extra 14 shillings a week and also count as another year of my apprenticeship served.

Whilst waiting for the course to start I took part in a huge nationwide exercise, Northland verses Southland. My part was to guard a bridge over the Kennet and Avon canal, after little sleep for three nights I fell asleep and woke up to find my rifle missing, taken by my officer. Sgt Dixie Dean informed me that it was a court martial offence but after sweating for several days I received a good old rollicking from Lieutenant Attenborough and extra duties – the lieutenant, incidentally, played right-half to my right-back in the unit soccer team!

The camp boasted a good NAAFI, when you could afford it, and Newbury had attractions including dances at the Corn Exchange where you were in competition with the far better paid Americans from Greenham Common. Most weekends, unless you were on duty or there was a church parade, you were issued a 36-hour pass. A coach left from the guardroom for London at 12 noon sharp so all work had to be finished in double quick time. It returned in the early hours of Monday, stopping en route for tea and 'wads' at an all night stall in Reading.

The helio and plant and presses received their power from a couple of huge Lister diesel generators. These monsters had to be started by hand, the drill being an NCO on the handle and two or three sappers pulling a rope attached to the handle and on a frosty morning they kicked like a mule.

I was asked where I wanted to be posted and opted for Germany – true to form I was then posted to the Survey Production Centre at Park Royal, Wembley, to complete my service!

November 1955 to July 1956

By Peter Yates FRICS FIAS

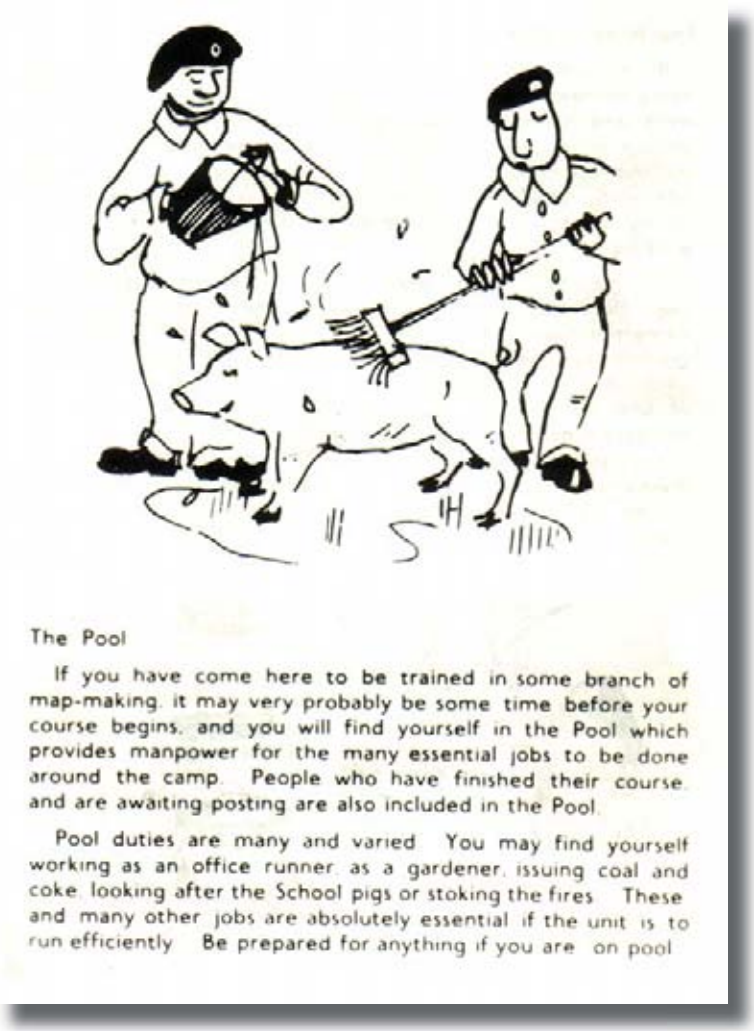
I can well remember in November 1955 steaming into Hermitage railway station, marching up the avenue, across the main road, past the wooden guardroom and into the School. It was to be my home until July 1956 when I was posted to Cyprus. The Commandant at the time was Lieutenant Colonel Seymour and the OC B Squadron was Major Beer. After 'Pool' labour I joined the Surveyor Topo course. The officer in charge of Topo training was Captain Huskisson and our instructor was Sergeant Jones supported by Corporal Buckingham.

As part of the course we had to survey approximately 4 square miles of land by plane table in the Tidworth garrison area. It was mid-winter and the weather was atrocious. The squad was housed at Perham Down camp with 32 Assault Engineer Regiment.

Life at SMS was interesting and before I was posted I was selected to play for the cricket team but sadly we lost to RE Records, Haslemere. There were numerous guard duties but plenty of leave. There was talk of a ghost which at night used to patrol the covered walkways outside the original operating theatre of the old American hospital; I didn't see it. On guard duty, when the weather was bad we used to shelter in what had been the padded cell.

Looking back, National Service in the Royal Engineers did me the world of good and put everything into perspective. Finally, I have a confession to make: I was a member of the Fire Piquet that broke one of the swords in RHQ…sorry!

Although this photo of the annual Admin Inspection Parade was taken in 1959, several years after Peter Yates' time at Hermitage, it is typical of the years of National Service – battledress, the Lee Enfield .303 and drill. (Photo: Nick Carter)



The Pool

If you have come here to be trained in some branch of map-making, it may very probably be some time before your course begins, and you will find yourself in the Pool which provides manpower for the many essential jobs to be done around the camp. People who have finished their course and are awaiting posting are also included in the Pool.

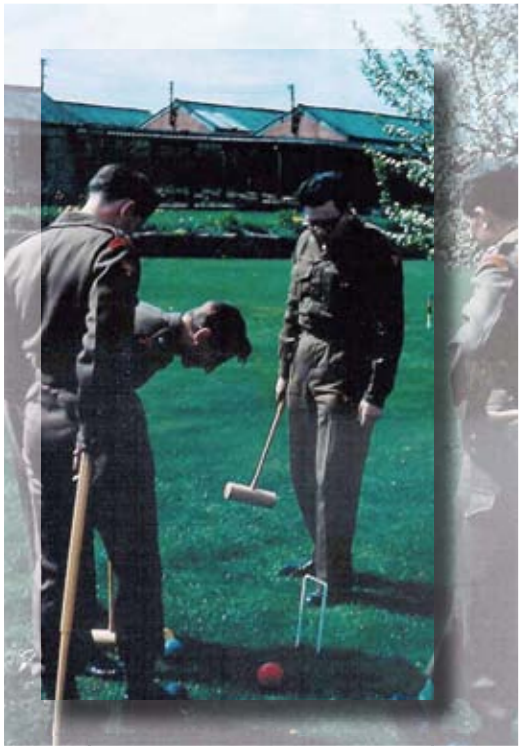
Pool duties are many and varied. You may find yourself working as an office runner, as a gardener, issuing coal and coke, looking after the School pigs or stoking the fires. These and many other jobs are absolutely essential if the unit is to run efficiently. Be prepared for anything if you are on pool

Extract from 'A Guide For New Arrivals' dated February 1955.

Some Memories of Hermitage: 1959

By Tony Hoadley

It was Spring 1959 when Colonel Cobb came to Chatham looking for one or two recruits for the National Service Young Officers (NSYO) 13 week Survey Course. There were some 30 or 40 of us just starting on the RE Officer Cadet Training having completed Mons Officer Cadet Training. Probably because I had already been working for two years as a Civil Engineer after graduating and so was considered "mature" I was one of the lucky ones chosen for the NSYO course and, with Gordon Balme and Mike Nye, I was whisked away to Hermitage and a completely different life! Of course when we went back to Chatham for the commissioning ceremonies with our previous mates we were too incompetent to be let onto the square and had to watch, impressed and somewhat embarrassed, while they performed amazing feats of precision drill.



An enduring Hermitage pastime: croquet on the Officers Mess lawn (Photo: Tony Hoadley)

The simple luxuries like living in the Officers mess and not having drill and parades at least twice a day and constant need to keep kit bulled to a high standard meant that Hermitage seemed like Paradise. I also remember being really impressed with the standard of survey training and tuition. Although I had studied Astro surveying in my degree course I had never really grasped it and was fortunately able to pass the degree Survey exams without answering any of the Astro questions. Where Imperial College failed Hermitage succeeded and I finally was able to get to some understanding of what it was all about.

It was early summer and the principal interest of the younger members of the Mess seemed to be the croquet lawn and every lunchtime and early evening there we were learning the skills and vicious competitiveness of this allegedly sedate game.

It was something of a shock to go back to the SMS a couple of years ago to see the instruments we regarded as the most up to date and sophisticated, now solemnly labelled as museum pieces in glass cases! Mind you, not everyone treated these instruments at the time with the same reverence. Later in Brunei on Detachment from 84 Field Survey Squadron we were doing the secondary triangulation for the 1:50,000 mapping of Borneo with pairs going off into the jungle, often for weeks on end, to set up on some peak and build a trig point then sit waiting for the cloud to clear so we could take our observations. A certain Corporal Woolley and his mate Ginger Thomas were having such a great time that their trip became quite extended. When they eventually returned with tales of canoes overturning etc they assured me that the Tavistock was OK because they had fished it out of the river and hung it over a fire to dry!

Very smart officers Nye and Balme (Photo: Tony Hoadley)

Altimeter heighting training: later to put good use in Borneo. (Photo: Tony Hoadley)

Life was just a picnic for the NSYO 13 week survey course. (Photo: Tony Hoadley)

"Maps & Surveys 2009"

Following the success of the Seminars in 2007 and 2008, the Defence Surveyors' Association will run another, similar, seminar on Saturday 20th of June 2009 at Denison Barracks, Hermitage. At the moment there is unlikely to be a specific theme, rather another eclectic mix of subjects again presented in chronological order. Anyone who would like to present at this seminar should contact Mike Nolan (01635-253167) or at maptnolan@googlemail.com. Full details of the programme will be advertised later. Efforts will be maintained to keep the attendance fee economical.

Joining Military Survey: Hermitage 1963

By Alan Gordon

The first sight of the camp - the guardroom and main gate 1963.

1962 was still the era of rigorously applied discipline, extensive 'bull', plenty of shouting and screaming and life lived at the double in 1 Training Regiment RE. Hence, arrival on a bright early spring morning in 1963 at the gates of Hermitage Camp after 5 months of basic and then combat engineer training through one of the most severe winters on record was like entering a holiday camp.

Here the guardroom was manned not by surly regimental policemen but by affable civilians under the watchful eye of the portly Reg Gibbs. Although the waist high fence carried notices warning that war dogs patrolled, the beast sound asleep on the guardroom steps looked distinctly peaceable – welcome to Military Survey! Reg suggested that I left my worldly possessions that I was struggling to carry in my regulation army suitcase and a full kitbag at the guardroom while another civilian who happened to be nearby, Arthur Boswell a clerk of many years service to Military Survey, offered to take me to 'A Mess' – the title itself being a sign of the style of the camp as I was used to eating not in a 'mess' but a 'cookhouse'. He led me through a very neat and tidy camp made attractive by many blossom trees and into the junior ranks dining room where soldiers sat to the left and civilians on the right. And another surprise! No need to carry your own knife, fork and spoon to each meal – the cutlery was supplied!

After lunch I was taken to the admin office, allocated a bedspace and given an arrival chit. I found my way to the QM's stores and drew my mattress, pillows and bedding, piled them onto a four wheeled trolley and pulled it up a long covered corridor to the last but one block on the left. On entering the building there was a long corridor with NCO's bunks on the left and ablutions and washing and drying rooms down the other side. At the end were double doors that opened into a barrack room with eight beds and steel lockers around the outside and a large coke stove in the

View from the water tower across the coal yard, Instructional Wing to the cricket pitch and Sergeants' Mess.

middle. The bed in the right hand corner was to be my home for the next six months. At the end of the room a door opened into the next room with yet another after that. Living in room 1 turned out to have its disadvantages as everyone from rooms 2 and 3 had to pass by your bed day and night en route to the toilet.

Next day I, along with a couple of other new arrivals, met the Squadron Sergeant Major of 89 Survey Training Squadron, WO2 Eric Passingham, a man who was the antithesis of the SSM's previously encountered in the Training Regiment. He welcomed us to Military Survey (people were welcomed rather than 'inducted' in the 1960s) and took us on a guided tour of the entire camp which included viewing a model of the proposed rebuild of the camp, "due any time now" he assured us, and a visit to the pig farm with the warning that under no circumstances were we to consider letting them out after a good night in the 'White Horse' village pub. I found that I was classed, and referred to, as a 'potential' and that when sufficient 'potentials' had arrived we would be aptitude tested to ascertain which of the eight survey trades I was most suited to study. Until then I was assigned to 'Pool Labour' and set to work in the QM department as a general 'dogsbody'. This turned out to be quite pleasant, not too arduous and involved lighting the coke stoves in the various offices first thing each morning and then keeping them going throughout day and nailing together the crates, known as MFO boxes, that were used to pack your belongings when posted overseas.

After a couple of weeks about a dozen 'potentials' had been amassed and so we all reported to a classroom where over the next few days we did a series of tests to ascertain our maths, drawing and stereo viewing abilities. For some reason these tests were run by the QMSI Field Survey, WO2 Peter Frampton, and it was to him that we reported at the end to find out what direction our careers were to take. It turned that almost all of us when interviewed at the Training Regiment had chosen to become Surveyors Trig but one after another we entered his office, listened to his friendly advice – agreed with it because he was a WO2 hence near to God - and left as a student on number 2 Surveyor Topo Course!

A week or so later the nine of us filed into Block 25, the Air Survey classroom, and met our instructors, Staff Sergeant Taff Jones and Corporal Mick Callow, for the first time. These two would, over the next four months, introduce us to the wonders of trying to hand letter with a crow quill pen on plastic sheets called 'astrofoil', plane tabling on Beacon Hill (much like our predecessors in the previous century), radial line plotting, slotted template and eventually – the dark secrets of multiplex.

Life throughout that summer on course at Hermitage was very pleasant. There were class 3 courses in every trade in progress plus various upgrading courses so the camp was full and busy. The ages of those on the basic courses ranged from eighteen to the mid twenties, all had been in civilian jobs before joining and they came from every background imaginable with several coming after failure on the Regular Commissions Board. All were only paid as B Trade Combat Engineers so money was short, few had any form of transport and virtually everybody spent the weekends in camp hence social life was very good based mainly on the White Horse pub in the village and the cinema and outdoor swimming pool in Newbury. The junior NCOs on the upgrading courses tended to keep to themselves and use the Corporals Club in the evenings but would sometimes deign to mingle with the class 3 students in the village pub where they enthralled their juniors with stories of life in Cyprus, Kenya and the Far East.

Early Sixties Air Survey instructors Staff Sergeant Taff Jones and Corporal Mick Callow operating the Zeiss C5 in Block A.

All that mattered was passing the course; there were no guard duties or fire piquets and the only military training was a day on Churn Ranges for the annual classification and a ten-mile 'bash' from Bradfield College back to camp; nothing interfered with technical training. All this culminated in the final theory exam, which we all passed, followed by the end of course 'do'. The next morning, all suitably hungover, we heaped our bedding back onto the trolley and wheeled it back down the long corridor to the bedding store, packed our worldly possessions, which now included a set of SMS précis, into our suitcase and kitbag, and piled into the well-known green minibuses with the' travel sick inducing' seats along each side and travelled off 'sideways' down the A34 to join 42 Survey Engineer Regiment at Barton Stacey to start our careers as military surveyors.

The contrast between life in the camp at Hermitage and our only other experience of military life, 1 Training Regiment, was extreme to say the least. Most of us were to return several more times to Hermitage on upgrading courses and some as instructors, each time it still had the same atmosphere that made it the home of Military Survey.

THE ARMY BENEVOLENT FUND IN BERKSIRE

Each year the Army Benevolent Fund organise a number of fund-raising events in the Berkshire area. Events being planned for 2009 include:

- A visit to the Apache Attack Helicopter training facility at Arborfield.
- A presentation 'The Battle of Maiwand' by Lieutenant Colonel David Chilton – a battle fought by the 66th Regiment of Foot – the Royal Berkshire Regiment in Helmand Province during the Afghan Wars in the 19th Century.
- The Midsummer Craft Fair at the Royal Military Academy Sandhurst on Heritage Day.
- A Reception and Band Concert.
- A Concert by the London Welsh Male Voice Choir at Eton College.
- An Autumn Lecture.
- A Corps of Army Music Sinfonietta Concert.

If you would like to attend any of these events, or any other activities being planned, details can be sent to you by post or e-mail if you become a member of the Berkshire Army Benevolent Fund Supporters List. There is no membership fee. Members are simply asked to pay for any events which they choose to attend, bringing any guests with them as they wish.

If you would like to be included on the Berkshire Army Benevolent Fund Supporters List please contact either of the following, providing your name, address, telephone number and e-mail address if you have one:

Brigadier Peter Walker OBE
Chairman, Berkshire ABF Committee
Training Branch, HQ JAGO
Denison Barracks, Hermitage, Thatcham
Berkshire, RG18 9TP
Tel: 01635-204433
01189-712409
E-Mail: jago-tbhdtrgbr@jago.mod.uk
peter.walker@zen.co.uk

Major Alan Gower MBE
Secretary, Berkshire ABF Committee
5 Hornbeam Close, South Wonston
Winchester, SO21 3EA

Tel: 01962-880859

E-Mail: gower7559@talktalk.net

Civilian Carto Training at Hermitage: 1970-72

By Di Rogers, Business Information Manager, HQ ICG

Having grown up in Chieveley I always knew about the School of Military Survey in Hermitage. I had just finished A-levels when my Dad saw an advert in the Newbury Weekly News to recruit staff to train as 'Cartographic Draughtsmen'. I decided to apply and went along to an interview selection led by Mr Colin Howman. I managed to pass and cycled over to start my new job on the 21st of Sept 1970.

The course instructor was Mr John Etherington and the rest of that year's input of ten was all from the local schools in Newbury and Compton, with one guy transferring from the Land Registry (Jeff Owen). We were housed in Block D which was parallel to the road and at an angle to the rest of the camp. It was still labelled with SPC (Survey Production Centre) even though earlier in the year the Mapping and Charting Establishment RE (MCE) had been formed. My main memories of the building are that it was one of the old wartime hospital blocks, a drawing office (ward) at each end with offices between. In the winter the heating was by gas fires which one poor person had to go in early to light whilst the rest of the staff arrived later when the building had 'warmed' up. The drawing offices were full of high desks and seats with light frames a shared resource. Leaning over the desks was interesting as the mini-skirt was in fashion (first time around). There were numerous holes in the fencing around the camp and each morning I, on my bike, followed the smoke of the pipe of Mr Charlie Havers (our Senior Cartographer) on his moped through a convenient hole in the hedge by Block D – this saved the energy of cycling down to the gate and back up to the block.

We followed the same training course as our counterparts at Feltham, using the resources in SMS for camera work, printing etc. At the end of the training we had to make up a huge folder to contain all the examples we had made. We met up with the other trainees when we attended Kingston College of Further Education on block release to work on the Ordinary National Certificate in Cartography, Surveying and Planning. I remember Corporal, as he was then, 'Percy' Kimber talking with us about the civilian qualifications we were doing and how they could relate to the military ones.

As we were working with the soldiers at Hermitage we were members of the Junior Ranks Club where we went for 10 o'clock coffee, and our instructor played cricket for the Sergeants' Mess.

We fully expected to continue working at Hermitage as the drawing offices there produced MODOPS, which were small scale maps for briefing purposes, (using 'blob' pens!!), fine detailed Approach and Landing Charts for airports including Heathrow, and radar glass plates for various RAF airfields. However, as seems to be the norm now, it was decided to close the outstation of MCE (RE) at Hermitage and move everyone to Feltham, only a few of us moved as most people had family in the local area. I moved to a carto drawing office in Feltham in 1972 and have worked in various posts on that site ever since.

Di Rogers, like many of the civilian staff of Military Survey, was to attend several courses at Hermitage during their career. Unfortunately, on this course photograph her name has been transposed with Liz Manterfield's.

Ah!.. Those Halcyon Days: the School in the Seventies

By Lieutenant Colonel Adge Roe, SO1 Geo, HQ ARRC

There are certain things in life that are inevitable; your waistline will enlarge, your capacity to remember diminishes, you will have (at some stage) been posted to Hermitage, you can never halt progress,……and of course the inescapable one is that no matter where you are, Alan Gordon will find you! So, it was with some reluctance that when Alan asked if I would put finger to keyboard and generate a few words regarding the School of Military Survey in 1977, I misguidedly agreed.

As an adult entrant, I enjoyed the pleasure of the three day aptitude testing period at Hermitage in mid 1976 and was (to my surprise) accepted as a potential Air Surveyor. This pre-supposed that I could endure the delights of Southwood Camp, Cove and basic soldier and combat engineer training. Life at Southwood Camp revolved around three square meals in a dining room, sharing a wooden hut with forty other people and a developed overwhelming urge, at every opportunity, to polish linoleum. Following completion of basic training and the short trek to Barton Stacey I, like many others, was held (for some quite literally) pending loading onto my first training course at the SMS. So it was in August 1977 that the big day finally dawned, my first day at the SMS.

The arrival along with my fellow students (Colin Baldwin, Derek Ireson and Lance Mitchell to name but three) was I confess tinged with a feeling of déjà vu, not because I had visited two years earlier but if any of you have ever visited any aged NHS hospital and in particular the world famous Stoke Mandeville or, come to think of it, Tolworth or even GCHQ, you'll understand what I mean. I had swapped wooden huts at Cove and Barton Stacey, for what can best be described as a series of hospital wards amid a building site!

Following the traditional wander around 'campus', the collection of bedding and the inevitable arrival procedure, the course were taken under the wing of the instructors (Phil Stubbing and Tim Freeborn) who then spent several months in Building 25 trying to instil all the necessary values and skills required to succeed as an Air Survey Technician. I must confess the whole environment from stepping inside the gate, to wandering the covered walkways was quite surreal, almost boarding school in its appearance and atmosphere. I recall that one of the most intimidating elements was

After two years experience in a unit it was time to return to SMS for an upgrading course – by no means the last tour Hermitage.

the arrival interview with the Assistant Instructor (Air), an authoritative individual whose sheer presence (not unlike Dougie Ward at Barton Stacey) meant that as a young Sapper, you were invariably tongue tied and failed to answer any of the questions in a coherent manner. However, if the subject of football was mentioned, there would appear the merest of smiles and at once you knew you were on solid ground, his name……Bob Payne.

The walk around the maze of corridors opened all of our eyes to the world of Air Survey; the Multiplex, the DP1 (complete with your own personal sleeping compartment), the air survey cameras, the comparators and a variety of other instruments that were at best Heath Robinson in their construction, but plainly (or so we were told) the models of the day. The basic skills, the grids, the datum's, training objectives, TIs, pencils, Ozatex, scalpels (did Lance Mitchell ever forgive me!), the hand stereos, baselines, parallax, the theory of sight, all of which culminated in the dreaded trade tests, followed by the prolonged wait, while TDT poured over your work and eventually published your marks. The only respite from the training was the time we all left the site to watch the water tower being demolished!

The training objectives and tests seemed endless, punctuated only by NAAFI breaks (and of course table tennis) and from a social perspective, it was the delights of the White Horse or, for the adventurous, the Pot Kiln at Frilsham (if you could find it!) and for the sportsmen, and in particular footballers it was the opportunity to play on the world's narrowest pitch, was it really only a single pace from the touch line to the penalty area?

So what's changed? I suppose we could all list the obvious; the changes in instructional personnel, the advances (in some cases) of equipment, the availability of data, the working environment, the ever changing procedures and processes and of course the ever changing requirements. The list is not exhaustive and people's priorities will differ but the "Holy Grail" is, I suppose, whether or not today we are still producing technicians capable of meeting the geographic needs of Defence? Based on the success of our technicians on current operations, the answer can only be a resounding, yes.

Rumours of a Rebuild

Press cutting reproduced courtesy of the Newbury Weekly News Group.

For decades Military Survey was awash with two rumours; that the School was to be rebuilt and, after its move from Cyprus, that the Regiment was to move from Barton Stacey. First firm indications that the old American hospital at Hermitage was to be replaced occurred in the early Sixties and were supported by a scale model that was proudly shown to all new entrants to Military Survey and details even appeared in the Newbury Weekly News complete with dates. Alas, this initiative was to come to nought only to be replaced again by rumours.

The Mess foundation stone.

When, in 1974, 2 Survey Staff Specialist Course came to ponder what to present to the Sergeants Mess at the end of their course it seemed like a good idea to highlight the 'rebuild' rumour that was once more going the rounds. A handsome foundation stone was produced by the local monumental mason and housed in a smart glass fronted case to which a small brass hammer was attached by a chain and a brass plaque was fixed to the front which proclaimed "In case of rebuild: break glass".

And so it eventually came to pass in the late Seventies that the small brass hammer was used to break the glass

and the stone was passed to the builders of the smart new mess who embedded it into the entrance foyer for all to see today.

Another five years passed and in 1985 the squadrons that had formed 42 Regiment moved twenty miles up the A34 to join the School, proving that if you wait long enough, some rumours do come true!

Press cutting reproduced courtesy of the Newbury Weekly News Group.

Sch of Military Survey

Rebuilding Hermitage Camp

THE ARMY CAMP at Hermitage occupied by the School of Military Survey, is to be rebuilt at a cost of a million pounds or more. Work is due to start at the end of 1963 and to be completed in two years. Planning and supervision will be undertaken by Ministry of Works architectural staff and the project will include living quarters, classrooms, laboratories and married quarters. Occupation will then be by the Army School of Survey and a Royal Engineer Field Survey Squadron.

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Began As U.S. Hospital

HERMITAGE CAMP has seen several changes since its initial development during the last war as a 1,000 bed American Army Air Force hospital. When this was disbanded, it served for a time as an English re-settlement camp and was later used to rehabilitate Polish freedom fighters. Many of the huts deteriorated and living conditions were far from ideal, especially during the winter. There was flooding, and some evacuations were necessary.

✖ ✖ ✖

In Poor Condition

WHEN THE School of Military Survey took over in 1949, the camp was derelict and desolate. The place had to be made habitable, buildings redecorated; there were no married quarters and cooking facilities left much to be desired. So a great deal of work had to be put in, especially on the men's quarters, by the advance party from Warminster. The task was tackled with army thoroughness in order to obtain maximum efficiency.

✖ ✖ ✖

Brightening It Up

FALSE CEILINGS were fitted to many billets to improve heating, and catering was brought up to a high standard. But it has been obvious from the start that some of the wartime huts could only be regarded as temporary. Troops come and go, but the men have done much to make their surroundings attractive and their daily lives more comfortable. Flower gardens have been voluntarily tended, vegetable patches augment the menu, and even pig-keeping was introduced. Sporting facilities were provided and the relations with the civilian community have always been cordial and friendly.

N.W.N. 25/1/19[illegible]

The Newbury Weekly News reported the rebuild of the School on the 21st of January 1961.

Rebuild at Hermitage

By Lieutenant Colonel (Retired) Jay Coulson

I feel that I cannot talk about the rebuild without outlining the background which played a major part in the location, concept and design. During the time that Robin Gardner-Hill was Commandant, the idea of putting the school into permanent accommodation began to jell. The MOD was loath to accept a complete rebuild as they had so many barracks and redundant airfields on their hands. Because of this, I as Chief Instructor, with nothing better to do, spent many hours in my car looking at some terrible places from large obscure airfields in the north of England with accommodation for 200 officers!, to slightly smaller but equally useless airfields and barracks in the south of England. I was never asked to go to Scotland.

Robin and I spent much midnight oil thinking about and writing reasons why they were all totally unsuitable. We also ploughed through volumes of weather data and were then able to prove that the Newbury area had all the advantages, with clear skies at night for astro and the best weather in the whole country for fieldwork. We also made much of our relationships with local landowners and farmers. Added to this was access to OS pillars on the Ridgeway, ideal for our purpose. Geographical position also played a part in our argument to rebuild on the existing site. It is on the major North-South, East-West axis and was close to the MOD at Feltham, Oxford University and the Ordnance Survey at Southampton. Many reams of paper later, we obtained consent to rebuild on the existing site.

By this time, I was Commandant and the whole design concept had to be established. The Public Service Agency (PSA) appointed an architectural team headed by Len Laws. Nobody had ever built a School for Survey before so we started with a blank canvas. Survey 1 put up the information on course loadings and future trends. We, from our own resources, put together the details of building requirements for accommodation, classrooms, lecture rooms and all the specialist items that had to go into them: printing machines, air survey equipment, etc. The living and playing needs also had to be detailed; messes, sports facilities, NAAFI, etc. Once this brief for the architects had been assembled and outline drawings produced all the details of heating, lighting, door sizes, etc. had to be brought down to actual figures. How we could live and work while the building work progressed, presented many problems. From all this data the final plans were drawn and a contractor appointed.

HM The Queen signing photographs during the Royal Opening Day: it turned out that the pen she was handed to sign the photographs and book did not work and she had to use her own pen saying "Royal Ink will work"!

We had worked very closely with the architects and this manifested itself in the way we were able to live and work during the building stage. I arranged to have a ceremonial start to the project and General John Kelsey was persuaded to take over the controls of a JCB and start the demolition of the first hut. From memory, it was about this time that I handed over command to John Henshaw and became the Project Liaison Officer.

Things progressed very smoothly on budget and on time. Our liaison with Trenthams the contractor was vital and was a great success. The high light of the operation was the demolition of the water tower. The tank was removed and the masonry structure blown up - a good excuse for an afternoon off. During the winter and summer of 1978/79 the school continued to work normally.

Early in the contract, a landscape architect was appointed by the PSA. I cannot remember her surname but Mary had many strong ideas about what the final result should look like, say after 30 years when her planting had matured. The trees which you see today were planted as 4 to 6 foot whips and it was very difficult to imagine how the place would look so far down the line. I hope you will agree with me that she made a splendid job of it. Mary was of the old school, she knew great deal about shaping ground and creating an interesting environment but we did have the odd problem. Against the old Officers' Mess was a very fine magnolia. This did not figure in Mary's plan and she said it must go. We had a rather heated discussion about this with words like "Over my dead body''. In the end, she incorporated it in her design and it is still there and flourishing!

We also had several other landscape problems. One morning, the contractors asked me to come and look at the area in front of the new guardroom. To my surprise there was a digger creating a small mountain many feet high. It seemed to have no purpose and was ridiculous. I phoned Mary and she became rather agitated when I suggested her drawings were wrong. The next day she came to the site and said we were mad. Some minutes later, we realized she had reverted to imperial measurements for that drawing; the final result is as you see it today. Another issue was that to construct the NAAFI according to the PSA drawings the contractor had to fell some very fine Scot's pine trees. This would have been a criminal act but it took some time and effort to persuade Len Laws to move the building a couple of metres and save the trees.

Many, many thoughts come to me as I drag the memories back from the past. The need for, and how to build the astro pens, what should we use on the printing machine shop floor, the shape and detail of the Sergeants' Mess. How much could we squeeze out of the system for sports facilities? Could we get flood lighting? How about a squash court and a sports pavilion. In the end, the only building which survived from the old camp was the squash court and that was dressed up to look new.

These and many more details had to be resolved but resolved they were. With hindsight, we know that some of these decisions were not correct and I am sure that many times occupants must have said "What silly old fool did that?" I was that old fool.

Looking back on those years, I must say that they were some of the best of my life. The spirit of cooperation and the desire to get things done will always remain with me and it is with great regret that I hear the School is to move. May I wish it the very best of luck in its new home.

The First Day Cover to mark the Royal opening signed by Major General Eric Barton, then Director of Military Survey and subsequently a long serving President of the DSA.

The Buddha

By Alan Gordon

No overview of the Royal School of Military Survey would be complete without mention of the bronze statue of Buddha that has graced the Officers Mess for almost as long as surveyors have been at Hermitage. There is much myth and rumour as to its background but, perhaps surprisingly, no documentary evidence as to its provenance. To put the record straight two of Military Survey's 'elder statesmen', Ben Burrows and Jay Coulson, were asked if they could recall the coming of the Buddha to Hermitage and they were happy to oblige.

It has long been the custom for each Army Survey Course on completion of their studies to present the Mess with something to mark their time at Hermitage. And so it was that in the mid-Sixties two student officers were visiting one of their aunts who lived in Hampstead and there in her garden sat the Buddha. The aunt said that they could donate it to Mess if they wished and so it was transported to Hermitage and given pride of place outside the mess office which was a small brick building adjacent to the main mess. Here he sat, complete with a begging bowl and attractively surrounded by daffodils in springtime, with only a few unofficial excursions after a good night to such places as the top of the water tower and the Commandant's house until the School was rebuilt.

There is the well known story, possibly apocryphal, that on one occasion a student on a YO course, appropriately attired, replaced the statue – sat motionless until sufficient mess members were around and then got up and walked away – much to the alarm of those present. Inevitably with such treatment, over the years the statue became damaged.

As the Project Liaison Officer for the rebuild, Jay Coulson thought that he should be repaired and given a home in the rebuilt mess. The damaged Buddha was carefully placed in the front seat of a staff car, belted in, and driven to a bronze founder in Basingstoke. The company was surprised at the quality of the statue and did a marvellous job in restoring him to his former glory. When asked to value the statue the company could not give a figure but said that in their opinion an expert should assess him. The mess was able to obtain the services of such an expert from Oxford University who declared it to be a fine example of a Japanese bronze Buddha made before or during the closed period of Japanese history. He translated the inscription on the base but this has long since been lost. As regards value, the expert said that it was not insurable but should the mess ever need to dispose of it then it should be offered to either Oxford or Cambridge Universities.

As part of the rebuild, Jay had the current brick and concrete plinth and attractive oriental style pergola built on the mess lawn and the statue bolted down with 12-inch rag bolts. He has gazed inscrutably at the mess ever since. But what of his future? Will he go with the School to Chicksands – and would he be welcomed – or will he be sold to pay for the farewell party – let's hope not?

SEMPLO Fideles: Moving 13 Squadron to Hermitage

By Nick Collins

On the 29 October 1984 I was selected to start No 13 Survey Staff Specialist (SSS) course at the School of Military Survey. Sadly this course has disappeared off the radar of the current breed of Geographic Technicians but at the time it was considered as the stepping stone in a career path on the technical side within Military Survey, rather than Regimental duties such as the RSM, SSM or RQMS.

Major Robin Lewin was our Course Manager responsible for two Field Surveyors (Fieldies); two Cartographic Technicians (Draughts Girls!); one Print Technician; one Storeman Survey; and two Jordanians. During this time I served with some excellent technicians and we certainly lived up to our course motto of '*Who Cares Who Wins*'!!

By now I can hear some of the readers asking what this has got to do with the movement of the reprographic equipment from Barton Stacey to Hermitage. Well, it was during this time that Robin Lewin informed me that there was not a post for me at the end of the course but if I carried out a Temporary Manning (TM) position then after that I would be able to request any available post. I immediately agreed without giving much consideration to the TM position and requested a post overseas. I was asked if I would like anywhere in particular and requested another tour in Germany. It was quickly pointed out that this was classed as a home posting and was I really looking for Germany or overseas. From past history I knew that printers never seemed to get the overseas tours so I thought, what the hell, and asked for overseas. I finally ended up with a two-year exchange tour at the Army Survey Regiment in Bendigo, Australia, but that's another story!

So what was the TM position? I was to coordinate the movement of the reprographic equipment from 13 Map Production Squadron at Barton Stacey to its new home at Hermitage. My Officer Commanding was to be Major Tony Vickers and during our first meeting he gave the appointment the title of 'Squadron Equipment and Movement Project Liaison Officer' (SEMPLO). I can still hear the SSM (Phil 'Cyril' Wright) and the SQMS (Mick Bunce) chuckling about the title but with the promise of Australia…….. 'Who Cares Who Wins'!!

The author and SSM Cyril Wright outside Block 94 at Barton Stacey with the display semi-trailer which contained one of the Heidelberg SORD machines.

So in June 1985 I arrived at Barton Stacey to coordinate the move which entailed liaising with the site contractors at Hermitage; the removal contractors; and of course the Squadron and Troop management team. For all the older repro guys I can hear the cry of what equipment was to be moved…..well this encompassed everything from print machines through to photo measuring jugs and dark room clocks. The major items of equipment identified for removal and reinstallation were: two double colour Heidelberg SORDZ print machines, two single colour Heidelberg SORD print machines - one of which was housed in the display semi-trailer - and two dark room cameras. Simultaneously there would also be the installation of a Roland 804B 4 colour print machine, at the time the world's largest sheet fed press, and a Como 220 electronic guillotine.

These were exciting times for the personnel of 13 Squadron because at last all the repro equipment would be housed under one roof instead of being spread over a large area in different buildings and, in the case of the Hell Scanner, even on a different site as it had been installed at Hermitage nearly two years before the main move. The equipment and facilities at Hermitage would be a credit to any commercial repro house.

As all good repro men will know; kit of this nature has to be moved by professionals if it needs to work at the other end. The equipment also had a diverse range of ancillary equipment ranging from platemaking frames; sinks; proofing frames; finishing benches; inspection tables and of course general office furniture, including extra large plan presses. Most of these ancillaries were to be new because the Squadron was to embrace a new era of very large format printing. Fortunately the new equipment came complete with manufacturer's installation so hopefully there would be no problem!

Sadly the same could not be said about the kit being transferred from Barton Stacey. If ever you have the good fortune to be involved with the movement of precision machinery then you will appreciate the necessity of utilising expert professional movers! Unfortunately the budget for this phase of the operation was not in my hands and we ended up with a Company who should have been called 'Bodge It And Scarper' (No!....I don't mean the REME!). On their first day at Barton Stacey

The Hell Scanner had been installed at Hermitage two years before the squadron move.

all the alarm bells started to ring when the removals team asked whether a printing machine was heavy and could two men lift it!! By the time the kit arrived at Hermitage parts were missing; lay boards were buckled and the machines were in a dire need of a full service and fine tune. This felt like a time to say….'I told you so!'…..but with the tenacity expected from all printers, it was back to the negotiating table. After a lengthy discussion with the Regimental 2IC, it was agreed that we would have to get Heidelberg in to carry out a service and 'set up' check on each machine. This was achieved in quick time and very soon the machines were 'print tested' and ready for action.

At the same time, the photo studios were taking shape and this entailed cameras being dragged in through a large aperture cut into in wall of the building with the gap sealed after they had been built. Funnily enough the printdown frames presented another problem because the ceilings in the building were too low to house the frames which held the light sources. The day was saved when it was discovered that the ceiling tiles could be lifted out, the frame was then built and the tiles replaced still allowing the light source to operate correctly. I must confess that there were days when plumbing, electrics and re-instatement of brickwork took precedence over the equipment. It was at times like this that my powers of diplomacy were tested, especially when dealing with an Irish builder who had his own agenda!

During this period the Roland 804B was being built and day-by-day 'the beast' was getting bigger and bigger. During the installation, which took about ten weeks, we had a variety of (non-print) visitors who were impressed by the size and the potential the machine offered. In the future months everyone would exploit its capabilities and this would enable the Squadron to produce En Route Charts and a series of 'two-up' mapping. At the same time the equipment left at Barton Stacey, namely the old Roland Ultras were sold off and split down, sadly this was the end of the era of the 'Great Sail', as they were affectionately known.

Back of the gallery camera at Hermitage.

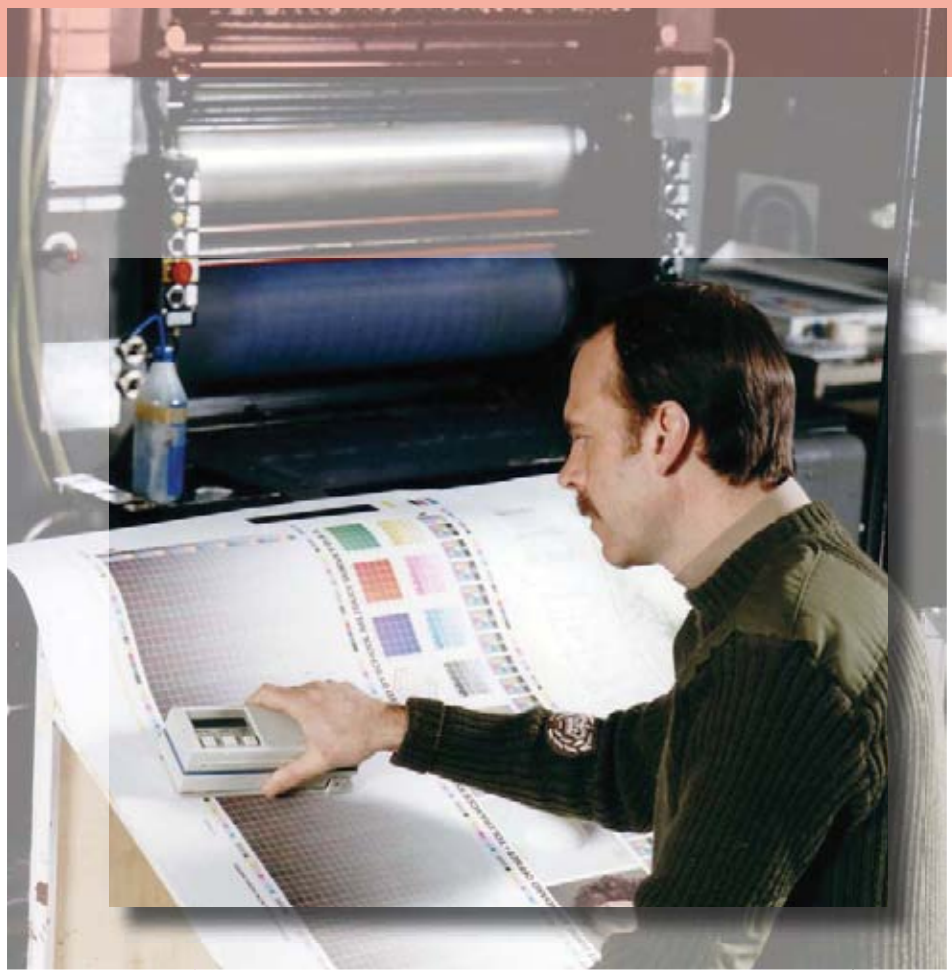
Over the years there have been many a battle between printers and nature's elements, normally in the form of Relative Humidity! Hopefully everyone will understand what a difference the new build at Hermitage made because most of the work areas were to be air-conditioned. Whilst life became more controlled for the printers, the same could also be said for the photo techs and storemen. Quality control took on a new meaning and ' dot gain' and 'print slur' could finally be monitored and addressed. So with the photo guys producing stable positives and negatives and the storemen having an easy life using their paper joggers and air tables, everyone was beginning to think that we had all reached 'Repro Heaven'.

The Roland 804B was finally commissioned in February 1986 and certainly became the flagship of 13 Map Production Squadron. I was fortunate enough to be involved in a task of this importance although at times it was frustrating and difficult. As a 'mere' printer I faced a variety of challenges, most of the difficult ones were caused by interfering staff officers who didn't understand the 'Repro animal.' However in May 1986 I left the UK for Australia and, I am pleased to say, that all the equipment, ancillaries, facilities and, of course, the personnel were up and running.

It is rumoured that in 2012 there may be another move of location for 13 Squadron, sadly there won't be so much Repro equipment involved in this move because the 'Staff Officers' (Yep those same animals) have killed most of it off, along with the Photo; Print and Storeman trades…. progress? This 'potential' move to RAF Wyton already has a 'moving team' which consists of an animal known as the PRIDE Team who have already engaged with the QM's staff; HQ JAGO staff; RHQ staff……..talk about 'A Staff Officer Too Far'…….. it is certainly as far cry from the all empowered SEMPLO.

All photos provided by Nick Collins.

13 Squadron pressroom with the 'giant' Roland 804B in the background.



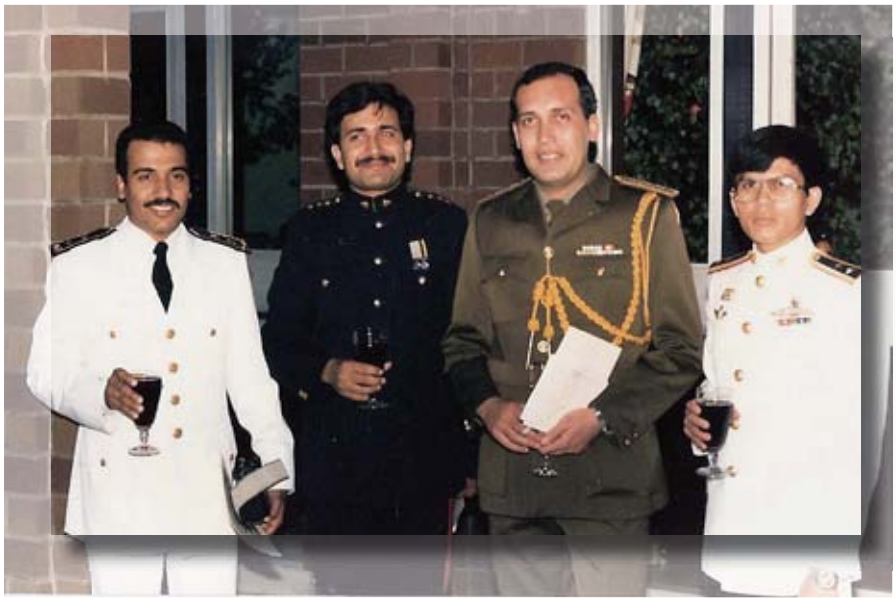
Paul Sleep using the improved quality control at Hermitage using an XRite densitometer.

The Como 220 guillotine and the finishing area at Hermitage.

Reflections on 73 Army Survey Course

By Colonel Mark Burrows

It was a grey March morning in 1987 with a hint of drizzle – this was the beginning of another military course, somewhere in middle England. A group of disparate individuals gathered for the statutory team photo against a pebble dash wall. Pleasantries were exchanged but in this case, the commonly used language was Arabic rather than English – the majority of the students being Muslim and most from the Middle East – others came from Pakistan and Malaysia. Thailand provided the duty Buddhist so that we were ethnically and religiously well mixed and culturally rich – something the 'political correctness community' could boast about. There were three British Officers and a civil servant (with unpolished shoes but short hair): none of us had previously met and we remained a minority grouping for the rest of the day.



The overseas students joined in the mess activities. (Photo: Jonathon Shears)

Well, that was how it began but it was not long before the Course began to gel. We had a new principal lecturer in the form of John Knight. Initially we did not know that he was new until we discovered that he was feeling his way through the course as much as we were; the only difference being that he was one day ahead of us. The course then was set out in distinct blocks in a logical order: field, air, cartography, lithography and digital geographic systems with part 1 and part 2 exams, spread over a year.

First impressions were that this was another long military course which was carried out as part of a premature midlife update. It then gradually became apparent that this was different in the following ways:

- The School of Military Survey as it was then, was steeped in a 'History' albeit short but nonetheless traceable back to its beginnings soon after WW2. Furthermore, some of that History was still to be found sitting in arm chairs in the mess and occasionally came to dinner nights and were not shy about telling us how things used to be done.

- The student instructor relationship rapidly became non-adversarial and became more of a team activity: not the 'us and them' scenario so often found on military courses where students strived to find a copy of the "DS Pink"[1] . It seemed that the staff genuinely wanted us to succeed, cared, and would go out of their way to help.

- There was a feeling that we were gradually being invited to become members of a larger Survey Family. There was no choice in this, as demonstrated when the Christian students were directed to decorate the Officers' Mess Christmas Tree – it was evidently a tradition.

Other recollections of the course include the trial survey project based in Wiltshire and centred on the transit accommodation at RAF Lyneham. Living cheek by jowl with ones' peers, in transit accommodation does much to improve the course spirit which ended in a satirical stage production (SOD's Opera in RN Speak) featuring not only the permanent staff but also the students

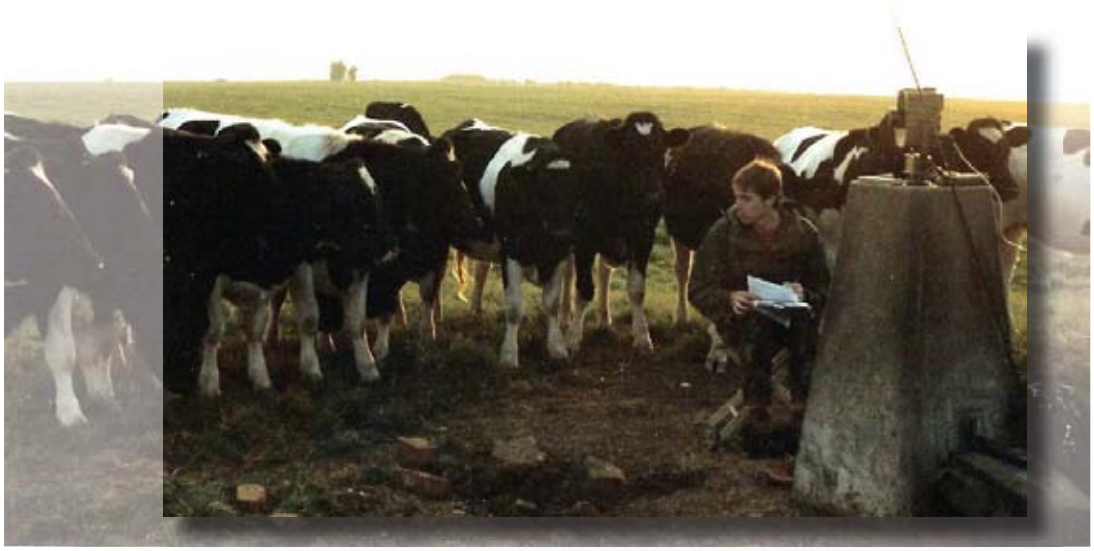
[1] Traditionally the DS or Directing staff knew little more than students on military courses and were required to have answers to problems – normally written on pink paper.

The late Peter Sowden, field survey instructor, and Alan Honey struggling, as ever, with comms on the survey project. (Photo: Jonathon Shears)

– demonstrating again the closeness between staff and their students. That autumn, there was a bumper crop of sloes. These were duly picked while out 'on task' and eventually converted into Sloe Gin.

The survey project saw one of the earliest deployments of a mobile phone on a military exercise. Instructor Bert Axten's wife, Vicki, provided a suitcase-sized device for Steve Pyatt to be summoned home in case of the early arrival of a baby. Eventually two new British babies were born both of whom were called Tom. This did little to phase Alan Honey who seemed to be keen to get out of the house and work even harder and went on receive all the awards but Steve Pyatt never seemed quite the same again and eventually emigrated to New Zealand where he is successfully working as the Director for Policy and Plans within their Geospatial Intelligence Organization.

Exams came and went and we all seemed to achieve the necessary marks to go on with the rest of our careers in the world of Survey – now called Geo. It was about half way through the course, it became apparent that many of our Middle Eastern Brethren had already covered much of the material on MSc courses in the US. This of course meant that the UK members had to pedal like mad to keep up not only with the work but also with the Arabic language and customs, including the trials and tribulations of going through Ramadan and subsequent celebrations of Eid el Fitr. Other key language and cultural adjustments included:



It was never like this when working at Feltham – the cows on Jobs Dairy roof are concrete! (Photo: Jonathon Shears)

Field work: the author gathering sloes for later conversion to slow gin. (Photo: Jonathon Shears)

- The military tradition of taking dogs into work did not last long when it was realised that it upset the Middle Eastern contingent.

- We learned an early lesson involving language and precision during a leveling exercise in the rain. Traditionally readings are written left to right but not when you have a wet and impatient Jordanian in charge of recording the staff level values. It took us a long time to work out why the survey would not close.

- Many of the overseas students found map reading somewhat challenging and when asked why, Diaa El Kiki, a young Captain from the Egyptian Army from Cairo, commented when working in the field for the first time in the leafy and picturesque Berkshire village of Upper Bucklebury, that England all looks the same – wherever you are. Presumably that would be different kind of 'same' to looking at millions of square miles of desert.

In conclusion, it was a unique multinational military course which seemed to have set us up for many years. Over the year we started as individuals and by the end we had become a well integrated group and part of the Survey Family. Collectively we still keep up with one another and deal with each other on a professional basis. For example, Alan Honey is now in the Permanent Joint Headquarters with responsibilities for Geo support for all UK's overseas operations, Steve Pyatt recently visited London to discuss ways in which his organization might make a greater contribution to allied operations and Jonathan Shears (complete with shiny shoes) is now a Defence Account Manager working for Infoterra and was on the telephone 10 minutes ago.

Join Survey? Never!

By Major Stephen Massetti RE, SO2 Capability Development, JAGO

I count myself a lucky man. The most momentous events in my life have happened with little focused effort on my part. Meeting my wife, joining the Royal Engineers, and transferring to Geo are just three such examples. The stories behind the first two I'll keep to myself for now. I may one day tell my grandchildren, but only to shock them and prove that I was young once too. However, how I made the leap to Geo is really the starting point of my association with the RSMS and Denison Barracks and worth opening with here.

Many years ago we took part in a little intervention in Kosovo. I had just spent 6 months helping the United Nations clear the mess left behind in Bosnia and, when I tried to join my Regiment on Operations, (in effect a back to back tour) I was refused permission and ordered to take over as Rear Party Adjutant. And so I found myself in Germany, frustrated at not being deployed, and annoyed by the trivia passing over my desk. Thankfully I was diligent in my First Sight and one day spotted an invitation from SO2 Establishments and Manning for Royal Engineer Officers to visit Hermitage with a view to enticing them onto the Army Survey Course. This was a ploy I used some years later when I held that same post. The last time I had been to Hermitage was during my Troop Commanders' Course 6 years previously. I remember several uninspiring presentations and being warned on the way back to Chatham that 'going Survey' was 'career suicide'. Armed with that experience and advice I had absolutely no intention of applying for the Army Survey Course. No way. Never. However, at the time trooping flights to and from the UK operated on Tuesdays and Thursdays and so by careful planning I reckoned I could spend a long weekend in the UK with only a short detour to the RSMS by way of payment. I arranged my visit for a Friday morning.

I arrived on a Thursday evening just in time to catch a cocktail party, Beating Retreat and curry supper afterwards. What a great way to be introduced to a new Mess. From what I recall it was a good night. The following day I was wheeled in front of John Knight, the Principal Lecturer as he was then, and Lieutenant Colonel (later Colonel) Gus Cross, the Chief Instructor, where my dedication to the cause was questioned. Whether they could smell a bluff or just maybe the alcohol from the night before I never found out. But I left their offices a little more sober and intrigued by their bold talk of the magic that geo soldiers are capable of. I found their claims to be not far from the mark when, later that morning, I was shown around and had chance to speak to some of the soldiers on courses. In the space of two hours I was converted and the rest, as they say, is history.

Stephen Massetti receiving his Worshipful Company of Scientific Instrument Makers award.

Army Survey Course 86 began in August 2000 with eight students (5 Brits, 1 Belgian, 1 Ukrainian and an American) and ended with seven. We had a few days to 'settle in', a trip to Oxford, and a bit of maths for three weeks; I'd landed on my feet. And then the work began. As a Mathematics and Engineering graduate I hadn't written an essay in anger since my O levels aged 16. And suddenly I was expected to write lengthy technical essays on subjects about which I knew nothing. Forgive me if my typing falters here as I'm suffering flashbacks right now. 'Painful' is a word I would directly associate with the experience. It took a long time for me to adjust and even then I'm not sure I did fully. There was no bluffing here; the instructors really knew their stuff and actually read, and marked, the drivel we handed in. I'd like to apologise publicly to them all now for putting them through it.

I remember all my days on the course being sunny. As the course lasted 14 months I'm sure that not all were. Why would that be? Maybe my mind has subconsciously blanked out those rainy days. On classroom days, teaching (I think the modern term is contact time) ended at NAAFI break or sometimes at lunchtime. This led to much banter from fellow officers not on the course about

‘part timers’. However, the afternoons, and indeed evenings and weekends, were spent researching and writing those blasted essays. Highlights for me were the field survey module, where we spent glorious days on the Ridgeway taking readings, and the Group Project, during which we actually made a map all the way from writing the specification to printing the finished article. I say map, but only in the loosest sense of the word. My choice of green for wooded areas was quite misguided and detracted from any worth the finished product had. Lowlights were the exams and the pressures of cramming, and of course those essays. However, the instructors were excellent and helpful, the library was well stocked and, as we were often reminded, we get paid 24 hours a day and so we should expect to spend them all working. I was not alone on the course in having to work through the night to make deadlines. I also remember an evening in the Mess being shown astronomical survey techniques by Captain Jim Starbuck. I don’t remember any of it now but recall being fascinated in learning how it was all done before GPS.

But was it worth it? I have held many positions in geo since the completion of my Army Survey Course, many of them technical. And although I haven’t always been entirely served by the content of the course, (and how could a course deliver such specific content) I have never yet been let down by the foundation of knowledge that it gave me. The Army Survey Course has given me an ability to ‘think’ geo as well as ‘know’ geo and by that I don’t mean what to think but rather how to think. The individual research skills that I developed on the course have served me well so far and will, I am sure, continue to do so in the future. As a geo officer I frequently find myself able to talk ‘techie’ at the highest levels with fellow officers and contractors alike thanks to the Army Survey Course. And, in a small fraction of those conversations, I even understand what they’re saying!

Soon it will be all over at Hermitage. I have loved all my postings here and all my visits in between. If ever I have been away for any length of time I have always returned to a warm welcome; returning to friends not just others in the same uniform. I know it’s a well used cliché but to paraphrase, I truly believe that it’s the people that make Geo what it is, not Hermitage or who the organisations ‘belong’ to. Our predecessors made Barton Stacey what it was before the RSMS and Regiment were collocated. The impending move will not change that. We, that are currently serving, (and I include our civilian colleagues in this) and those who follow, will make Hermitage part of our history and we will forge a new future in our different locations. The Regiment will continue to support operations in the way that only it knows how and the RSMS will continue to train, educate, and stretch students to within an inch of their human rights. With the planned move of the RSMS to Chicksands and the implementation of the MSc in Geospatial Intelligence it will be interesting to read the views of an ASC student in the years to come.

Capt McCarthy Capt Swain Capt Roufé Capt Massetti

Lt Col Lopushansky Capt Marks Capt Arnison Capt Ware

Memories of a Chief Instructor

By Lieutenant Colonel (Retired) James Prain
Chief Instructor, Royal School of Military Survey, 1995 - 1998

My tour as Chief Instructor was dominated by the Royal connection. The greatest honour was to be the Chief Instructor (CI) when HM The Queen visited the School in 1998 a few weeks before I completed my tour. This event was the sequel to the granting of the Royal Accolade in 1997.

The granting of this Royal Accolade was the result of the staff work of Lieutenant Colonel Simon Farley who was Chief of Staff (COS) 42 Survey Engineer Group. It was one of many initiatives taken to celebrate 250 years of Military Survey taking the production of General Roy's Military Map of Scotland as the start of 'modern' military surveying. I recall the day of the announcement and the impromptu party to celebrate our status and recognition by the appropriate MOD authorities that the School was indeed a 'Centre of Excellence'. To mark this event I requested a copy of the granting letter which I had envisaged being hand written on vellum. Reflecting the modern age, I was provided with a copy of the fax sent by Buckingham Palace!

HM The Queen learns about GPS from Sapper Nigh in 1998.

As it was not possible to arrange a visit by HM The Queen in our 250th anniversary year, a Royal Visit was arranged for the following year, 1998. The visit was to 42 Survey Engineer Group and after an honour guard and some introductory presentations, the technical tour started with the School. I was most impressed at how well the technicians spoke. The Queen quickly put the presenters at their ease and was keen to listen; she was also keen to shake their hands. One of the stands involved a digital mapping display in which we wanted the Queen to operate the mouse "like her grandsons". However we had not rehearsed what would happen if the Queen declined the invitation. After three prompts, I realised that I could be heading for the Tower; so we moved on swiftly.

In 1997 we conducted a number of events to celebrate the 250th Anniversary. The climax of these was the Open Day and the Freedom of the City parade. These were excellent events thanks to thorough planning and preparation. The weather was most favourable. As CI, I led the RSMS contingent though Newbury and was proud to mark an association with the town that went back to 1949 when the School moved to Hermitage from Longleat Park in Wiltshire.

Turning to the real business of the School, I recall that my relationship with the Commander of 42 Survey Engineer Group was governed by two themes: support to operations in the Balkans and sport. Given the increasing and sustained demand for geographic technicians had meant that there was tremendous pressure on the officers and soldiers to deploy on operational tours. In order to share the operational burden, the Commander sought support from the School. This meant that School instructors were liable for operational tours (not the Army norm at that time) and hence gaps in instructional positions became common. As always the professionalism of the rest of the instructional team meant that a near normal programme of courses and lectures was maintained. The other area where I had to balance the interests of the Group and the School was over commitment to Group sport. My reluctance was because of the impact on the busy academic timetable and I did not want to place individuals under unnecessary additional pressure.

In terms of technician training, the School was structured to deliver training for the three trades: Data Technician, Terrain Analysis (TERA) Technician and Production Technician run at three levels, starting at Class 3 and working up to Class 1, plus a core skill of Combat Surveyor. As ever, the pace of technological change was racing ever faster and it was a constant challenge for staff to keep abreast of current developments whilst retaining the fundamental principles and enduring themes. One of my personal objectives was to bring realism to training as I saw that we needed to complement the clinical environment of the School with operational realism in order to prepare soldiers who could be deployed onto operations soon after completing their particular course. I

The staff of the School of Military Survey celebrating the news of the 'Royal' accolade in 1997.

was also keen to ensure soldiers had reversionary skills in case their access to computers and the like were lost. During one visit I recall reminding the students that if they could not add value as geographic technicians, they would end up on guard duty at whatever HQ they were serving!

A key part of engaging with the Field Army at large was though the various All Arms courses provided by the Navigation Department in both Navigation, principally using the Global Positioning System (GPS), and Map Reading Instructor Course (MAPRIC). This saw some 200 students a year passing through the School who gained some understanding about the broader capabilities Military Survey provided to Defence.

The Army Survey Course (ASC) was a major element of the School's business. Whilst much of the business was undertaken by John Knight, the Principal Lecturer, I had much involvement. During this period, we were delighted to see renewed interest from USA sending Corps of Engineers students. We also saw students now coming from eastern Europe including Romania and Hungary, and from non-NATO countries such as Sweden. I was fortunate that I did not have to deal with too many personnel issues but there were the inevitable counselling sessions to verify the commitment of some students and to encourage others who found the ASC quite tough and sought to resign prematurely!

I valued highly the various external links held by the School. The key one was with Cranfield University (Shrivenham site) as it was our sponsor for the Master of Science degree which had

The Royal School of Military Survey salutes the Mayor of Newbury on the Freedom Parade in 1997.

The staff confirm their location on Dartmoor in 1996.

just started to be awarded to successful students on the ASC. Linked with this were our associations with the Royal Institution of Chartered Surveyors, the Worshipful Company of Scientific Instrument Makers and Leica Ltd which all provided prizes to both officer and technician courses. On a technical level we had a good partnership with Royal Naval Hydrographic School at HMS Drake, at Devonport. Naval officers were regular visitors and when the season permitted, a croquet competition was held. Sadly for the visitors, they never fully understood the various local rules we applied at Hermitage which resulted in regular successes for the home side.

One of the regular features I introduced to the School's calendar was Exercise Mortar Board which provided a military skills and adventurous training opportunity for the School's staff. These events were held at places such as Okehampton Camp on the edge of Dartmoor and Fort Tregantle just across the River Tamar from Devonport. These were excellent opportunities for the staff to work together in a different environment and get away from the routine of the classroom.

One of the unexpected benefits of being CI was the ad hoc liaison with other nations. I found myself, together with staff from the Production Department, going to Sweden to advise the Swedish on map supply. Our trip took us up to Boden near the Arctic Circle where one of the military headquarters was located. Our hosts were most generous and we dined well on gravadlax and reindeer.

Inevitably my tour had to come to an end. I handed over the camouflage pattern mortar board and gown to my successor Angus Cross and was duly dispatched on a fork-lift truck. Thus ended a most memorable, rewarding and stimulating period in my life. I am glad that like my predecessors and successors, we have contributed to make the School the Centre of Excellence – a term recently used by the current Chief of Defence Intelligence.

James Prain hands over to Angus Cross as Chief Instructor of the Royal School of Military Survey in 1998.

As a post script, I am now proud to be serving as an external examiner for the ASC representing the views of Industry. It is good to see that the course is as dynamic as ever and that there have been significant changes in the intervening years.

92 Army Survey Course Graduates

Andy Williams, Adam Burstein, Kate Guest, Tony Colby, Simon Finch, Jayson Putnam, Jon Kerr

White Ensign at Hermitage

For many years now the Officers' Mess at Hermitage has periodically seen the appearance of a group of extremely smart students attired in crisp white shirts, navy blue ties and topped with white-crowned caps, this signals the arrival of the Senior Service who totally upstage the sartorial standards of the Mess. These smart beings are the current 'Droggy Course' or, to be more polite, the former Royal Navy Long Hydrographic Course and now the Royal Navy Hydrographic & Meteorological Advanced Survey Course (HMAS), about to enjoy their Hermitage module. They must immediately feel 'at home' as they pass the white ensign in the entrance hall that was donated to 42 Survey Engineer Regiment in Cyprus by *HMS Leverton*, a mark of a long relationship between the two units.

Our maritime brothers, for indeed they are professionally speaking near relatives, have for several decades, enjoyed their introduction to photogrammetry and geodesy at Hermitage through a module that for earlier courses lasted some 6 weeks, one of basic photogrammetry and then five of geodesy. The changing shape of requirements led to a reduction from six weeks to a 3-week session at RSMS involving geodesy, GIS and imagery but, alas, next year the Droggies' visit to Hermitage will be reduced to only a one-week introduction to GIS. However, although things change, at least the academic link geo and hydro has been maintained. Defence is now a very much 'joint' environment and senior 'geo' and 'hydro' officers work side by side in the Intelligence Collection Strategy and Plans Directorate. Hopefully, no matter where RSMS finds its next home, Naval officers will still appear to show Geo officers how to look smart and add a certain finesse to the mess! Long may the link with RN Hydro continue.

NO 19 LONG HYDROGRAPHIC COURSE
16 Nov - 18 Dec 87

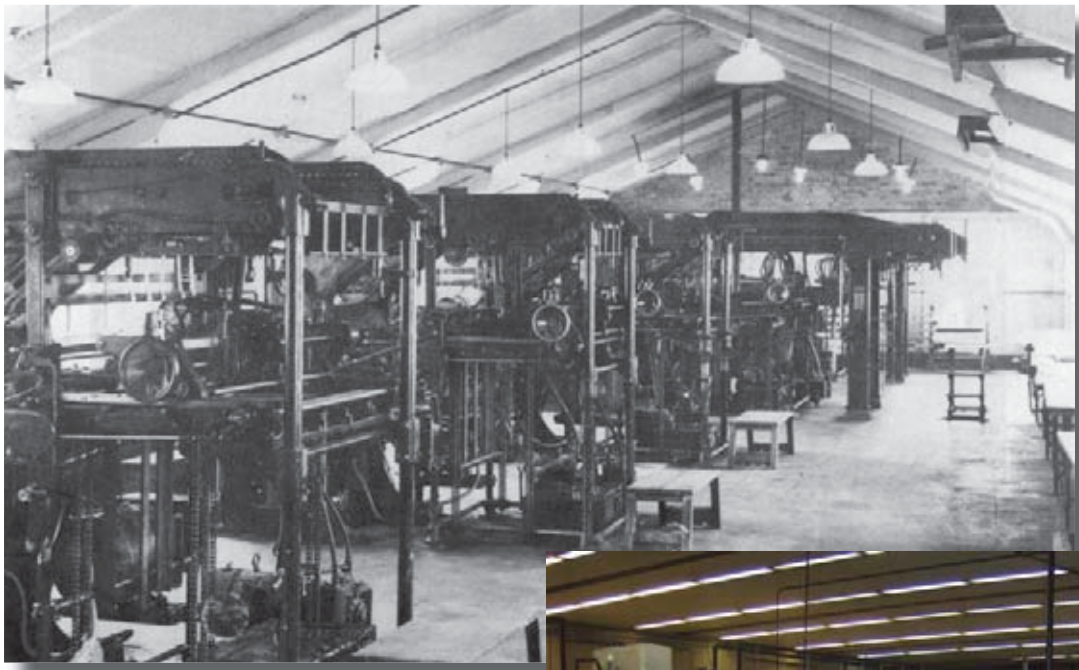
Lt J J Faulkner RN, Lt M J Sinclair RAN, Lt B Wallen RNZN, Capt Maulana Ali Indonesian Navy, Lt A T H Brook RN

25 LONG HYDROGRAPHIC COURSE
1 JUN - 3 JUL 92

LT McMICHAEL-PHILLIPS RN LT JONES RN LT WYATT RN LT KIRBY-EATON RAN LT ABDULLAH RMN
LT TURNBULL RN LT CDR ANKER RDN MR SOLVSTEN RDHO LT CDR JENKS RN LT CDR HUSSAIN PN

The contrast between the main gate and guardroom of today and the entrance before the rebuild reflects the changes in the security situation in the UK.

The NAAFI and Corporal's Club are in the foreground with the dormitory style soldiers' accommodation at the top of the corridor leading down to the Quartermasters stores at the bottom. Today's soldiers' accommodation, complete with a very full car park, is a far cry from the 8 and 14 men rooms of yesteryear.



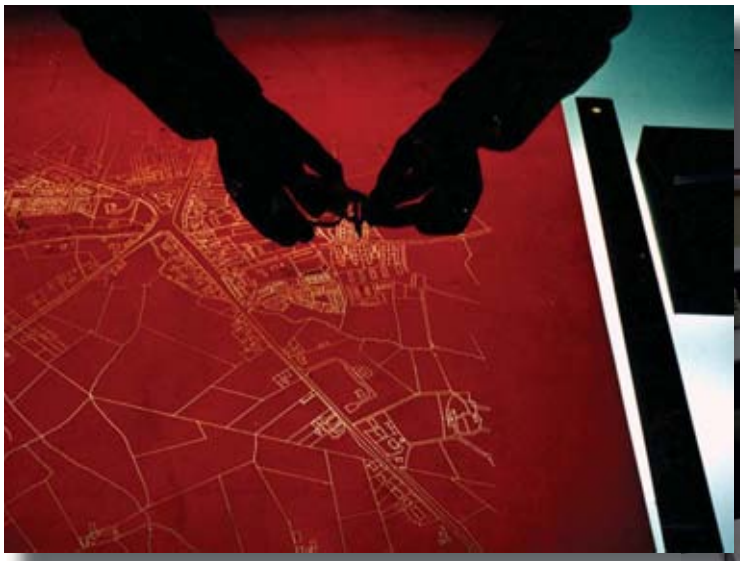
The old and new training press rooms.

60

60 years of Hermitage

The School's cameras before and after the advent of the computer.

Trialling the new MRA1 Tellurometer in the early Sixties – a huge advance in distance measurement and GPS, the next great leap forward in surveying technology.



By the end of the 20th century, the mouse had replaced the scribing block in the cartographer's hand.

The squash court, now the judo hall, is the only remaining building from the old camp and even that doesn't date from the original wartime build.

The 1959 Admin Parade shows the large number of students passing through the School during national service. (Photo: Nick Carter).

Hermitage has been visited by HM The Queen on two occasions, the second time in the rain, and Prime Minister John Major who was shown the Geographic Support System during his visit.

ESRI (UK) - Proud to Support The Royal School of Military Survey

Commemorating its 60th year, Brigadier (Retd) Nick Rigby, now a non-executive Director at ESRI (UK), talks about the close working relationship that has formed between the two organisations and looks to the future.

It would be remiss of ESRI (UK) not to help commemorate the 60th Anniversary of the formation of the Royal School of Military Survey (RSMS). During its time it has changed and evolved in terms of structure, leadership, ownership and outputs, but throughout it has managed to sustain its reputation as a centre of excellence in the teaching of 'survey' and related disciplines.

In the last couple of decades as the subject of geographic information systems, or GIS as it is commonly known, has developed so has the RSMS's understanding of its potential and the company has helped facilitate this as well as together delivered such capability to units deployed on operations. Indeed ESRI (UK) has forged an excellent rapport over the years so that it now supports RSMS in the development of geospatial techniques and expertise within the defence and wider community and truly recognises the role that RSMS plays in the delivery of skills to defence customers and users.

The relationship has been cemented in more recent years with former Army Survey Course graduates joining the company as well as some really excellent RE (Geo) technicians, thus even better enabling ESRI to understand the requirements of RSMS and those of the wider Intelligence Collection Group (ICG) and the Defence Intelligence and Security Centre (DISC). Every year for example, HQ ESRI (UK) based in Aylesbury, Buckinghamshire, hosts the Army Survey Course at a time when both military and civilian students are about to embark at the start of the specialist element of their careers. The visit represents an excellent opportunity to pick up the latest industry thinking on GIS thus enabling the students to better exploit their knowledge and GIS capability during their next appointments.

Two factors stand out with regards the RSMS as against other learning establishments. The first could be argued is very commercial in outlook, which should be strongly rebutted, for it relates to the School's policy regarding acquisition of new defence, especially deployable, geospatial capability. For every geospatial capability that is acquired, at least one complete 'system' is procured for the School, even if the total requirement is in single figures. This policy allows the staff at the RSMS to test the kit to its limits, but more importantly, to enable the staff to really understand what the kit is meant to do and then develop teaching packages to deliver what is without doubt the best teaching that students could have. Secondly, since the RSMS began acquiring ESRI capability there has developed a constant dialogue between the two entities that ESRI (UK) believes is helping the School deliver better solutions and outputs with greater economy and more efficiently. Recently, ESRI (UK) software training courses for military users have been designed to dovetail with the learning paths of the RSMS, helping develop additional skills and knowledge to enhance their capabilities. During the past 10 or more years the School has been a participant in a wider educational scheme to purchase company software. ESRI (UK) supports education in all of its business areas and has been a long standing supporter of the Combined Higher Education Software Team (CHEST) scheme, which provides educational establishments with industry's latest software at the lowest cost. RSMS is a CHEST site with ESRI (UK) providing them with wide scale, affordable access to the company's latest GIS software and support.

However, the story of ESRI (UK)'s involvement with RSMS and the teaching of defence geospatial techniques by their staff doesn't stop with the School, it is merely the beginning as its students take up appointments within UK defence or with respective foreign defence organisations far and wide. The School has long been not just a UK centre of excellence, but is recognised as such overseas. Its image and reputation far exceeds its relatively modest size, so much so that upon change of ownership from ICG to DISC, there was much debate over whether or not the School should be re-titled. Aside of the 'small' matter of it having been granted the title 'Royal' and sorting out any subsequent change with the Royal heralds and College of Arms, it was concluded that so strong was

the brand/image of the School with a large and ever growing number of countries, that to change its title to something else would have a disproportionate negative effect than to any perceived gains. Many of the students, both officers and soldiers, join the Joint Aeronautical and Geospatial Organisation (JAGO) – part of the ICG, and in particular 42 Engineer Regiment (Geo) with which ESRI (UK) also enjoys a strong relationship. As the Regiment deploys its soldiers worldwide according to defence priorities, so they go with ESRI (UK) capability. Similarly with the integral geo support supplied to all UK Corps, Divisions, Brigades and specialist Units, all of which to some degree or other have an ESRI capability.

It is not all about hard work though as outside of the deployable domain a variety of RE (Geo) staff, both military and civilian attend various ESRI sponsored conferences and special interest groups, both in the UK and elsewhere. Indeed on 28th – 30th October this year at the ESRI (UK) hosted Europe, Middle East and Africa (EMEA) conference JAGO staff will be presenting a session on new field deployable geospatial intelligence (geoint) server capability that will significantly enhance the depth and currency of geoint provided in theatre.

Last year the company was delighted to be able to support with sponsorship and website tracking of 42 Regiment's 'Geowheelers' cycling team as they followed the 350 km Tour de France course. This was part of the unit's fundraising activities for the Army Benevolent Fund and the British Limbless Ex-Serviceman's Association. Earlier this year, during the annual Defence Geospatial Intelligence (DGI) Conference, in association with the RSMS, ESRI (UK) sponsored a celebratory dinner in honour of the School's achieving its 60th year milestone. Amongst the many former Army Survey Course (ASC) graduates from far and wide were John Day, Chris Dorman and David Swann who are currently employed with ESRI in senior positions.

Finally, it is sincerely hoped that the relationship that has developed between the Royal School of Military Survey and ESRI (UK) continues to flourish and grow to mutual benefit and especially for those officers and soldiers who use the capability so imaginatively in often extremely trying circumstances.

HMS Whimbrel Battle of The Atlantic Memorial

Ranger has published occasional bulletins on the progress of the project bring the former *HMS Whimbrel* back to the UK to become a war memorial. Readers will be sad to hear that the project has now failed as explained in following press release from the project chairman, Vice Admiral Michael Gretton's.

"It is with great regret that I have to tell you that we are putting in abeyance the HMS WHIMBREL Project. Our intention had been to acquire this Second World War Sloop (now the ENS TARIQ) from the Egyptian Government and to bring her home to her previous operating base in Liverpool. There she would have been a memorial to those who served in the Battle of the Atlantic, a heritage site, a visitor attraction and an educational focus for the Atlantic campaign.

Despite a great deal of effort on our part, we have been unable to conclude a satisfactory agreement with the Egyptian Government to acquire the vessel. It is now clear that it just will not be possible to meet two conflicting needs: on the one hand the Egyptians have financial and presentational expectations; on the other we sought a price for the vessel that is both achievable and which would meet the wishes of our supporters and the regulatory bodies. The bottom line is that we could not agree a price.

We have therefore concluded that we have no alternative but to discontinue our work on the Project to acquire the vessel and bring her home. Since the vessel still exists, however, we are going to keep the Charity and Company Name going, so that if the Egyptian Government changes its mind the Project could be revitalised.

We would like to take this opportunity to express our thanks to all those who have given us such enormous support in our efforts over the years."

A Tale of Three Courses

By Tony Keeley

Once again it is that time of the year when three Army Survey Courses collide. The junior course, No 94, formed at the Royal School of Military Survey on the 14th of July 2008, No 93 are deep in the detail of their MSc projects and No 92, all but three, were able to return for graduation at Shrivenham on the 19th of July. Most however met up at the 94 ASC Welcome Party at Hermitage on the 18th of July. It's becoming a tradition.

The new students consist of three Royal Engineers, Captains Lakin, Maye and White, Captain Kim from Korea, Captain Al-Araimi from Oman and Mr Bluett from the Topographic Engineering Center in the USA. As is usual, the first week is an orientation week including a visit to Oxford and a tour of the colleges (typical England!) and a visit to the Defence Geographic Centre (DGC). As always the DGC host this introductory visit extremely well setting the scene for the demanding course ahead, ably introduced by Lieutenant Colonel Tony Wilby, the SO1 Ops/Plans. The course was left in no doubt as to the operationally focussed role of the DGC. And finally just before the start of the MSc proper was the visit to the Bodelian Library and a chance to observe the quirkiness of some of its map collection and leave them in no doubt that a map is still a map! But now back down to earth as they wrestle with the delights of Analytical Techniques.

And then to No 93 ASC. Will the course ever end they think. They saw 92 ASC jubilant the day before their graduation but their time finally came when they received their results on the day of the examination board, the 2nd of September. The course was in high spirits that evening at the ASC farewell party and a number of students received prizes. The Hamilton Prize was presented to Major Mike Wood from the United States by Joanna Burrows, the daughter of Archie Hamilton who endowed the prize. Mr David Price of Leica Geosystems was kind enough to attend and present the Simpson-Leica prize to Mr Jim Hill also from the United States. Captain Al York RE as the top student will receive his prizes, the Cranfield University Prize and the Worshipful

94 Army Survey Course during their visit ti the DGC at Feltham.

Major Mike Wood from the United States receiving his prize from Joanna Burrows, the daughter of Archie Hamilton who endowed the prize.

Company of Scientific Instrument Makers Prize, on suitable occasions in the future. This ASC has been an excellent course, particularly in terms of team spirit and I would not be surprised to hear great things of them in the future and hopefully they will return for their graduation in July next year. What is certain is that the friendships forged on this course will endure.

And of course the senior course, No 92 ASC, have now graduated at Shrivenham. It was rather splendid that seven from the course were able to return for graduation. What is quite apparent is that our overseas students have spread the word about the benefits of the ASC. The USA officers invariably get posted to training establishments such Fort Belvoir and Fort Leonard Wood and actively recruit for the ASC.

But now I turn my thoughts to No 95 ASC with potentially students from Lebanon, Bangladesh and Egypt!

Mr David Price of Leica Geosystems presenting the Simpson-Leica Prize to Mr Jim Hill also from the United States.

RSMS Principal with Captain Al York, top student on 92 ASC.

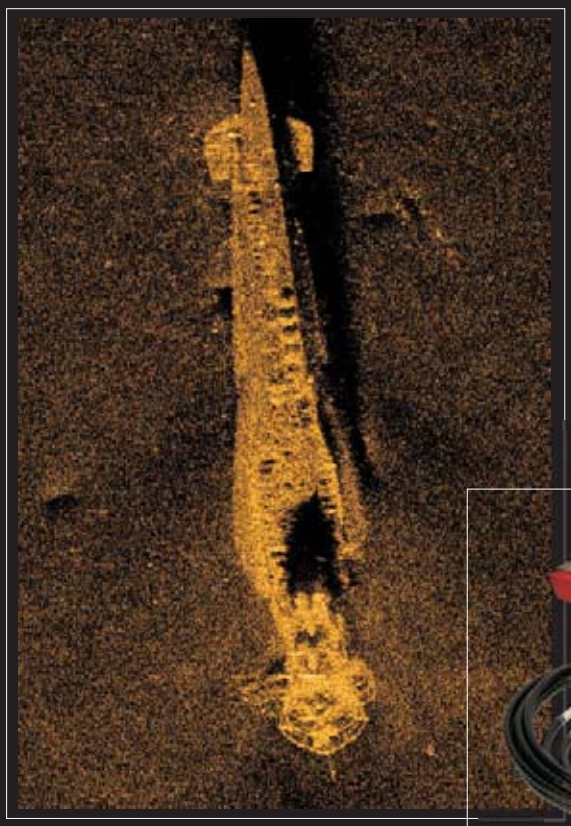
92 Army Survey Course Graduates

Andy Williams, Adam Burstein, Kate Guest, Tony Colby, Simon Finch, Jayson Putnam, Jon Kerr

Synthetic Aperture Sonar, HISAS

Synthetic aperture sonars combine a number of acoustic pings to form an image with much higher resolution than conventional sonars, typically 10 times higher.

The HISAS sonar is part of the HUGIN system solution for mine countermeasures, which has been ordered recently by the Norwegian Navy.
HISAS is a wideband SAS sonar with frequency range of 70-100 kHz, capable of producing ultra high resolution acoustic images as well as co-registered bathymetry. The sonar is tightly integrated with the INS navigation and motion sensing platform of the HUGIN AUV, and makes use of modern signal processing such as DPCA (Displaced Phase Centre Analysis) to process the raw data into images.



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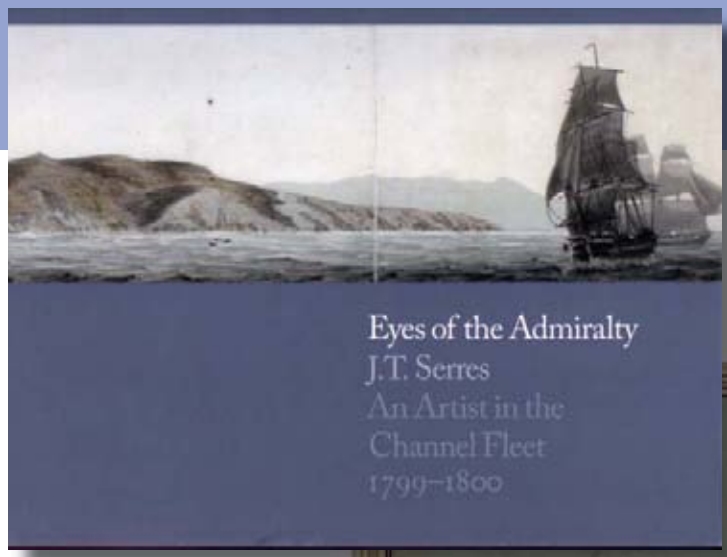


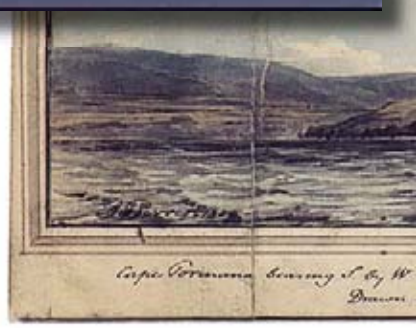
By Alan Gordon

EYES OF THE ADMIRALTY

JT Serres: An Artist in the Channel Fleet 1799 – 1800

By MK Barritt

Published by National Maritime Museum
Publishing: Price: £20
ISBN 978-0-948065-79-8
Available from:
The National Maritime Museum, Greenwich, London SE10 9NF. Tel: 0208 312 6790



This excellent work by DSA member Mike Barritt succeeds in three different ways: it is a collection of superb, attractive watercolours of the bygone age of sail, it explains in layman's language the importance and daily life of the fleet blockading the French ports during the Napoleonic Wars and finally, it tells the very human story of a talented painter who was, it appears, a nice but imperfect man wedded to very much the wrong woman.

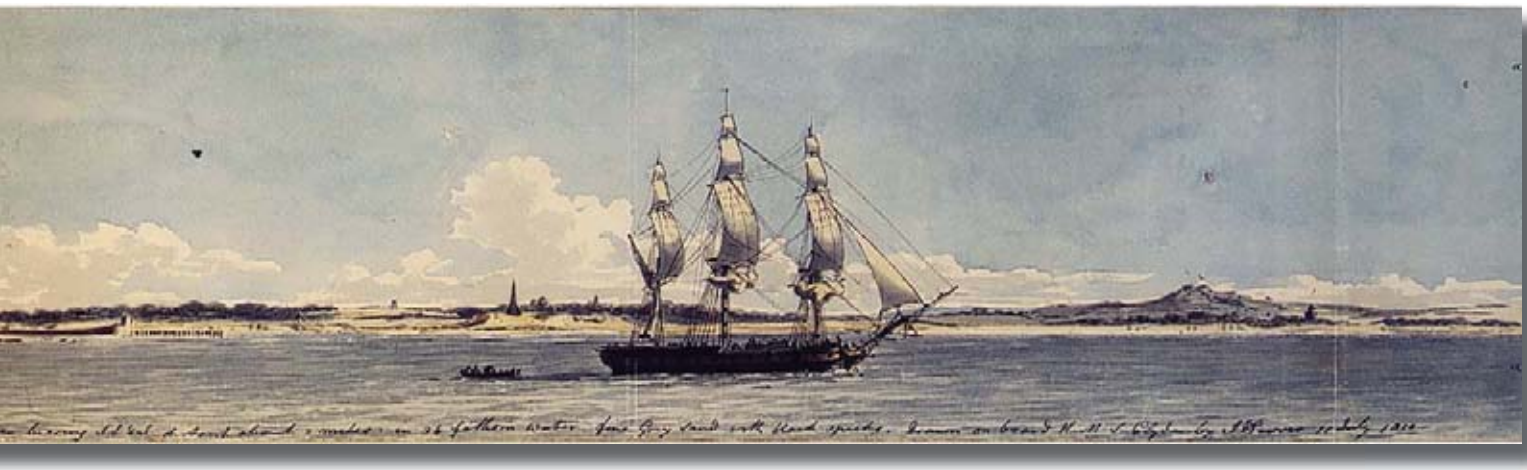
Firstly, the paintings – they are exquisite and almost photographic in their accurate recording of the fine detail of ships under sail. These delightfully delicate seascapes take on an added feeling of respect when you realise that they drawn in the tight, cramped confines of a frigate under sail in the choppy inshore waters of a coast made hostile by both nature and an implacable enemy. Moreover, these wonderful watercolours do not owe their excellence to 'artistic licence' as their raison d'etre was to accurately record the topography of the coast – the finely drawn ships are there solely to assist in showing scale and perspective. The publishers might do well in producing one or two as framed prints.

Anyone with even a passing interest in the Napoleonic Wars, never mind maritime art or the Navy of Nelson, would find this a 'can't put down' book for, in effect, it serves to illustrate the adventures of Hornblower. It tells the story of the blockade using John Serres voyages as the vehicle. It explains the vital importance of the blockade and tells in first-hand words what it was like to be involved, the skills required to sail a ship of some size driven by nothing but a fickle wind right into the mouth of the enemies well protected harbours – exciting stuff – all fact not Patrick O'Brian or CS Forrester fiction.

But this is above all the story of a man, the flawed son of a famous artist who was given an extraordinary commission brought about by the inability of the landsmen members of the Board of Admiralty to envisage the 'ground' over which they were forming the strategy to defeat the Franco-Spanish fleet. You get to like John Serres and feel sorry when every aspect of his life after his year with the Channel Fleet goes downhill ending his days in a debtors prison. Luckily his art was safely stored by the Admiralty and brought light some 200 years later. Mike must have spent countless hours researching Serres…thank goodness he did.

One of the many superb seascapes that illustrate Mike Barritt's very readable book.

Serres included the 74-gun ship as a device to add depth and indicate scale.



A fine drawing of the Spanish coast including Serres' ship, HMS Clyde, drawn on 11th July 1800.

21 Years at Hermitage – The Musings of an Academic

By John Knight, Principal, Royal School of Military Survey

On hearing of my appointment as Principal Lecturer at the School of Military Survey in 1987, several colleagues in Higher Education questioned my wisdom in accepting the appointment, commenting that Hermitage was 'a sleepy hollow' and 'a gin and tonic palace'. Neither of these labels has been appropriate in my 21 years at Hermitage. On the contrary I can honestly say that my work has been challenging, never boring but very rewarding. I would add that in all those years RSMS has been a demanding environment that has required, and received, great commitment from all staff.

My early days at SMS were quite a shock. Having worked in Higher Education, I found the rigid processes quite alien. The 'Orange Book' was the bible of what had to be taught, but little was said about the approaches to teaching and learning. Indeed my first teaching commitment was a six-week block on Information Systems, in class from 0810 to 1630 every day. I still wonder how I got through that and more importantly how my students survived it! I am glad to say that today a great deal of thought goes into methods of teaching, learning and assessment to meet the needs of the trainees.

Since arriving at Hermitage in September 1987, the School has undergone many changes. After years of relative stability in the subjects taught, the late 80's and early 90's saw many new influences come in to play. Major conflicts, the fall of the Berlin Wall, rapid developments in information and satellite technology, the growth in GIS and Imagery and changes in the pattern of education for young people have all transformed the training requirements.

In the late 1980's a defence team visited all Defence Training Establishments to look at all long officer courses with a view to accreditation for a Master's Degree in Defence. This would be achieved through accumulated credits for courses such as Commissioning, Young Officer and Junior Staff courses. The team recommended that the Army Survey Course was worthy of Master's accreditation in its own right. This was the start of a successful partnership with academia that has seen the development of an MSc in Defence Geographic Information through Cranfield University, first awarded in 1992, and more recently a Science Foundation Degree in Applied Computing (Defence Geographic Information) through Sheffield Hallam University.

Although the Army Survey Course had long been accredited by the Royal Institution of Chartered Surveyors, it has been the tie to a Master's qualification that has proved attractive to RE Officers and those from overseas. Indeed it was following the introduction of this degree that the School saw the arrival of students from Europe as well as a return of North American students.

Following the success of the partnership with Cranfield University, thoughts turned to achieving appropriate qualifications for RE soldiers on trade courses. Percy Kimber, Head of Training Branch at the time, was concerned at the imminent demise of small specialist HNDs such as those at Hermitage and this coincided with the introduction of the new Foundation Degrees. An early implementer of these new qualifications, RSMS has gone on to achieve a credible qualification that satisfies defence requirements whilst meeting the academic standards within the National Qualifications' Framework. The Foundation Degree is an attractive qualification for RE Geo as it integrates academic and work-based learning through collaboration between JAGO as the employer and RSMS as the training provider by focusing on the skills and knowledge relevant to the needs of the employer.

Another attractive feature of the Foundation Degree is its pathway to life-long learning and the opportunity to progress to other qualifications. Foundation degrees were designed to attract people from a broad range of backgrounds and provide alternative routes into Higher Education for those who are not the traditional A-level school leaver; this has certainly been a key achievement with the programme at RSMS.

The School's philosophy is to ensure that Geographic Technicians have an in depth knowledge and understanding of the data; its source, purpose and limitations in addition to a comprehensive understanding of the procedures they will use. Even more importantly, Geographic Technicians must be able to critically examine their results to ensure that the procedures used are valid and appropriate. The link to civilian academic qualifications recognises the change in teaching and learning that has taken place in recent years to meet the new demands. In the past, soldiers were

trained in a specific trade, and for many years those trades changed little. The rapid growth in new technology combined with the vast amount of spatial information required to support operations has resulted in a constant change to the training and education delivered at Hermitage. In my time, there has been a rationalization from seven trades down to five, then three and now to a single unified Geographic Technician trade. These changes alone have created great demands on the School with the need for conversion training and bridging modules to enable our technicians to move to the new trades.

The achievements of our soldiers in gaining qualifications are not just down to the School. For a number of years, many of our SNCOs have pursued Bachelor's and Masters' degrees on their own, achieving the highest standards on these programmes. Recognising this trend, JAGO's Training Branch and RSMS are actively pursuing a route for soldiers to progress to Bachelor's Degrees following their Class 1 course, again recognising the importance of education as well as training. These achievements are particularly satisfying considering that most soldiers entering training at RSMS do not come with the qualifications for the normal entry route to University.

The last few years have seen the greatest organizational change in my time at Hermitage and probably the most change the School has seen. April 2006 saw RSMS taken out of Royal Engineer ownership to become a federated school within the Defence Intelligence and Security Centre (DISC). A year later saw the Medmenham Wing (formerly JSPI) of the Defence School of Intelligence transferred to RSMS to become the IMINT Wing to bring together Geo and Imagery Intelligence under the broader GEOINT banner. This October the training delivered by the School of Air Cartography transferred to RSMS. These organisational changes have taken place against the backdrop of wider Defence initiatives, the Defence Training Review and the rationalization of Defence Estates with the proposed closure of Heritage in 2013. All these cultural changes have required careful nurturing, particularly so as the first civilian Commanding Officer of RSMS in its long history.

Some of the memorable occasions over these years have been the 250th Anniversary celebrations of Military Survey and the award of the Royal accolade to SMS in 1998, 50 years of the Army Survey Course with a reunion at Hermitage and the first graduation of soldiers with Foundation Degrees at a Graduation ceremony at RSMS. This year's 60th anniversary reunion of the Army Survey Course was particularly memorable; the wide attendance from across most courses brought home the long lasting friendships this course has forged. Having taught the ASC for a third of that time, the occasion was an excellent chance to catch up with many of those I have taught as well as those from earlier courses who I have known through my work and profession. It is a sobering thought that with the exception of one person, I have taught all the current Colonels in RE Geo.

RSMS is far from being that sleepy hollow and on the contrary has shown that it can adapt to meet the changing needs of Defence. During the past 21 years the School has provided direct support to operations during two Gulf wars, the Balkans and now Afghanistan with staff members on operational tours and indirectly through pre-deployment training as well as help and advice to those deployed. With RE Geo personnel increasingly deployed in small teams across a range of headquarters, post training support has become a key aspect of the School's efforts.

I feel particularly privileged to be guiding the School through these times and proud to be have been made an Honorary Member of the Institution of Royal Engineers earlier this year. As for the G &T's I must confess to having enjoyed the odd one!

Contact Details

Please ensure that you inform the membership secretary of any change to your postal or email address. Also please let him know your email address if you newly go online.

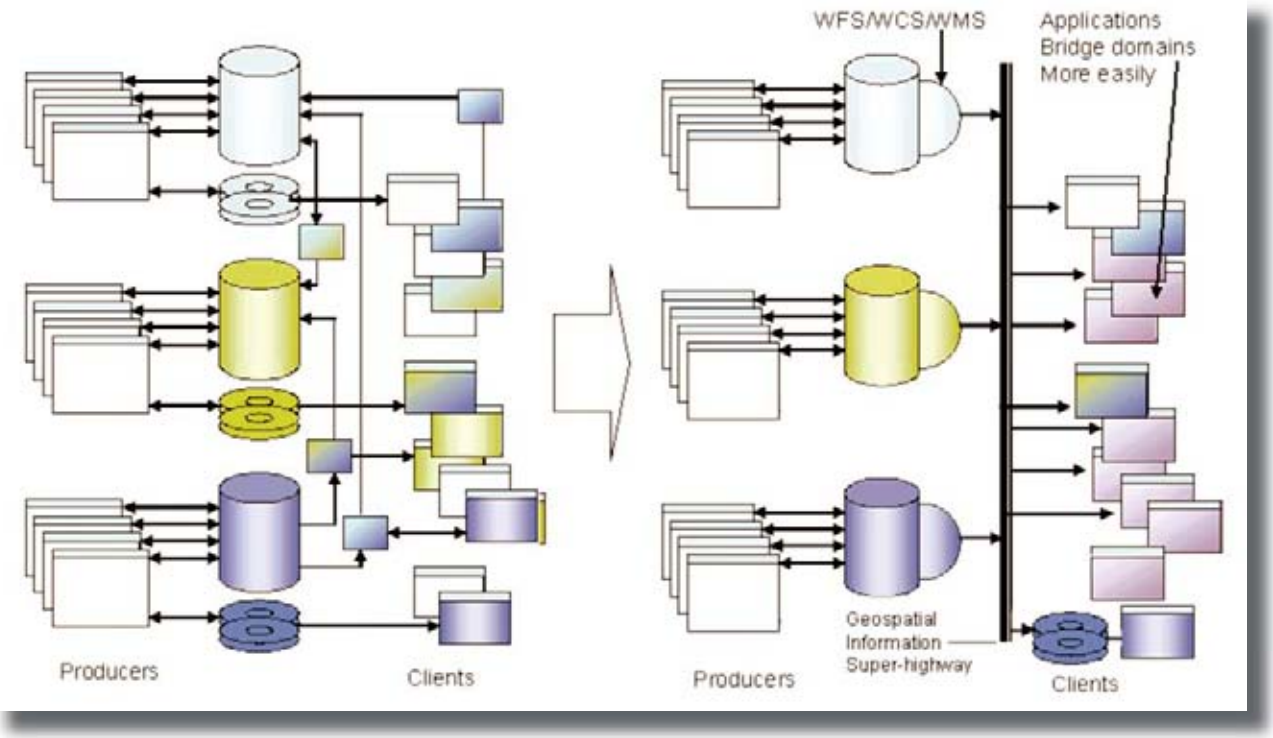
The Geospatial Information Storm
How to find the the Right Raindrop

By Roger Brackin MSc: Technical Director, TENET Technology Ltd

The modern warfighter sits at the eye of an information storm. Recent operations, employing the newest intelligence collection assets and information infrastructures have indeed created a data deluge. In the geospatial environment, gaining information superiority may have once meant obtaining a better paper map than an opponent. In 2008, it means accessing, analysis and fusing many different data sets from many different sources promptly and accurately. A straightforward paper map rarely suffices: it does not tell the commander enough. However, it is also clear that simply gathering all relevant digital geospatial information in one place is an equally poor approach: the commander is simply flooded. This article discusses approaches to this problem that focus on effective exploitation of the possibilities offered by the advances of the last decade by placing emphasis on the operational context and the military business process itself.

The systems and geospatial data sources we have today, typically procured in the early Nineties, were very specific system solutions developed to meet a symmetric threat (for example radar/sonar performance prediction tools, battle damage assessment tools etc.). These tools were provided with a range of specialist geospatial data products tuned to their specific requirements, particularly for the Cold War. For the bulk of any deployed force the paper map reigned supreme.

Then came the Geographic Information System (GIS) which offered a broader set of capabilities, integrating data into deployed geo-servers and providing a wider set of geospatial capability, backed up by dedicated geospatial expertise. Since then, modern warfighters and the platforms and weapon systems are demanding much higher quality geospatial data and these users' requirements represent a significant issue in terms of availability, quality, consistency and resolution of available data. All of a sudden there is much more of a requirement for inter-discipline data, and all sorts of sharing and data exchange becoming normality.



So what is the generic geospatial information requirement? One could easily argue that it is location, location, location dependent. A few years ago the focus of the geospatial information requirement was on rapid environmental assessment, with a significant littoral warfare focus, based on the potential need to mount expeditionary sea-borne military operations of the form of the Falklands. It would have been hard to predict that the bulk of the capability required in the first part of this century would be to support two theatres with almost no maritime element. This could

equally switch to a completely different requirement if we are plagued by a military confrontation, terrorist attack or a natural disaster in a different, more maritime focussed location. So the location still remains 'anywhere' and 'any type'.

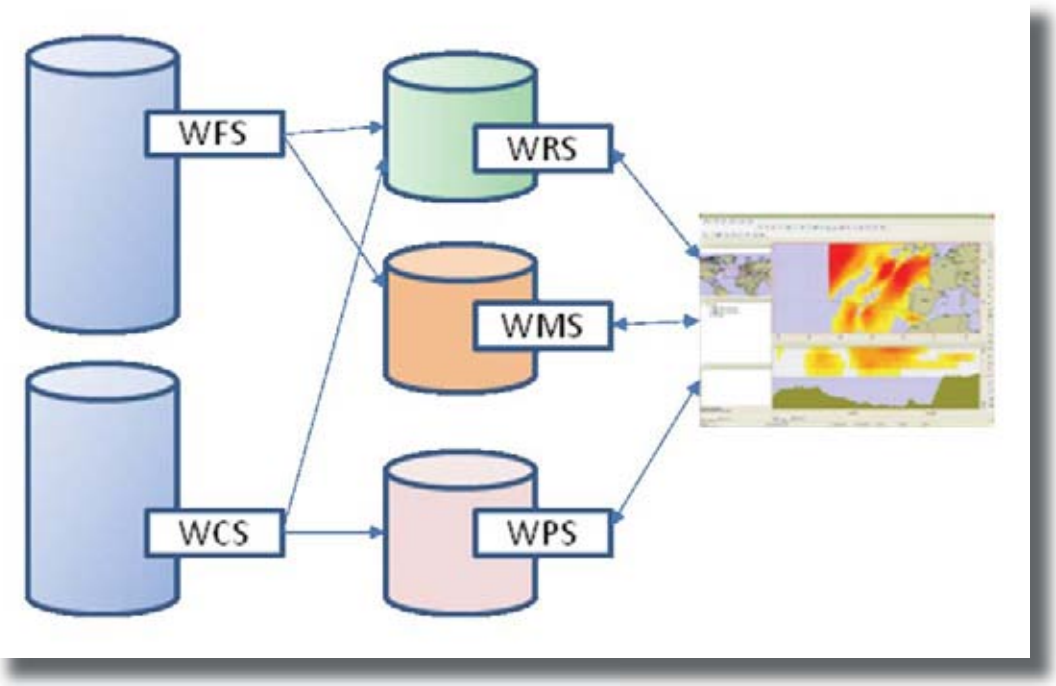
If you are hunting for a submarines in a mixture of environmental conditions (from the Arctic to the Mediterranean), assessing the chances of moving supplies through a complex terrain, or trying to predict the heat-stress forces will be suffering in a given set of desert conditions, it is clear you need very specific tools and geo-support. However the lesson we continue to learn, is that we cannot predict with much certainty what the next type of operation will be. To effectively support future operations it is a major challenge to collect, process, quality control and distribute data at the rate needed, and in a form that allows it to be used effectively.

The functionality in modern mission planning systems is potentially awesome. But procurement chains, data feeds, system design issues, and the effects of security policy all lead to inflexible, vertical capabilities, linking legacy data formats built around the computerisation of the paper map product, closed applications and legacy roles. Operational agility has to be the goal of modern geospatial capability. In addition the fact is that it is very likely that the level of detail in the 'stock' data available will not be sufficient for the operational needs, and system data. Systems which are only able to take data from specific supply chains are very likely to be ineffective in the next crisis, whatever it turns out to be.

This situation no longer persists in the commercial world. Let's take the simple task of planning a commercial trip. A few years ago the obvious alternative to a paper map would be one of the personal computer route planning products, with embedded data which typically was updated annually at its most frequent. I doubt any of us think about using this anymore, we go straight to Google (TM) or the RAC or one of many other geospatial web sites offering routing. These capabilities not only provide highly up-to-date data, but they also evolve capability, adding traffic congestion monitoring into the calculations, and even improvements through feedback on the routing quality from client GPSs. There are significant issues around consistency, coordination and training if such a dynamic environment is used in a military context, but this really is the future of military capability if the military is to be agile.

Open Standards

So what technologies will help deliver the flexibility needed? Well the first is a modern geospatial information infrastructure. While in the above example there are only a few key players providing data and infrastructure, defence users are likely to need infrastructures supporting many sources. As a result open standards are likely to reign, and service chaining is likely to be the order of the day.

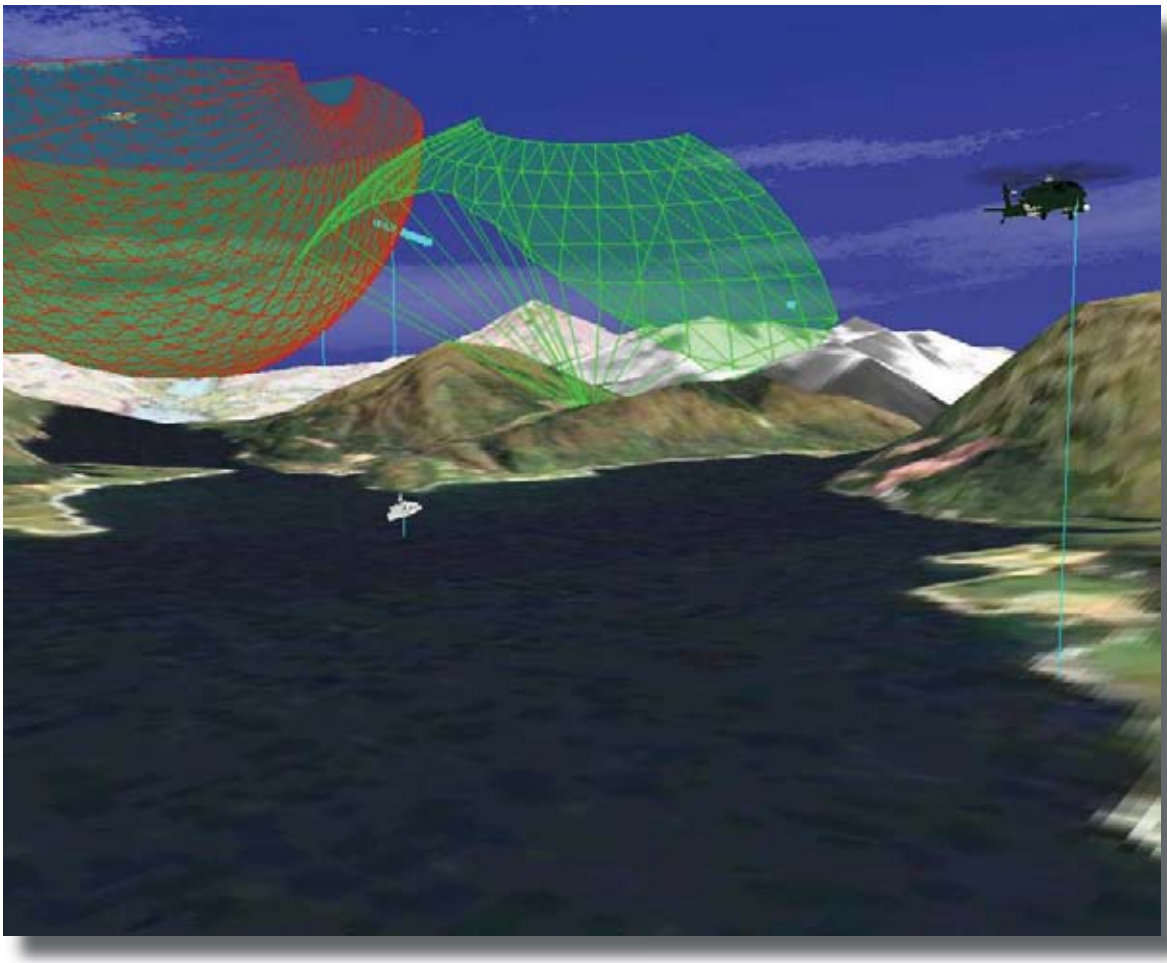


The user may still have what appears to be a full application but data will be sourced, and processed using a range of open services (for example the Open Geospatial Consortium Web Feature Service (WFS) and Web Coverage Service (WCS)) and transformed using Web Processing and Web Map Services (WPS/WMS) to provide the necessary view. A key benefit of a service oriented architecture is that the user can see relevant geospatial information fused together on one display rather than scattered across a number of windows, requiring him to visually correlate data in different windows (live track output, tactical decision aid output, maps, terrain and weather displays). The user rarely wants all of these together, but certainly wants to display selected elements on the same display easily. At present, due to the plethora of applications this is difficult if not impossible.

Dynamic Data Integration/Fusion

In most cases to date geospatial data has been produced, harmonised and distributed by a small set of key agencies. The 'background' data has been relatively stable changing at a slow rate, and typically represented in a form close to that used on paper. On top of this background there typically is a more dynamic tactical picture and possibly other dynamic data such as meteorology. However now there are a plethora of sensing devices in the battlefield which offer the possibility of a much richer, higher scale and more dynamic backdrop. The manual fusion of these with older sources, and the validation/quality control of them is likely to only be realistically achievable using automated processes. In addition the computation of advanced properties from data is likely to grow significantly as data collection becomes automated.

Simulations and rehearsals, which previously were run on specialist hardware long before missions, are likely to be integrated into data feeds, allowing on-line prediction of the likely scenarios that might play out. In short the foreground/background data divide is likely to vanish and everything will become potentially dynamic.

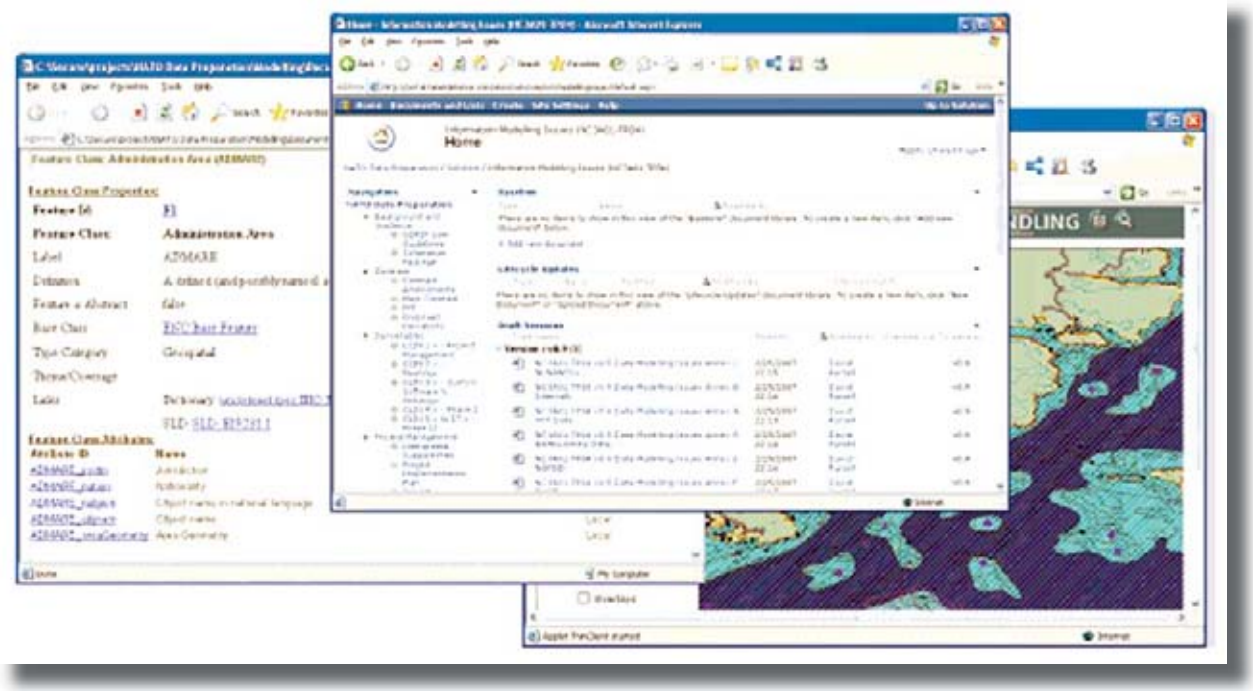


ENVITIA

World Class Spatial Information Technologies

Portals and Registries

There is something of an obsession at present to stand up portals. All manner of agencies feel the need to stand up portals. But there is something of a misreading of the requirement here. Often portals are simply browser-based interfaces that allow a human user to look for data. This really misses the point. An essential part of this story is the capability to allow other computer systems to discover data as well as humans. In fact to support the type of queries required the computer access is significantly more important. And indeed, once a computer based access model based on open standards has been established using a web registry service, then providing a human version becomes a trivial additional effort.

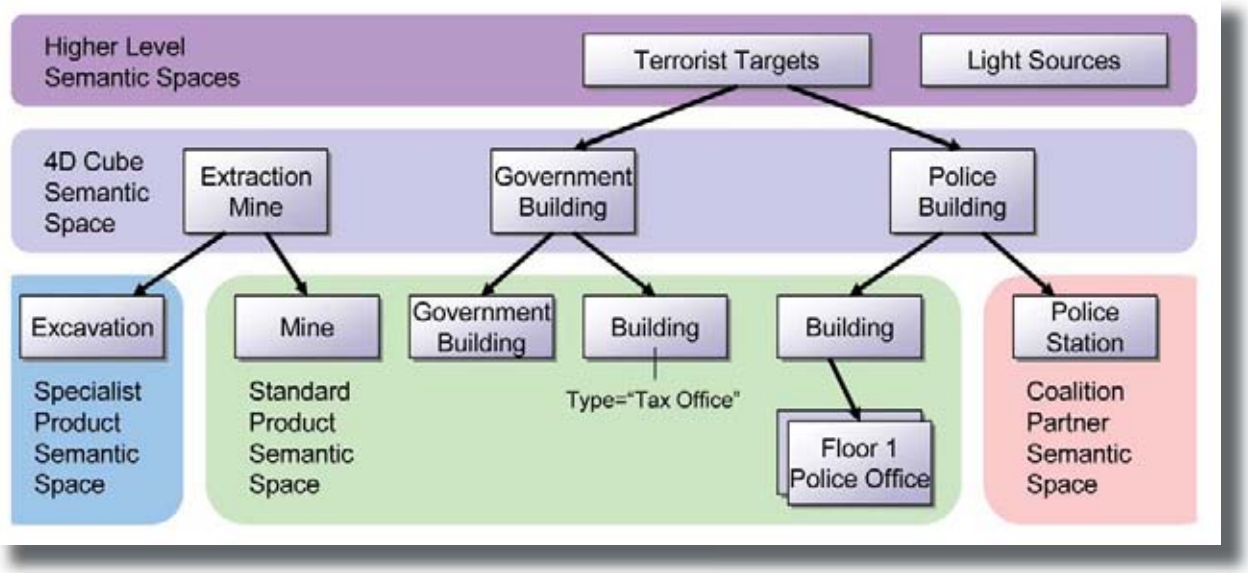


A registry can provide overview information, documentation and direct access to relevant services for the user (as shown above) while also supporting the orchestration of services. Many do not understand the registry's significance. It provides the authority, provenance and coordination function to turn a jamboree of services into an organised and controlled infrastructure.

Semantic Technologies

The last key technology I want to mention is the semantic web technology based around the formal mathematics of description logic. This technology, which is considered to have the best hope of delivering web 3.0 (apparent intelligence, with the context of a question being understood by the computer in the same way as a human does, primarily through a knowledge model), is as relevant to the military problem as it is to everyday life. Semantic technologies (ontologies) allow the capture of a range of knowledge, including process, functional and information models. They have a particularly useful role in discovery. A typical example is shown on the next page. Current geospatial products often have different terms or definitions for the same thing - in one product the term 'mine' may describe a coal mine but in another it may mean a maritime explosive device. An ontology's ability to define a new 'semantic space' in which we can use terms that reference all relevant uses, allows us to much more easily discover relevant information and resolve ambiguity.

Even more useful is the ability to define higher level concepts such as potential terrorist targets, sources of light, air obstructions and many other domain concepts, all focussed specifically on the warfighter's current function. This allows systems and services to pull together relevant data without having to re-build databases or copy data. This adds a massive degree of flexibility and agility. Given the typical current deployments, where collaboration with a range of coalition partners, Non-Governmental Organisations and Partnership for Peace is essential, effective data integration technologies will be critical.



What is the Timeline?

A move from the product and system focus we have today, to service orientation will take a number of years. However the web technologies can provide benefits quite quickly and integration with existing systems using 'adapters' or 'ramps' is a proven approach in the commercial world. So the likelihood is that services are not far away. If they aren't deployed relatively soon then there is a real risk that the average person on the street, depending on the circumstances of course, and therefore the potential terrorist or combatant, will have more geospatial capability (remote sensing, communications, positioning information and data mining capability) available to them than anybody in the military chain of command, from bottom to top.

Foundation Degree Graduation Ceremony at Hermitage

By Tony Keeley

Friday 3rd of October marked a notable occasion when 18 Royal Engineer Geographic Technicians were awarded Science Foundation Degrees in Applied Computing at a Graduation Ceremony at Denison Barracks in Hermitage. This Foundation Degree programme, accredited by Sheffield Hallam University and run by the Royal School of Military Survey, has now been running for five years and is one of very few such programmes in the British Army and indeed the graduation ceremony is the only offsite event sanctioned by the University.

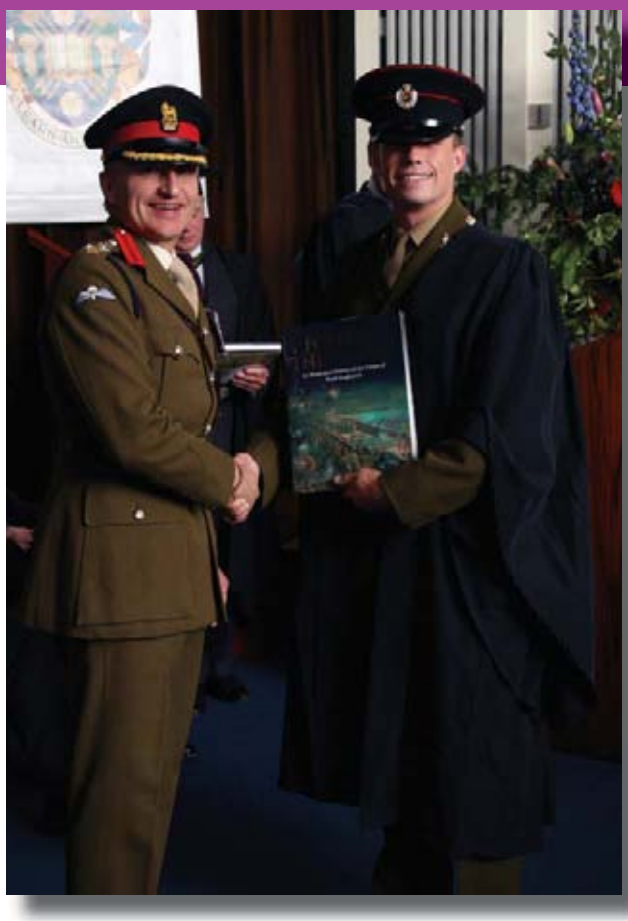
This ceremony was the culmination of almost five years of hard work and study. To achieve this award, students are required to follow an initial nine-month course, three years experience in an operational unit and a further nine months' study at the School. The Foundation Degree is designed to integrate academic and work-based learning through collaboration between employers and the training deliverers. It focuses on vocations, skills and knowledge that are relevant to the needs of the employer. All this training is designed to give the Geographic Technicians the vital

Academic and military guests, staff and students.

skills they need when they deploy on operations. The key to the success of the programme is the strong partnership between the Royal School of Military Survey and Sheffield Hallam University. Building on the success of the inaugural ceremony in 2005 and after funding for the event was obtained, the rather tortuous process of checking the availability of key players was undertaken and just as importantly, the availability of the graduands themselves. Out of a potential 24 graduands from the last 3 courses to finish their Level 5 training, when considering operational commitments, 18 was a pleasing turnout. It was nearly 19 graduands but LCpl Matthew Smith, returning from Afghanistan, was subject to a twenty-four hour delay in Kandahar missing the ceremony by a day.

The day of the graduation dawned fine, and with staff and students suitably gowned, the ceremony commenced. Professor Peter Jones, the Vice Chancellor of Sheffield Hallam University, presided at the ceremony with Major General Rose MBE, Director General Intelligence Collection, attending as the senior military representative. After the academic procession entered, the Principal of the Royal School of Military Survey, Mr John Knight, welcomed guests, students and family to the ceremony. Professor Jones delivered his keynote address stressing the value the University placed on the relationship with the School and the important place foundation degrees have in the learning process. Mr Chris Symonds, the Public Orator and Course Leader, then called forward the

The Vice Chancellor congratulates LCpl Patrick Bonnett on receiving his Foundation Degree.



LCpl Ryan Ciesielski receives the 2006 REA TERA prize from the E-in-C.

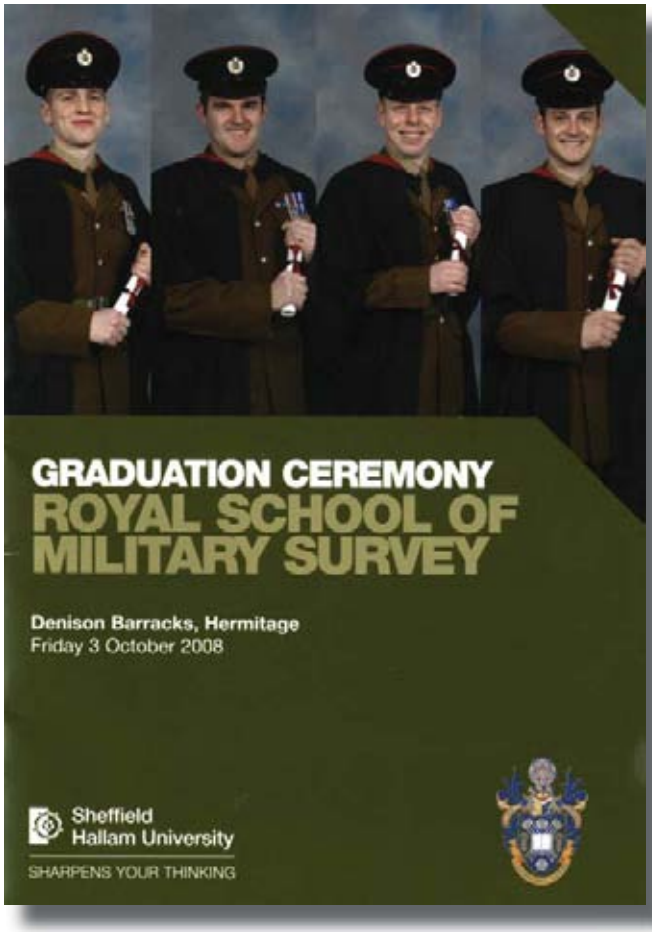
LCpl Martyn Frank is awarded the James Walke prize for 2007.

Kevin Porter of BAE Systems presents the 2007 Terry Straeter Prize to LCpl Joseph Deboo.

The E-in-C with graduates LCpl Greg Clayton and Sgt Ryan Bell.

graduands to be congratulated by the Vice Chancellor before receiving their certificates from the Executive Dean, Professor Button.

It was then the turn for the prizewinners to receive their awards, the awards covering years 2006 and 2007. Sgt Ryan Bell was awarded the Sheffield Hallam University prize as the top student for 2007. The Royal Engineers Association Prizes for Achievement were presented by the Engineer-in-Chief (Army), Brigadier BJ Le Grys MBE to LCpls Ryan Ciesielski, Stuart Paronuzzi and Richard Warmington. When the prize, a copy of 'Follow the Sapper' was presented to LCpl Ciesielski he showed that he was a true sapper when he told the Brigadier that he already had a copy of his own, Brigadier Le Grys exhorting him to give a copy to his father! The James Walke Prize was endowed by the Walke family in memory of James Walke who was an instructor in the Field Survey Department of the School of Military Survey from 1967 to his death in 1985. The award is now to the student on the Class 1 course who has shown sustained academic merit, outstanding leadership and team spirit for the duration of the course. Brigadier Le Grys presented the 2007 prize to LCpl Martyn Frank. The Terry Straeter Award was donated by Marconi Integrated Systems, now part of BAE Systems, in honour of Dr Terry Straeter and his contribution to the development of digital photogrammetry and geographic systems as employed within Military Survey. The award is currently made to the Class 1 Technician who has made the most contribution to group working and team spirit on the course. Mr Kevin Porter, the Business Development Director Joint Air and Land at BAE Systems kindly agree to make the presentations to LCpl Garry Anderson for 2006 and LCpl Joseph Deboo for 2007.



Then followed two addresses, from the Corps and the Intelligence perspectives. Brigadier Le Grys emphasised the continued and valuable role of RE Geographic within the Corps, and Brigadier Duncan OBE, Commandant of the Defence Intelligence and Security Centre, in the final address

Capt Burrell RN, Director of Training DISC, in conversation with LCpl Steven Fitzsimmons

emphasised the continued and successful integration of both geographic training and geographic expertise within the Intelligence community. And then it was time for the welcome opportunity for the graduates and their families to meet with the academic staff from the university and the military guests over a convivial glass of wine.

It was quite apparent that the graduates realised the importance of the event but as always it is probably the parents and family who were most impressed by their sons' achievements. What is in no doubt is that the Foundation Degree, as well as being an excellent tool for delivery of geographic training, is a very considerable aid in the recruiting and retention processes. It is hoped that Hermitage will continue to stage a graduation ceremony at two-year intervals, particularly as the next two years is likely to see a bumper crop of graduands. Special thanks are due to a number of individuals. Professor Allan Norcliffe has provided continued support to the foundation degree programme as link tutor and Joint Chairman of the exam board even though he has formally retired from the University. Grace Roberts and her team from the University for the second time provided the School with enormous help and guidance in staging such a successful event.

Clearly the foundation degree is proving very popular with the graduates and a number are registering with the Open University to continue their studies. More formal progression to a full degree, through courses at Sheffield Hallam University, is coming to maturity as is also the use of specialised courses run at the School to gain extra credits. And finally, I would like to offer my congratulations to the graduating party and wish them every success in their future academic studies and military careers.

The Vice Chancellor enjoys a glass of wine with LCpls Malcolm Rimmer and Martyn Frank.

A New Perspective on Holy Grails

By Jonathan Shears, Infoterra Limited

Progress is measured from the past

As an ex-Army Survey Course student who has been through the rigours of field surveying, when getting muddy and chapped lips were the signs of a good days work, I have witnessed an immense change in technology, both in terms of the levels of productivity and accuracy. But before dwelling on the detail of technological progress, let me begin with a taste of surveying days past;

"It was a dark, cold November night in 1987 when I was computing geodetic latitude and longitude by Blacks' method using a Wild T4 theodolite as part of my ASC at Hermitage. This is a delicate and precise operation requiring the deftness of touches so as not to cause any movement in the crosshairs and, as instructed by the DS, we had acclimatised the equipment beforehand, so it was now sitting at just below freezing point and oriented towards the right quadrant of the night sky. Feeling slightly exhilarated by the experience and with the thrill that comes from a sense of nervous anticipation, a light moisture had formed on my exposed skin. Carefully positioning my eye behind the telescope, checking again that there was no residual object parallax and hand poised over the micrometer wheels, my whole frame was coiled for action and ready for the passing of the first star.

It was at this point of heightened awareness that I became aware of a coldness drilling through my right cheek. Maybe it was the electricity of the moment, or maybe it was because my face was now rigidly adhered to the T4 casing. It was the latter. As the first star approached the crosswire, would I be able to demonstrate the perfect harmony that exists between man and machine or would my first ever astro observation be an ugly reminder of youthful inexperience? It was the latter. With thoughts of permanent facial scarring raging round my head, I recoiled sharply like a whirling dervish dislodging the T4 clean off its tribrach with all its carefully manicured bubble settings into an ungainly and totally uncalibrated heap on the frozen ground below the trig pillar. The star passed unnoticed somewhere over Chieveley Services."

But that was 1987 and as an exercise in learning about different survey techniques to achieve a particular survey result, it was successful. But this is 2008, a year in which we celebrate 60 years of the Royal School of Military Survey and in the intervening years as newer surveying technologies have been developed and introduced, more technology has graced our science hence there is more to learn, practice and analyse for ASC students of the future.

Holy Grails

Determining geodetic position was a Holy Grail 225 years ago when John Harrison was inventing his H4 longitude watches, but with today's use of highly accurate atomic clocks, the notion of not being able to determine longitude is almost absurd. But that is progress. And despite past achievements, there will always be new Holy Grails appearing on a future horizon. One such elusive twentieth century aspiration was automatic 3D feature extraction and now that we have reached the twenty-first century, it still is elusive. There have been plenty of pioneering landmark achievements in its pursuit, but this article will look at the emerging innovation of mobile terrestrial LIDAR and its contribution to creating 3D databases and hence a basis for 3D feature extraction. Also, due to the predominance of urban warfare, it will investigate not only the military utility of such databases, but also the extent to which it could become a deployed capability for the war fighter and an asset to the theatre commander.

LIDAR – A New Perspective

The system in question is called Rapid Surveyor™ and combines the attributes of traditional airborne LIDAR (Light Detection and Ranging – laser scanning) with terrestrial 'total station' survey type methods. Consequently, Rapid Surveyor™ is a vehicle-mounted laser scanning (LIDAR) system capable of collecting high density, high accuracy, 3D point clouds at speeds of up to 50mph. It has optional optical sensors (wide angle, high frame rate digital cameras or real time video) to provide texture and colour, however the core sensing technology is a pair of next generation laser scanners. Featuring a fundamental new LIDAR design, the sensing head has been completely re-engineered and configured specifically for mobile collection to maximise fields of view. This has been done to overcome the problems associated with earlier attempts of using standard terrestrial LIDAR systems mounted on a vehicle, as illustrated in Figure 1.

Figure 1: Using terrestrial based LIDAR (top) versus re-designed radial LIDAR sensors (bottom) showing increased vertical collection capability

Rapid Surveyor™ is a standard Nissan 4x4 Pathfinder configured with COTS dual class 1, eye safe radial lasers which collect in circular arcs as opposed to conventional line scanning seen in terrestrial or airborne LIDAR instruments. This collection approach ensures a much wider and higher field of view (FOV) and more suited to detecting the target surface with respect to the platform. Each sensor is mounted at specific angles, (see Figure 2) which is currently 45 degrees relative azimuth and 10 degrees relative elevation. This configuration significantly reduces occlusions (shadows from obstacles) in the 3D datasets in a single direction compared to a non-overlapping configuration. Each sensor itself also operates at much higher pulse rates, capable of 100,000 points per second per sensor. As such, it is able to achieve 10cm spatial resolution (on average) for targets at 10m at 50

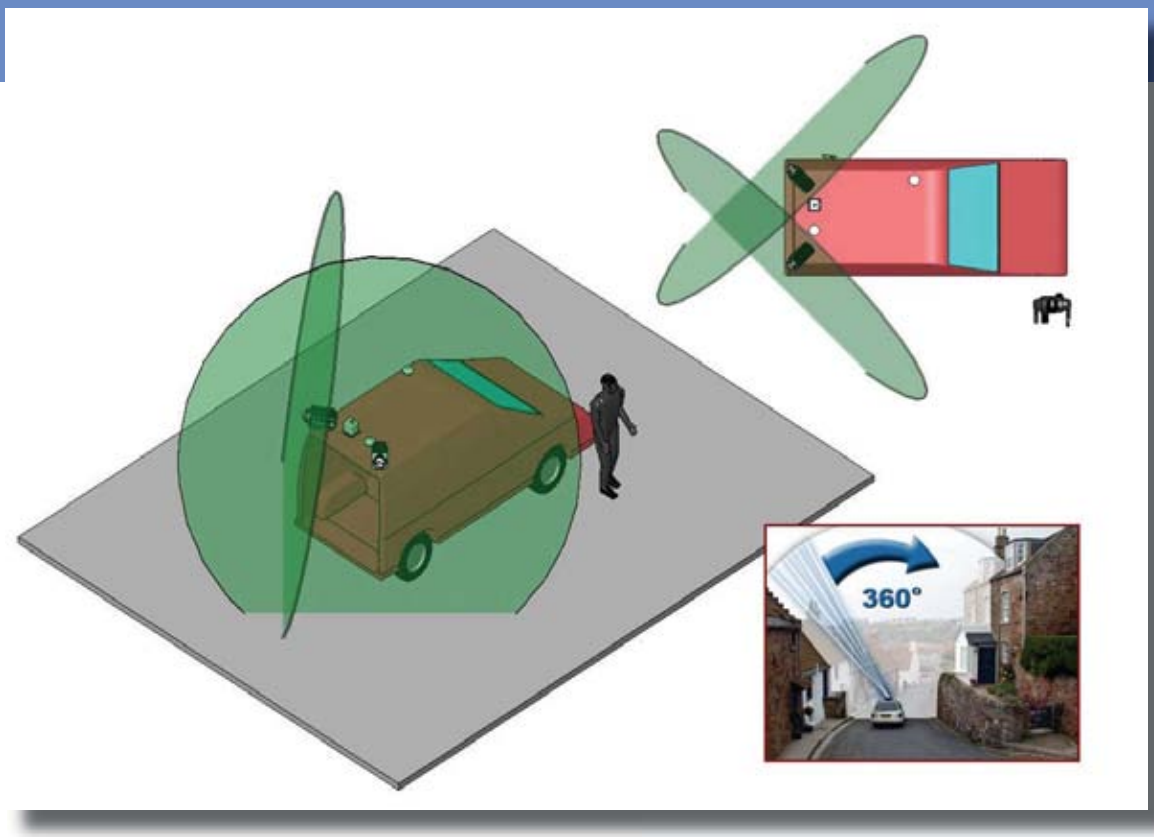


Figure 2:Configuration of radial LIDAR instruments to increase relevant Field of View

km/hr and typical point densities range from 1,000+ ppm on the road surface behind the vehicle, to 20 - 500 ppm on vertical surfaces adjacent to vehicle. Point densities are variable as a direct function of the speed of the vehicle and target distance.

The elevated vertical inclination of the LIDAR units ensures the collection planes can detect features above the vehicle, such as overhead power cables. Early tests have shown that it is possible to collect at heights of up to 20m AGL which is extremely useful for collecting detail high up on buildings, potentially up to the eaves.

The point to point (relative) accuracy of the system is in the order of ±25mm RMSE and the absolute accuracy is determined by the positional accuracy of the senor heads using dual GPS, but typically ±50mm RMSE. Recognising that reliability of GPS can vary, especially in urban areas, the system has back up navigation devices providing redundancy, including a conventional Inertial Measurement Unit (IMU) and a Distance Measuring Indicator, which is a calibrated odometer externally mounted over the rear offside wheel. All three systems work continuously, with the processing software reconciling all inputs to derive a computed position and time. Unless the collection is performed simultaneously to a GPS observation of a known nearby point, then all GPS data will be post-processed.

Combined with the optical imagery, the 3D point cloud can be processed into highly representative and spatially accurate 3D models for use within defence GIS exploitation packages to support a wide range of tactical planning operations and assisting decision-making for commanders in theatre, as in Figure 3.

Key to its utility is the integration of the LIDAR with the optical devices, since 3D point clouds alone do not have the same interpretability, even using the LIDAR intensity images. Rapid Surveyor™ uses two 2 MPixel digital cameras and in order to capture the complete LIDAR FOV, 360-degree video is also an option. Infoterra has created the Rapid Surveyor™ system, in order to provide a cost effective, rapid and highly accurate means of creating digital models of the built and natural environment and it is one of a number of collection platforms, which also includes aerial LIDAR, aerial optical (nadir and oblique).

Operational Utility

Access - one of the advantages of a land-based platform is the superior manoeuvrability compared to an aerial platform, especially for imaging complex urban environments with high building densities, characterised by building overhangs, narrow alleys which otherwise cause occlusions from above (Figure 4). Where land-based platforms are still disadvantaged

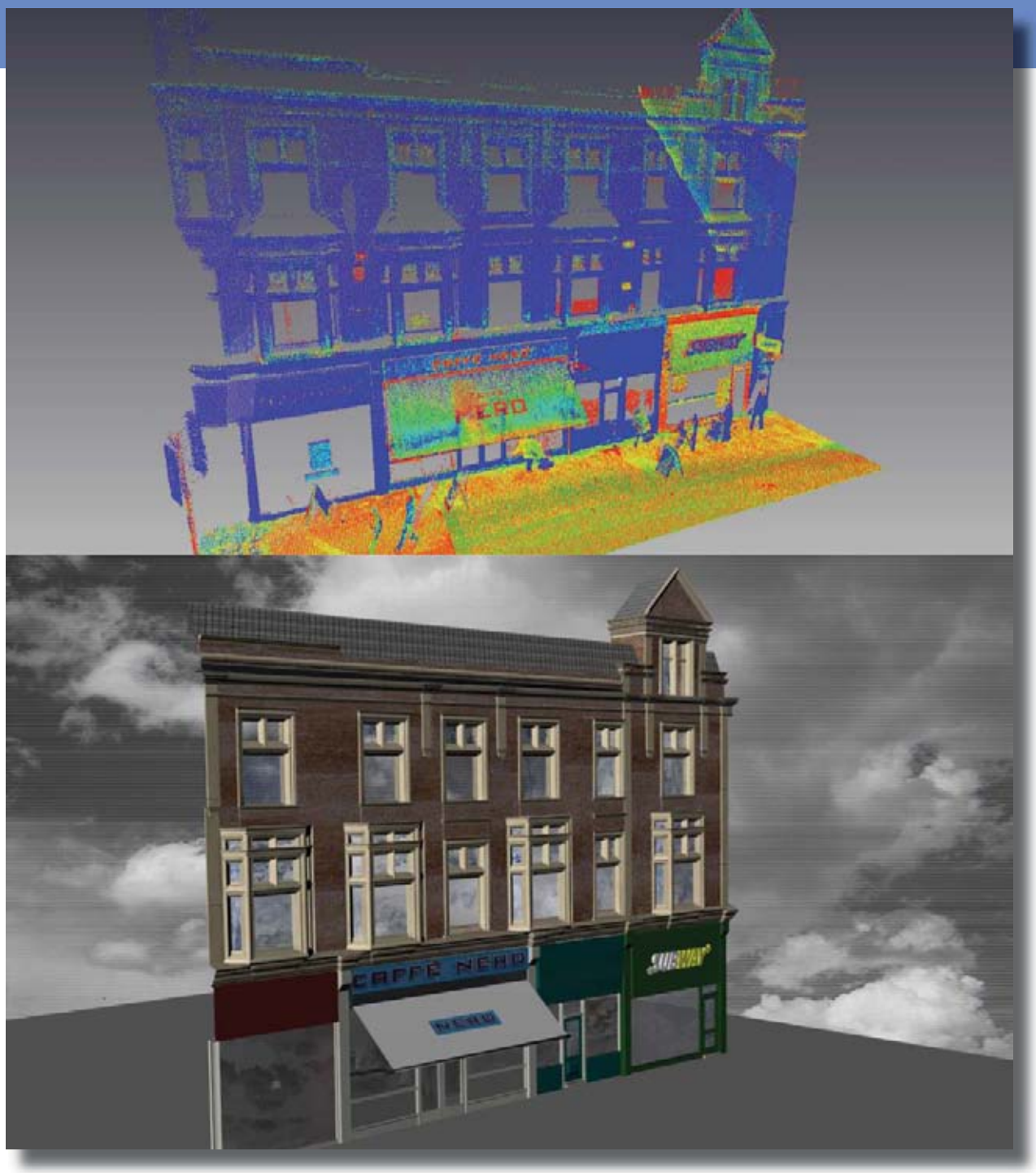


Figure 3: Example of the level of detail of output 3D products

compared to aerial observation, is enclosed compounds typical of many south-east Asian cities and towns, hence the need to integrate with other ISR sources, such as aerial LIDAR, like the US BuckEye system.

Speed – with its unprecedented data collection rates, a theatre-based Rapid Surveyor™ system would be able to make use of small windows of opportunity, such as might be presented by fleeting or chance events. During a recent collection at HQ JAGO, over 34 GB of data was collected in 25 minutes covering all metalled road areas. It is fair to say that collection rates will depend on vehicle speed, but 25 to 200km per day would be achievable depending on type of survey.

Stealth – depending on the level of permissive access or type of operation, it may be required to collect data covertly. Although the current configuration is completely non-covert, the only part that would need to be external to the platform is the rotating sensing head (See Figure 5). The LIDAR has a completely silent operation, as well as being able to operate at night with a detecting range of around 1m to a maximum of 100m. The scanners operate at 1.5µm giving it the potential to image through glass and hence map parts of internal building layouts

Figure 4: Access all areas – JAGO HQ

useful in hostage recovery situations. It is worth noting here that if night operations were required, thermal intensifiers can replace the optical cameras using the same mount points. Like the optical data, the thermal imagery would be used to provide texture rendering for the 3D point cloud.

Survivability – it has a temperature range of -20ºC to +45 ºC and is a completely sealed unit, hence impervious to water with internal desiccant cartridges to control internal humidity. It achieves cooling without the need for fans or exposed heat exchange grills, through its passive cooling design using high external conductivity radiation fins. Field trials have proved that it can be operated for over 8 hours at 35 degrees without any system degradation and adheres to the J1211 standard for robustness validation of automotive electronics modules.

Practicality – like all active laser systems, the LIDAR units do not operate through snow, fog or rain since the presence of particles between the target and the sensing head will impair the path of the energy pulses which is manifest as noise. For the same reason, an operational consideration for theatre use is the type of road surface being driven on, since loose surfaces can result in significant amounts of dust being introduced into the sensing arc of the LIDAR. Front mounting the sensing units would overcome this, although depending on the vehicle, this might compromise the ability to conceal the unit.

Figure 5: Rapid Surveyor™ equipment configuration

Applications

As today's battle zones are invariably focussed on urban or residential areas (Figure 6) where the intermingled concealment of the adversary is higher, as is the risk of fratricide and collateral damage, so a greater degree of spatial awareness is needed in order to conduct operations more successfully without inflicting non-combatant or friendly casualties. Better spatial intelligence would enable a wide range of tactical operations to be undertaken with greater precision and reliability, such as route patrol planning, intervisibility analysis to support assessment of sniper firing positions and Improvised Explosive Devices (IED) placement zones and supporting ground activities such as search and rescue, and air support. For pre-deployment, training in highly representative environments for ground and air troops is essential with high turn around of personnel needing to quickly familiarise with battle space environments and combat tactics and procedures.

Improvised Explosive Devices

However one of the immediate potential uses of using very precise survey tools used close to, or even, within the battle zone is detecting IEDs. As a threat to coalition forces, IEDs rank as the highest contributing factor to casualties and fatalities. In Afghanistan in 2007 there were 2,448 IED incidents and in December 2007 there were six fatalities illustrating the growing threat. Current IED counter measures are all electronic based (jamming, scanning, etc) and in-service equipment such as Locksmith, Micawber and Martlett are all heavy, power consuming and heat generating and operating them detracts the soldier from his duties. Alexin is the future MoD program that hopes to re-shape IED detection solutions and having secured £50 million over the next five years, it will be continue to an Electronic Counter Measures-based solution.

The US Army Topographic Engineering Centre (TEC) has looked at the use of LIDAR for IED detection via change detection (Sarigianis, 2008). Theoretically LIDAR represents a better medium for detecting change than optical sources (Murakami et al, 1998), since LIDAR is devoid of illumination variations and hence removes those noise artefacts. However, previous work on change detection by LIDAR has focussed on building sized objects using 1m resolution data, but with Rapid Surveyor™ one has the research opportunity to use the same change detection approach, but on IED sized objects using 1cm resolution data and therein lies another Holy Grail.

So in pursuit of azimuth by Black's, at least one T4 got damaged, but that is progress. It remains to be seen whether in 60 years time, another ex-ASC student could be writing about the night their face got stuck to the bonnet of a 4x4 Nissan Pathfinder.

Figure 6: Urban Operations are now the norm

Also 60 Years Ago - The Closure of FARELF

By Mike Nolan

Colin Price's recent article on the handover of 84 Survey Squadron's camp and the Map Depot in Dover Road, Singapore to the Singapore government brings to mind that there have been many Survey disbandments and closures over the years and Survey in the Far East has closed and disbanded more than once.

The dramatic events during the Japanese invasion of Malaya and the fall of Singapore are well summarised in "Maps and Survey", HMSO 1952. In addition, an account of the activities of the Malayan Field Survey Company of the Federated Malay States (FMS) Volunteer Forces also survives as does an account of the strenuous efforts to crate-up and evacuate to Australia, via Java, the survey records of the Federated Malay States and Straits Settlements Survey Department. That material is too lengthy to be included here but it is hoped those two accounts, which enlarge upon that in "Maps and Survey", may be added to the DSA website in due course. It is probably too soon to reflect on the move of Survey Branch from Headquarters FARELF in Singapore to Hong Kong in the 1970's and the closure of Geographic Branch, Headquarters British Forces in Hong Kong in the 1990's.

The other closure occasion was 60 years ago. At that time DD Survey FARELF was Colonel JCT Willis. Readers will doubtless be aware of his amusing articles in the RE Journal describing the timely survey of southern Johore and the approaches to the new Singapore naval base in the 1920's and some of his accomplished watercolours still grace the Headquarter Mess at Chatham and the Officers Mess at R.S.M.S. Hermitage.

In January 1948 he wrote a final report on the Directorate of Survey FARELF when that Directorate was about to close down and the situation was to revert to the pre-war one in which there was no Survey representation in the theatre, all survey matters being handled by the Directorate of Military Survey in the War Office. At that time, it is believed that No. 1 Indian Field Survey Company had just departed for India, as had 65 Map Reproduction Platoon and 36 Map Supply Platoon. The Survey Production Centre, under Lieutenant Colonel Biddle, then located at the London & Eastern Printing Building, Hoe Chiang Road was also closing.

His report aimed to present a clear and detailed picture of the survey situation in the theatre for the immediate guidance of the HQ Operations Branch staff who would have to carry on without a survey representative and for those who might have to reinstate the situation in the event of a major conflict in the Far East. His premise was that very little help could be expected from the UK in the event of any major conflict in the way of map stocks, technical equipment and personnel for the first six months and that FARELF should therefore be as self-supporting as possible in these respects for as long as possible.

The principal concern was map stocks. In Singapore 2000-3000 copies of all possible operational stocks had been accumulated to cover anticipated requirements and the Singapore Depot, then located in Pasir Panjang at GR 752093 on the then current one-inch map, and believed to be in a godown in the dockyard area, contained about 20,000,000 sheets. Day-to-day requirements were from an expense store at one end of the building and mobilisation stocks were at the other end on tubular steel racking. Lorries could be driven down a central aisle to reduce hand-carry and all stocks were of course clearly labelled. Arrangements had been with D Mil Svy at GHQ, Melbourne for the holding of emergency stocks to replace depleted stocks at Singapore and to map-up any "Imperial" troops from Australia. Additionally stocks of local operational maps had been accumulated at Ceylon, Malaya and Hong Kong to ensure each area was self-sufficient until replenishment could take place. Separate map stocks for RAF use were established under RAF control at Singapore, Ceylon and Hong Kong.

The map printing situation was reviewed and in addition to the resources available in U.K. and Australia the re-equipping of the Malayan Union Survey Department with British army printing machines, cameras and other equipment was documented. Considerable equipment was transferred to the Survey Department including one quad demy single colour Crabtree, one double demy single colour Crabtree 14-inch, one double demy two colour Crabtree-24 inch, one single colour demy folio Mann, three proving presses, three graining machines, two whirlers, three process cameras, four sets of arc lamps, three contact print frames, a 42-inch guillotine, one Varityper and one slotted

template machine.

In exchange for this material, the Survey Department had agreed to place all its resources at the disposal of the military authorities in the event needed. Mention was made of the smaller resources in survey departments in Hong Kong, Ceylon, Borneo and Sarawak. Finally some mobile technical vehicles including 2 demy machines in two 10-ton Fodens, 2 photo-mechanical 10-ton Fodens, one 3-ton Thornycroft camera vehicle, one 3-ton Thornycroft dark-room vehicle, five Lister 22KW generators and ancillary equipment were handed into Ordnance stores in Singapore though its deterioration in store was anticipated.

Reproduction material, the "raw material" for the "printing power" as he put it, in the form of "Kodalines" (films of each separate colour plate) or "Pulls" (black paper prints of each plate component) had been distributed to the War Office, to Melbourne and to Survey Dept. Kuala Lumpur. In the last case arrangements had been made for air-conditioned storage to prevent deterioration and or distortion.

For future mapping it was pointed out that 70% of the theatre was either very inadequately mapped or not mapped at all and that the only real resources to meet future requirements were in UK where the Directorate had a world-wide responsibility to the General Staff and where local FARELF army or RAF requirements would have to compete with other priorities. He forcibly made the point that even where mapping existed it was often based on little more than reconnaissance surveys supplemented by wartime reconnaissance photography.

Aerial photography of much of the theatre was in the process of being taken by 81 Sqn RAF, at that time using Mosquito aircraft fitted with K-17 6-inch focal length and F52 20-inch focal length cameras with 2 ASLS, then at RAF Tengah, giving support with flight-planning and plotting and evaluation. The original plan was for cover at 1:50,000 scale, with 1:25,000 scale of certain areas, of much of Burma, Malaya, Thailand, Java, Borneo and French Indo-China; with prints going to JAPIC Singapore and to Australia and negatives to Central Photographic Establishment at RAF Benson.

During the latter stages of the Far East campaign the survey organisation had, unusually, maintained an aerial photographic library and this was to be sent to JIB Melbourne. A similar library of unique and record copies of all maps of the FARELF area, from whatever source, was also to be passed to Melbourne after UK requirements had been met. For future users, copies of full and simplified map catalogues had been widely distributed.

The report was supported by 17 appendices giving greater detail on the subjects summarised above, of particular interest to map historians being the appendix briefly describing all the HIND-designated series in the theatre at that time.

This was not the end of the story however. Soon afterwards the emergence of the Communist Terrorist emergency in Malaya led to the re-establishment of a Survey presence in the Far East. That however is another chapter!

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Colonel Simon Fraser OBE

Simon always impressed with his upright bearing, courteous manner and cheerful smile. He was also very bright, a "can do" man, quick to find a solution when one was needed but still able to express his views with simple clarity and even suffer fools politely. These qualities stood him in good stead when, at the highest levels in NATO he was responsible for international protocol and policies in the Military Geographic field.

Born on 29th April 1936 in Edinburgh he was educated at Edinburgh Academy before joining the Army and entering the RMA Sandhurst in 1956. After commissioning, he was sent to the RE Young Officers course at Chatham and thereafter to the Medway Technical Engineering course where he gained his engineering degree and found a lifelong partner, schoolteacher Margaret Sinnett, whom he married in 1958.

In 1960, Simon and Margaret moved to Osnabruck where Simon became a troop commander in 25 Engineer Regiment and they started their family, eventually to be four. In 1962 he moved on to the Army Junior Leaders Regiment at Rhyl in North Wales and followed this with a major career change. In April 1963 Simon became a student on the Army Survey Course at The School of Military Survey, Hermitage leaving the main stream of combat engineering to become a military land surveyor. Beginning in 1964, with two months as a leader (Survey) on the British Schools Exploring Society's expedition to Iceland, he was then posted to 13 Field Squadron in Aden as a field troop commander employed mapping a large area of South Arabia, from the coast inland to the Empty Quarter, under very challenging conditions.

On his return to the UK in 1967 Simon was posted to the Ordnance Survey, then based at Chessington but subsequently at the new buildings in Southampton soon to be opened by Her Majesty the Queen. During the Queen's visit Simon, well turned out in No.1 "Blues" with boots and spurs, became her ADC for the day. When the Royal Party moved into the lift to visit the upper floors, Simon being the last to enter with his back to the doors, the lift refused to move. After a short and embarrassing pause, Her Majesty gently pointed out that the doors couldn't close with the Captain's spurs in the way! Simon made a smart move forward and the situation was resolved. The story of Simon's spurs is now part of the long history of the Ordnance Survey (and no doubt the Fraser family)!

Leaving Southampton to attend the Geodesy Research Course at Oxford University, Simon entered a period of academic intensity as he first developed his own understanding of the science followed by a two-year period at the School of Military Survey as Senior Instructor in land survey and geodesy. Simon rose to, and enjoyed, the challenges.

His next postings included time at the MOD, a spell in Germany in command of 14 Field Survey Squadron before moving back to the MOD to manage the career postings of all officers and soldiers in the Military Survey Service. For this work he was awarded the OBE. He then returned to the Ordnance Survey for two-and-a half years before entering an extended period of work in NATO in the rank of Colonel, as Chief Geographic Officer in HQ AFCENT and then Chief Geographic Section SHAPE. In this field of international co-operation, his outstanding personal qualities and clear appreciation of the factors concerned undoubtedly led to his successful guidance of many a NATO agreement. A busy social life included overseeing the Officers' Club, organising the annual Burns' night and leading the AFCENT Historical Society as President.

On his retirement in 1991 Simon worked with the Royal Signals in Corsham and undertook selfless work in his local community, including acting as auditor for a number of local charities as well as becoming a committee member or officer of several societies and associations. He was honorary treasurer to the Frome festival almost from its inception and occupied the same position with the mid-Somerset branch of NADFAS for several years.

He will be sadly missed by his wife Margaret, their four children, his grandchildren and his many friends.

Eric Barton, Alex Matthews

DEFENCE SURVEYORS' ASSOCIATION
(formerly the Field Survey Association)

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