A note from the Editor

Welcome again to all Association members. Our Association’s two activities since the last newsletter, a visit to the Australian Army Museum of Military Engineering at Holsworthy NSW and Anzac Day in Canberra, are reported in this issue.

Thank you to all who have contributed to this newsletter. I am now looking forward to your submissions for future issues of the newsletter to contribute, in one way, to what I understand are the objectives of our Association: to perpetuate the close bonds of mateship and espirit-de-corps, to preserve and honour the memory of those who made the ultimate sacrifice and to add to a rich diversity of factual and anecdotal history of the Corps and military survey more generally; and to note what hopefully are interesting developments in technical areas.

Regards

Peter Jensen

May 2016  Canberra Survey Corps Association
VISIT TO AUSTRALIAN ARMY MUSEUM OF MILITARY ENGINEERING AT HOLSWORTHY BARRACKS, SYDNEY

By Peter Jensen

On Tuesday 23 February, a group of thirteen of our Association, including a few colleagues from New South Wales and Victoria, visited the newly opened Australian Army Museum of Military Engineering at Holsworthy Barracks in Sydney. The museum includes the RA Svy Historical Collection. It is a part of the Army History Unit with a link to the School of Military Engineering (SME). SME, along with the museum, moved from Moorebank to Holsworthy Barracks into purpose built facilities in June 2015. It is a credit to the Army to fund and sustain such a physically large facility as a part of maintaining Army’s history and heritage. An engineer Leopard tank, bull-dozers, armoured vehicles and graders look almost to be matchbox toys and do dwarf the current Survey Corps equipment display which does however hold pride of place on entry to the museum main collection. The display is under the banner ‘geospatial’ which is the modern term used by Army to describe all things ‘survey’.


The volunteer guides walked us through the enormous main collection on the ground floor, the timeline story and display of smaller items from 1835 to the present, including maps in new map display drawers, then the workshop area where Frank Fisher showed us what mainly he and Phil Bannister are doing with the survey collection. The next project is the huge task to catalogue definitively the Survey Corps collection.
The Ground Elevation Meter (GEM) introduced into service in 1964, with tac plate 932 (School of Military Survey) at the entrance to the main exhibition on the ground floor.

L-R: Magnavox MX1502 antennae on tripod (second generation portable geodetic survey receiver - TRANSIT US Navy Navigation Satellite System data) in service 1982-1993; Geoceiver AN-PRR14 on the box (first generation TRANSIT portable geodetic receiver) - in service 1974-1988; on small low tripod in the middle foreground is a simplex heliograph used for theodolite targets in daylight - in service throughout most of the period of the Survey Corps; on the high tripod on the right is the first generation Tellurometer (tellus or terra - Latin for earth, meter - Greek for measure) MRA1
microwave electronic distance measurement system for geodetic traverse - in service 1958
revolutionising geodetic survey by rapid traverse over long line-of-sight lines of more than 60km.

L-R: second generation Tellurometer MRA2 microwave electronic distance measurement
master/remote for geodetic traversing - in service 1964-c1972; at #7 is a three projector Multiplex
anaglyph optical stereoplotter for map compilation from aerial photography - in service 1952-1970
(used in conjunction with slotted templates for model control)

L-R: map size opaque glass topped back-lit draughting light table used for fair drawing and scribing
(Bill Boyd rightly wondered where the red stabilene and scribe tool were), Wild A6 optical mechanical
stereoplotter
ANZAC Day 2016
By Charlie Watson

Members and family who attended the National Anzac Day march on Anzac Parade to the Australian War Memorial for the National Anzac Day Service at the Stone of Remembrance, or who then enjoyed the reunion lunch at the Kingston Hotel were: Charlie Watson, John Bullen, Len Kemp, Peter Austine, Steve Cooper, John Gregs, Peter Demaine, Dave McLachlan, Paul Baker, Ian Lambert, Kev Kennedy, Kevin Miles, Deborah Miles, Maree Galea, Dawn Laing, April Hayes, Ethan Hayles, Senna Hayles, Peter McCurdy and Robin McCurdy. Apologies for inability to attend the march/service or lunch were received from: Peter Jensen, Steve Black, Gary Drummond, Anne Drummond, Ross Jenkins, Cathrine Jenkins, Roger Rees, Duncan Burns, Orestes Bizak, Peter Ralston, Noel Ticehurst and Gary Hunter.

Vale

It is with much regret and sadness that I report that three long-serving soldiers and officers of the Corps passed away in March and April.

38251 Major Clement James MITCHELL (Ret’d) (known as Jim) was born 23 Apr 41, trained as a hairdresser then enlisted in the Army in Victoria 16 Mar 1964. He served in the Royal Australian Survey Corps for nearly 27 years, retiring on 6 Jan 1991. As a sapper Jim trained as a Topographic Surveyor specialising in photogrammetry. He was soon recognised for not only his dry wit and sense of humour but also for his sharp mind looking for innovative ways of improving quality and throughput of mapping. It is little known that in the early-1970s the concept of the highly successful Operation Skaipiksa to acquire mapping photography for the whole of Papua New Guinea, using RAAF Canberra bombers with Wild RC10 cameras, was first suggested by Jim and another senior-NCO. As a Staff Sergeant he attended University College London to be awarded a Diploma in Photogrammetry and was then appointed Lieutenant in 1975. He was later awarded the degree Master of Applied Science (Survey and Mapping) from the Western Australian Institute of Technology (now Curtin University of Technology), having specialised in advanced photogrammetry. Jim spent much of his time at Army Survey Regiment including as Officer Commanding Operations Squadron. His other appointments included Second-in-Command 5 Fd Svy Sqn, Officer Commanding 1 Fd Svy Sqn, Australian...
Exchange Officer US Defense Mapping Agency and Joint Intelligence Organisation. When Jim retired he worked with the New South Wales Central Mapping Authority. Jim passed away in early-March. Our deepest sympathies and condolences go to his wife Trish and family including children Sally, Lucy and Daniel.

36616 Major Stanley Raymond CAMPBELL (Ret’d) enlisted in the Army on 17 Apr 1959 being allotted to the Royal Australian Survey Corps in the trade Topographic Surveyor. Stan went on to serve for 23 years retiring on 19 Apr 1982. As a Sergeant Topographic Surveyor in 1966, Stan deployed to Vietnam for 12 months service with the first rotation of Detachment 1st Topographic Survey Troop, Australian Task Force. As a Warrant Officer Class One in 1972, Stan was appointed Lieutenant. He was a specialist field surveyor with experience in Australia, New Guinea, Kalimantan Barat and Sumatera, Indonesia before being posted on exchange to 42 Svy Engr Regt in England. From there he commanded detachments to Belize, Central America and Kenya, East Africa. For the three years before retiring he was Officer Commanding 2 Fd Svy Sqn and commander Operation Pattimurra in the Maluku Province, Indonesia. At the same time he oversaw squadron detachments in far-western NSW, Irian Jaya Indonesia, the Solomon Islands, Fiji and Tonga. Stan passed away in early-March. Our deepest sympathies go to his wife Helen, our memories of his wife Hillary (deceased), and to his family including children Jo-Ann, Cinty, Lisa, Andrew and Lynn.

37696 Warrant Officer Class One Dennis Charles DUQUEMIN served in the Army and Royal Australian Survey Corps for 24 years from 5 Jun 62 to 3 Jun 86 as a Topographic Surveyor. In 1966 Dennis deployed to Vietnam for 12 months service with the first rotation of Detachment 1st Topographic Survey Troop, Australian Task Force and went on to serve mainly in field survey squadrions and School of Military Survey. Dennis who passed away in early-April was one of the Corps’ characters with many a young and impressionable student at School of Military Survey graduating from that place with a ‘Duque’ story. Our deepest sympathies go to Dennis’s family and friends.

Dennis Duquemin - CPL in front row with ‘coffee’ cup in his left hand, Stan Campbell second from the right
SURVEY OPERATIONS TERRITORY OF PAPUA NEW GUINEA 1962-1965

By Don Swiney with contributions by Peter Jensen

In the newsletter Issues 2/09 and 3/09 Bill Harvey wrote an enlightening and entertaining account of the Army Survey Regiment, Topographic Squadron 1962 survey operation in Territory of Papua and New Guinea (TPNG). The main purpose of the 1962 survey was to build a high order geodetic survey around the coast and the Markham Valley and where possible connect to the 1962-1965 high order geodetic survey by the Division of National Mapping down the spine of the Owen Stanley Range. These surveys were connected to the 1962-1964 United States Air Force High Frequency Ranging and Navigation or High Precision Ranging (HIRAN) South-West Pacific survey network including Australia and TPNG and went into the national geodetic adjustment to create the Australian Geodetic Datum 1966 (including TPNG). The total length of traverse was 594 miles in 1962 and 1180 miles in 1963. A mammoth task by any measure especially under very arduous conditions of jungle covered rough, steep and high terrain, and tropical climate and weather. In 1964 the Topo Sqn used for the first time the airborne Tellurometer distance measurement system MRC2 Aerodist to rapidly infil topographic mapping surveys. Aerodist lines of 100-200km long allowed trilateration networks to rapidly extend and infil surveys.

Bob Wood, a Survey Corps member who served on those 1963 and 1965 operations, has had sent to Don Swiney via Andrew (Blue) Warwick some photos (see below) from the 1965 operations.

Tom Royle (Corporal) and Don .... In the air transport Catalina. Was this the only time that a Catalina was used for survey operations?

Peter Bates-Brownsword and Len Davies (Warrant Officer) being carried ashore from the Catalina by ‘calaboose boys’ (prisoners) at Kerema.
The LSM was used from 1962 with an embarked Bell G2 light helicopter for low altitude work. In 1963 two supercharged high-altitude Bell G3B1 light helicopters were chartered for New Guinea survey work, one by the Survey Corps work from the LSM and one by Division of National Mapping working on the high order geodetic survey in the highlands. The Bell G3 conducted its first high altitude landing with a practical payload for National Mapping on 23 May 1963, on Mount Victoria, height 13,240 feet. They later landed surveyors and stores on the highest peak Mt Wilhelm, height 14,791 feet.

A story of the high level geodetic survey of New Guinea is told by HA Johnson of the Division of National Mapping (see www.xnatmap.org/report_tdnm/HAJ_PNG/HAJ_PNG_F.htm). Howard Angus Johnson was a former Survey Corps officer having enlisted as a Warrant Officer licensed surveyor in 1936. In the Second World War he was Second-in-Command of 2/1st Aust Corps Field Survey Company in the Middle East in 1941, Officer Commanding 2/1st Aust Army Field Survey Company when that unit was formed and Assistant Director Survey Headquarters New Guinea Force at the end of the war. For his wartime service he was made Member of the British Empire (MBE). In 1947 he and Lieutenant F. Buckland were sent to the United States and Britain to investigate the use of radar for surveying and mapping and anaglyph light projector stereo-plotters (Multiplex) for photogrammetric based map compilation. He
retired as Lieutenant-Colonel in 1954 to be employed in Division of National Mapping. In 1970 his outstanding service to the surveying profession was recognised by the award of a medal by the Institution of Surveyors Australia. In his paper Johnson outlined the work of the Corps highlighting the cooperation and collaboration between the field surveyors of the Survey Corps and National Mapping in New Guinea:

"16.32 Early in the survey, Army parties were occupying AA033 and AA034, two coastal stations 694 and 1320 feet altitude, whilst National Mapping parties were simultaneously occupying Mounts Albert Edward (13,090 feet) and Victoria (13240 feet). It was hoped to measure all distances and directions in this braced quadrilateral, to allow an investigation into the meteorological values under such interesting and widely divergent conditions, but unfortunately two angular directions were still unread when the lower stations had to be vacated.

22.8 In the early stages of the work in 1963 the Army with its powerful receiver, and transmitter which could be tuned, would listen in on our daily A510 schedule between our sub-parties, relaying messages and would make voluntary offers of any support which might help. The two agencies could scarcely have worked in closer cooperation had they been one unit, combining with measurements between adjacent stations, and with instruments, fuel and helicopter assistance to each other.

22.9 It was a comforting feeling to know, should some major mishap arise, that there was powerful, immediate support, operating nearby with the same single purpose of obtaining control to map the country. When the Army Survey detachments, having made earlier arrivals, returned to Australia in the months of November 1963 and 1964, there was a real feeling of the loss of ready and reliable friends in a common cause. It was always a pleasure to work alongside and together with the Royal Australian Survey Corps."

Disbandment of 4th Field Survey Squadron

From Peter Demaine

Greetings All,

Yesterday was the 20th anniversary of the closure of 4th Field Survey Squadron on 3 Apr 1996, the last squadron to close prior to RA Svy Corps closure on 1 Jul 1996.

I had the honour and privilege to be the last Officer Commanding.

To all the men and women regular and reserve who served at 4 Fd Svy Sqn and their families I will always be grateful for your service to this great country of ours and the other countries who benefitted from your expertise.

Videre Parare Est

Cheers

Peter Demaine
4 Fd Svy Sqn with supporting units and aircraft Operation Nervose 1992, at Tindal, Northern Territory. ADF aviation units sought work on survey operations as at that time these operations provided some of the best opportunities for operational flying for aircrew and for aircraft maintenance training in remote areas. Survey operations enjoyed a high priority for allocation of aircraft hours. 4 Fd Svy Sqn was the Army’s only field survey squadron from 1990 to 1996 with the unit responsible for strategic level aerial and field surveys in Australia, Papua New Guinea and the South West Pacific Area. In front is the Global Positioning System (GPS) Texas Instruments TI4100 geodetic receiver and antenna on the tripod. This was the Corps’ primary geodetic survey equipment from 1988 to 1996.

[Editor’s comment: In compiling the Corps nominal roll I was very gratefully provided - by Alex Munro, Arthur Henson, Allan Adsett and Dave Collins - a computer list of the unit roll books of 4 Fd Svy Sqn (1970-1993), Cent Comd Fd Svy Unit(1961-1969), Cent Comd Fd Svy Sect (1954-1960), AHQ Fd Svy Sect 4MD Det (1949-1951). If anyone has a unit roll list for 4 Fd Svy Sqn 1994-1996 or the former unit 1952-1953 I would gratefully appreciate a copy. The latter gap is more important as 1994-1996 is covered by the CARO computer search of that period but I do use any list to compare against official records.

Note - from all of the information provided to me for the purpose of compiling the Corps nominal roll, it appears that lists for units, including their former names: Army Svy Regt (list 1942-1996), 4 Fd Svy Sqn (list 1949-1993), 5 Fd Svy Sqn (list 1946-1990), 8 Fd Svy Sqn (list 1972-1995); are the only aggregate unit lists that have been compiled. If anyone knows of any other unit lists please let me know - thank you.]
TOURS OF FORTUNA VILLA BENDIGO
Tours and high-teas are now being conducted at Fortuna Bendigo, the former home of Army Survey Regiment and its predecessor units. Information is at: http://www.heathcote.org.au/tours/bendigo/fortuna-villa-high-tea-and-tours

WHERE’S WALLY?
By John Mobbs

Wallace James Charles Chilcott (known as Wally to police and mates everywhere), his delightful partner Jan and their cute Cavoodle dog Tullee, have been wandering the Kings Highway! Their current abode - a large Winnebago, rolled into John Mobbs’ driveway at Malua Bay on 13th February for an overnight stay with him and his wife Heulwen. (See picture)

Wally and John share the same birthdate - but 2 years apart. They also go back to January 1969, when they arrived together at Bonegilla from Kapooka, to await the 35/69 Basic Survey Course. Their waiting period included various degrees of mischief (to ease the boredom of dixie-bashing at SMS) - and whilst detached to 2 Fd Svy Sqn for pre-course experience.

Of course, memories of times past, surfaced over a great evening BBQ and several drinks.

John remembers Wally pleading to be allowed to ride John’s brand new Yamaha RD350 kitted out with racing fairing and other “must have” junior-racer bits and pieces.

The motor had also been worked on, even before it hit the road. Pistons and heads reshaped, carburettor jets swapped, ports enlarged and polished, feeding twin sports exhausts.

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With the throttle wide open, it used to emit a sound like a howling banshee as it accelerated frighteningly from the guardhouse, down Bonegilla Rd straight, towards Hume Weir.

John remembers that Wally’s opening line was always: “can I please borrow your bike John? - I promise I won’t race it!”

Such promises were seldom kept, as usually evidenced by the sound of the machine with Wally behind the handlebars.

John on his Yamaha RD350 - Kookaburra Point and Lake Hume

John remembers the CI, Harvey Hall parading him in his office and threatening: “Young man, I don’t know what sort of machine you rode in here on today, but if you so much as harm one hair of your body with it, whilst on course, you’ll be gone!”

In December 1969, after the 35/69 end of course party at Tangambilang Pub, John and Cam Chapman (pillion passenger) came to a sticky ending at considerable speed, whilst (not) negotiating the right-hand bend at the junction of Tangambilang Rd and the Murray Valley Hwy. Result: bike wrecked, beer lost, legs, elbows and egos badly cut and bruised, John & Cam taken to Albury Base Hospital for minor repairs and stitches. Certainly worse than the harming of hairs on one’s body! However, both had already passed their course.

John recalls that he had never, ever, heard anyone swear as loudly as Cam did that night, as they both left the bike and went airborne after hitting a white wooden guide post, having run out of bitumen. Cam appeared to be most concerned about how many large bottles of beer had been broken - he had been carrying a carton on his lap, between him and John.
The official SMS staff response came, not from the CI but from Alex Cairney, who helpfully informed John that the bike had a punctured front tyre, didn’t it ?!?! and THAT must have been the reason that John could not negotiate that intersection. Thanks Alex !!

At 2 Fd Svy Sqn, apart from chatting up lovely nurses (one of whom John later married) on a balmy Sunday afternoon after Speakers’ Corner in the Sydney Domain, John & Wally went on a couple of field trips.

One that they recalled involved working in the Warrumbungle Ranges and hunting an overabundance of rabbits whilst camped on the Coonabarabran showground/racetrack. Methods varied. Initially, these trained killers purchased a .22 air rifle from their Travelling Allowance. This weapon, whilst fairly powerful, had no lasting impact on the rabbits. A semi-automatic .22 Ruger was next and that produced the desired effects. Wally recalled that John humped a 12-volt wet cell car battery strapped to a Yukon Pack, connected to an Aldis Lamp, which Wally carried - the RASvy version of spotlighting, apparently. One night, having fired several rounds at a very conspicuous illuminated rabbit sitting on a burrow, the intrepid duo crept up on the animal and from a distance of less than a metre, Wally walloped it with a large and heavy stick that he was carrying as backup. The rabbit’s eyes both popped out and the unfortunate animal lay dead at their feet. Closer inspection revealed that it had a heavy dose of Myxomatosis and was most probably blind even before it met its cruel fate! They both remembered laughing so much that it hurt!

Other humorous events during that field trip were also recalled under provisions of “the older we get, the better we were” protocols, known to many of us. Both agreed that they had been very lucky to have joined RA Svy in the first place and even luckier to have led charmed and exciting lives whilst serving in the Corps.

It seems that nowadays, a visit by Wally usually results in the appearance of a visiting card of sorts - as evidenced by the sticker that John later found on the rear window of his Pajero. Recognise it in the attached picture? You may not know where he is now - but you can certainly see where he’s been!

[Editor's comment, from a fellow alumnus of 35/69 Basic Survey Course: Good to hear that Wally is still enjoying the outdoors. Forty years ago Wally was serving with 2 Fd Svy Sqn in Irian Jaya on Operation Cenderawasih 1976. The photo below is at Kaimana where Wally was in my Geoceiver team.]
Wally is observing the vertical angle to the tide gauge at the wharf to compute the mean sea level height of the survey station mark under the tripod. Wally set up the theodolite (WILD T2) for his height but then needed a little extra lift (the concrete rubble) to observe the depression angle to the tide gauge. In the background behind the wharf bollard is the geodetic receiver (Geoceiver) AN-PRR14 antenna and preamplifier removed from its tripod under the theodolite tripod over the survey station mark. The Geoceiver observed the apparent change in frequency of radio signals (the Doppler effect) transmitted from TRANSIT low-earth orbiting United States Navy Navigation Satellites, as they orbited the earth in line-of-sight to the survey station. The field data, recorded on punch-paper-tape, was field validated by the surveyors and later processed on main frame computers in Canberra to provide three-dimensional coordinates accurate to 1-2 metres averaged over a few days and about 25 satellite passes of balanced east-west-overhead and north-south passes and using post-orbit computed precise ephemerides. Station mark heights determined by Geoceivers were heights above the reference spheroid of the satellite precise ephemerides reduced to mean sea level by observation at tide gauges and from the global model of height differences between the sea-level surface and the spheroid. Geoceivers and later generation TRANSIT equipments were the primary geodetic survey equipments used in Papua New Guinea, Indonesia, the South-West Pacific nations in the Defence Cooperation Program and for the scale 1:50,000 military topographic mapping of Australia from 1974 to 1988 with some used until the end of TRANSIT in 1993 when that system was replaced by the US Global Positioning System.

At Kaimana we stayed in a local ‘hotel’ close to the survey mark at the wharf as there was no camping site near the station. There were no other guests, no glass windows only bars and wooden shutters, but a single bed each which was a luxury as one of the three of us was always in the Geoceiver tent at the wharf. Our meals were provided by the ‘hotel’, but after a few days of rice with two fried eggs for breakfast, lunch and dinner we asked about some ‘daging’ (meat)…….a mistake it should have been ‘daging sapi’ (beef)……as we had seen some beef cattle near the road from the airstrip into town. That lunch we had some off the bone meat, tasting a little strong, but nevertheless meat. Next meal was the same meat but with a ball and socket joint, definitely not from a beef cow, and the meat wasn’t pork. Very suspiciously we asked what it was, with a smiley answer ‘anjing’ (dog).]

Faces of the Corps Crossword #2 - WHAT’S IN A NAME?

By John Mobbs

Solution to Crossword No.1
Crossword No.2

Used up all of your expletives? Here’s another wordy challenge from John Mobbs.

View the selection of framed photographs from the 100th Anniversary USB drive “RASVY 1915 – 2015. Identify the Corps identities or something in the titles and use them, with the cryptic clues, to populate your crossword.
ACROSS
4. Never loses, we hear
5. Did he say “Ban The Bomb?”
7. Hide the short lady sheep from view
9. Greek micron’s burial site, on LHS
10. Top of the range
12. Possibly a basket case
14. As a SNCO, did he have six stripes on each sleeve?
16. As Irish as they come
18. Change name - he’d still smell OK
20. We suppose he’s Allan’s boy
21. The buck started here, maybe
23. He may follow suit, we hear
24. Did they find a throwing stick here?
25. Don’t praise HIM – he’s a just a NAUGHTY boy!
28. Diagrammatically he’s quite circular
29. Could he have been any better?

DOWN
1. Made from off-colour pigs?
2. Was he a valet, then?
3. Small lobster beside French sea
6. Hang on – he’s white isn’t he?
8. Caused by too much melting snow?
11. Less than forward progress here
13. Kinda rocky pile? No worriessss!
15. Get ‘em Rex!
16. He turned water (and honey) into wine – sweet!
17. Did he start the new Japanese fad for liberation in a skin-tight suit?
19. Spider territory in the cliff
22. He certainly climbed mountains but not as one of those first three
24. We hear he was never wrong
26. Pat him down for splinters
27. He’s a drip in the morning

(Answer in the next edition)
A follow up on the story in the last newsletter of TA Vance’s work in the FCT 1914-1915

By Peter Jensen

This Crace trigonometric (trig) station, on Crace Hill, was used by Thomas A Vance (later Colonel, Australian Survey Corps) in 1914 as part of his trigonometric survey of the new Federal Capital Territory (FCT) now the Australian Capital Territory. The hill is a low, apparently insignificant, rocky knoll just west of the Canberra racecourse and the Federal Highway. It is approximately on-line between Mount Ainslie trig (in the left-background in this photo on the left) and the One Tree Hill trig in the next photo (on the skyline on the left of the small bush on the right). Crace Hill is a ‘geological monument’ with its rare to the area surface outcrop of a volcanic flow. The concrete footing for one of the quadrupod legs is inscribed ‘Crace 18-4-70’. Obviously this is not the beacon erected by Vance in 1915. Here Vance observed astronomic longitude. Did he use the telegraph line from Ainslie Post Office to Yass to access a time signal? The line followed the road, now the Barton Highway, a few hundred metres south of the station.

At Crace Hill looking north-west to One Tree Hill trig
This hill is not to be mistaken for the hill which is part of the new suburb of Crace about 3km NW of Crace trig. On that hill there is a survey mark (the Gungahline trig on the map below) in a dropper but there is also a very grand new memorial to Rear-Admiral (later Vice-Admiral) Crace, Royal Navy, who was born at the Ginninderra homestead near the Barton Highway crossing of Ginninderra Creek. Crace commanded the blocking force of Australian and United States naval ships which stopped Japanese Navy ships from transiting Jomard Passage in the Louisiade Archipelago east of Milne Bay during the Battle of the Coral Sea in May 1942.

Part of the Survey Section RAE(P) 1 mile military map (field survey work 1912-1914) of Canberra - not to scale, Crace trig is about 3km SE of Gungahline trig

The “History of Cartography”

Contribution by Bob Williams

Thank you very much to Bob Williams who responded with the following to the article “History of Cartography” in the last newsletter.

“The History of Cartography is just an amazing publication; or rather a set of publications. The one that you are referring to here is actually Volume Six -

http://www.geography.wisc.edu/histcart/

The 2 Part Volume is over 1900 pages of which contributors were assigned 1300 words (excluding reference). It was published last year. I made a contribution back in 2008. I can’t find my final version but have attached one version previous. I believe that the only changes were stylistic by the editors. My contribution was a blend of extracts from books and articles by other corps members.

History is always interesting. Things can happen/change between dates that can have a (very) long term impact; e.g.1984-86 AUTOMAP2. AUTOMAP 2 was intended to take us in to the future of digital mapping and a whole new way of managing information. I was at U Wisconsin in 1983-85 and my thesis was concerned with
Analysis of infrastructure information and Cartographic Enquiry Systems. US exchange Major John Charland was at Fortuna and was active in the project and made a presentation at an international conference in Perth in 1984 (the introduction of his paper attached.) BUT something happened (probably) in the first half of 1985. An amendment (possibly Amendment 13 [I don’t have documentation]) that was ill-informed deleted (as a cost saving initiative) the link to the DMRMS and replaced it with a link to a feature code table (similar to AUTOMAP 1) and so AUTOMAP 2 remained a mapping system.

How time flies – do we still need the leap second?

By Peter Jensen

On our trip to Sydney to visit the museum I had three passengers in the car, two of who were 2 Fd Svy Sqn 1976 old boys, Don Swiney and Gary Hunter. We noted that this was the 40th Anniversary of Cenderawasih Force of which we three were all members, with Don being the Force Commander and Officer Commanding 2 Fd Svy Sqn. Don said where have the years gone Peter and we spent much of the next three hour drive reminiscing about that. Of course our recollections of events were about instants of time but Don’s question related to the period of time since 1976.

Now to the matter of an instant of time. We all know that the ‘leap year’ every four years (with some exceptions) keeps our Christmas in December, which would now be in July if we didn’t account for the fact that the earth’s orbit around the sun is not exactly 365 days but actually about 365 and one-quarter days. So the need for an extra day in our calendar every four years.

A major contemporary issue for the scientific and technology community is whether to maintain the ‘leap second’. What!! you may say? But as you slept quietly at 23:59:59 on 30 June last year, the next second on many of the world’s clocks including those that regulate network timing on your mobile phone and other computer based devices was 23:59:60 and not 00:00:00. That came a second later but it had nothing to do with the Survey Corps’ 100th Anniversary celebrations the next day. Notwithstanding, many of us remember the ‘coming-coming-up’ to record by stopwatch or chronometer and chronograph the timing of sun and star crossings. Also needing to be measured was our individual ‘personal equation’ as a constant to be applied to the recorded time. Leap seconds are introduced at an irregular interval to keep the global timescale (Coordinated Universal Time or UTC) as maintained by more than 200 extremely stable atomic clocks (many stable to better than one-trillionth of a second) around the world within a second of time measured by the earth’s rotation on its axis in relation to the sun. The earth is slowing down in an irregular way meaning that solar days are fractionally longer. Since the beginning of UTC, in its present form on 30 June 1972, 26 leap seconds have been introduced, such that International Atomic Time (TAI) is now 36 seconds in front of UTC – the notional difference was 10 seconds just before when the leap second system was introduced.

The need for a leap second, which is identified six months in advance, is the responsibility of the Earth Orientation Center of the International Earth Rotation and Reference Systems Service.
Arguments for those in favour of discarding the leap second include: it has the potential to create chaos (remember Y2K) in key global infrastructure which are dependent on accurate, precise and synchronised timekeeping and time dissemination systems; that many parts of the world already divorce time from the actual earth’s rotation when daylight savings is implemented and that if the leap second is discarded it will be another 600 years before noon is 1 pm.

Those in favour of keeping the leap second say that: the system has been in place now and working with computers for nearly 45 years; those responsible for computer software controlling these key systems understand the differences and have been able to account for the leap seconds when they are introduced; change may require redefinition or renaming of UTC which may have unintended legislative, legal and technical consequences and that not enough is known about the long-term consequences that divorcing time from the actual earth’s rotation rate will have.

This conundrum is the responsibility of the International Telecommunication Union which was to make a decision in 2012, was deferred to 2015 and has been further deferred until the conference after next, which will be in 2023, allowing time for more study into the consequences of changing the system. Meanwhile the leap second system remains in place. The last leap second was on 30 June 2015 and there is none planned at the moment https://hpiers.obspm.fr/iers/bul/bulc/bulletinc.dat

The present draft position of the Australian Government is to discard the leap second “owing to the effort and risk associated with the current leap second system”. If any of you have a strong opinion one way or the other, you may wish to contact the responsible agency through http://www.acma.gov.au/Industry/Spectrum/Spectrum-planning/International-planning-ITU-and-other-international-planning-bodies/

As an aside, the starting epoch for GPS time, which is a major disseminator of timing signals, was 6 Jan 1980 when GPS was synchronised to one-millionth of a second with UTC. Because GPS time (also an atomic time) does not account for leap seconds it is now 17 seconds in front of UTC and will always be 19 seconds behind international atomic time as that was the case on 6 Jan 1980. Interestingly the Russian Global Navigation Satellite System does account for leap seconds.

**Our Association Calendar 2016 – the fridge magnet**

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<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri 1st July</td>
<td>101st Corps birthday lunch</td>
</tr>
<tr>
<td>September - October</td>
<td>Golf Day (SNAGA)</td>
</tr>
<tr>
<td>Fri 11th November</td>
<td>Remembrance Day dinner</td>
</tr>
<tr>
<td>November</td>
<td>Visit to Aust Army Museum of Mil Engineering (on a Saturday)</td>
</tr>
<tr>
<td>December</td>
<td>Christmas drinks</td>
</tr>
</tbody>
</table>

*May 2016  Canberra Survey Corps Association*