

***A CENTURY OF SERVICE:
100 YEARS OF THE AUSTRALIAN ARMY***

***THE ROLE OF MILITARY SURVEY:
BENEFITING THE CIVIL COMMUNITY AND THE ARMY***
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On 11 April 1910 four British Army other ranks stepped off the mail steamer *Omrak* at Melbourne to commence a two-year engagement with the Commonwealth Military Forces. They were members of the Royal Engineers and, with a locally-appointed lieutenant and a draftsman, constituted the first appointments in the newly-raised Survey Section, Royal Australian Engineers, which had been created to embark on an ambitious but formidable undertaking. This was to progressively provide complete coverage of the Australian continent with a unified series of tactical topographical maps at a scale of an inch to a mile, or what later became the 1:63,360 series.¹

The first printed sheets under this program appeared in 1913, and were immediately hailed as a useful and valuable 'national work' by a range of other bodies, both government and civil, which stood to reap considerable cost savings through the availability of proper maps.² Included among these users were State lands, railways, water supply and mines departments, universities and technical schools; even the Housing and Town-Planning Commission benefited. There was, in this, early recognition that a project which had been undertaken primarily to meet a military need could also hold enormous value for the civil community at large.

Despite additions made to the strength of the Survey Section, which in 1915 became the Australian Survey Corps, the resources which the Army was able and willing to invest in this activity were always modest. By 1931 sixty maps had been published, but this represented barely one per cent of the continental landmass of Australia and at that rate it was despairingly estimated that the mapping task was likely to 'take 1000 years' to complete.³ Happily, it did not take that long, because other Commonwealth and State mapping agencies entered the field after World War II. This enabled the commencement of a scheme to completely map the Commonwealth at a scale of one inch to four miles (what became the metric 1:250,000 series in 1956), a program which reached completion in the late 1960s.

In anticipation of this landmark, in 1965 the (now Royal) Australian Survey Corps took on a share of a new scheme to re-map at the larger—and hence more useful—scale of 1:100,000. By 1980 this task, too, was close to completion (it was actually finalised in December 1982), and the Army began planning for yet another map series at the military-preferred scale of 1:50,000. Since such a program was expected to entail a total of 7360 individual sheets, the requirement was cut back to 2600 maps by focusing solely on defence priority areas across northern Australia and the main land communication and supply routes. This work was still underway when the Survey Corps went out of existence in July 1996, amalgamated back into the RAE from which it originally sprang.

By the time of this change the Army could point with rightful pride to the very considerable role it had played in the nationally important work of mapping Australia. Not that this accomplishment was widely trumpeted or greeted with acclaim by a grateful nation. On the contrary, the unspectacular achievement of the Army's surveyors was, and continues to be, largely taken for granted within the wider community. Within the civilian agencies which were concerned with progressing the mapping task in the postwar period, however, the Army's involvement was periodically the focus of fierce debate and controversy over some thirty years. Even within the Army itself, the goal and extent of the service's commitment in this field was occasionally subjected to questioning and challenge. It is these episodes, and more especially the differences in philosophy and objective which they highlighted, that form the subject of this essay.

Since there were no real competitors to the Survey Corps' role until after World War II, it is understandable that there were few objections expressed outside the service before that time. Indeed, external agencies were only too happy to see the Army engaged in this way, and full of praise for its endeavours and products. In 1928 the Army's chief, Lieutenant General Sir Harry Chauvel, remarked on the continual flow of requests for maps received from federal and state departments, as well as semi-government organisations and commercial firms. This support extended right up to the point where Chauvel suggested that it seemed reasonable that 'full financial responsibility for producing these maps should not rest on Army funds'.⁴ Only when the Army convened a conference late in 1929 to pursue this approach with State authorities did endorsement evaporate, and significantly it represented not an ideological rejection of Army participation but purely an aversion to making a financial contribution.

So, until World War II it effectively remained for internal critics to raise any objections that might be voiced over the propriety of, or necessity for, Army involvement. Opposition was, in fact, present, and at a surprisingly early stage. The terms in which this resistance was expressed shows that those holding counter views were genuinely calling into question the fundamental basis upon which the mapping program was based, but for a mix of reasons that was both principled and self-interested. To understand what these motives actually were, it is essential to briefly sketch in some historical background.

At the time at which the Department of Defence opted to borrow RE personnel to create a basis for the Survey Section, the Army already had in existence a body engaged in attempting to overcome the recognised lack of military maps. This was the Australian Intelligence Corps, a body of citizen officers authorised in December 1907 and brought into being during 1908 to perform an information-gathering role which included topography. Problems in making the new corps' organisation functional, combined with the realisation that there were limits to what could be expected of personnel working only part-time, meant that the deficiencies which it was meant to remedy continued for some time. In December 1909, fully two years after the AIC's creation, sharp criticism was being voiced in federal parliament over the dearth of proper military maps, this being described as 'a state of things... so criminal that someone ought to be prosecuted'.⁵

In fact, the real cause of dissatisfaction with the maps being produced by the AIC lay more in content than with output. The work of the Corps was almost inevitably focused on meeting the need for maps which was the most immediate, usually areas which were the site of training grounds for militia formations during annual camps and manoeuvres. The quickest way of producing such maps was by adding cultural detail, timber boundaries and contours to portions of existing civil maps.⁶ These were State lands department parish or hundred plans, the product of cadastral surveys necessary for land title registration and revenue assessment purposes. The outcome was that the AIC maps which resulted were only marginally better than those they were intended to improve upon, often contained the same inaccuracies as the originals, and in any event— because of the ad hoc manner in which they were called for— did not form a standard and cohesive set of joinable sheets at the one scale.

Realising that the course upon which the Army had embarked with the AIC might not be the best way to proceed, as early as November 1908 the Chief of Intelligence, Colonel W.T. Bridges, wrote to London seeking advice.⁷ His letter ended up on the desk of Lieutenant Colonel C.F. Close, who had been head of the Geographical Section of the General Staff at the War Office since 1905; in August 1911 Close would become director-general of the Ordnance Survey, the half-military, half-civilian organisation charged with mapping the British Isles. The reply which Close sent in March 1910 outlined the beginnings that should be made on a systematic mapping program which specifically eschewed using 'any existing revenue survey or cadastral compilation'. Proceeding this way, he bluntly warned, had been 'frequently attempted in many parts of the world and has always failed'.⁸ What Close recommended was that any program to produce high quality topographical maps which was undertaken in Australia should be based solely on geodetic survey, a system of triangulation from control points the position of which had been fixed precisely on the earth's surface.

There is no evidence that the response received from Close triggered consideration of what the Army's involvement in the sort of program he proposed should properly be. The plain reality was that, in the absence of any civilian agency with an interest in carrying out such a task, let alone the ability, there was simply no alternative to the Army taking it on if it was to obtain the maps that it legitimately required for tactical purposes. In his original approach to London, Bridges had enquired about the possibility of obtaining British Army surveyors on loan—a request which clearly indicated his own thinking on the nature of the problem which the Army faced. It was Close's suggestion of the smallest field team that was feasible which set in motion the train of events leading to the arrival of the four RE personnel to pursue the goal he had enunciated, albeit in conjunction with and under the direction of officers of the AIC.

By 1913, at which time the first maps produced by the Survey Section were rolling off the printing presses, it was discovered that the course pursued by the Army had not proved as successful as expected. The plain fact was that these sheets were not accurate enough for military purposes. As was realised by the Director of Military Operations at Headquarters, Major C.B.B. White, Close's insistence on a rigid adherence to a framework of triangulation had been justified but ignored. In August White declared that he was convinced 'some efficient system of triangulation is an essential to further progress'. Whether inspired by White's disenchantment or fuelling it, the officer appointed to command the Survey Section from 17 March that year, Lieutenant C.V. Quinlan, proposed a solution. He urged the formation of a small trigonometric party within the Section to provide the framework for subsequent field work.⁹ This was just what those who understood the problem wanted to hear, since Quinlan had been selected for his post precisely on the basis that he had prior experience in controlling triangulation work.¹⁰

Quinlan's plan did not convince everybody, however, and opposition to his plan emerged from some surprisingly senior and supposedly well-informed quarters. Among those who objected was Lieutenant Colonel John Monash, then commanding the Victorian Section of the AIC, who stressed that:

We are not embarking on anything in the nature of an Ordnance Survey ... our maps are not intended for any purposes connected with the civil administration, and ... therefore the only criterion to be applied, as to the degree of accuracy, degree of detail and artistic finish is their utility for military purposes.¹¹

Monash evidently believed that what was proposed exceeded the strict requirements of the service and was meant to meet some external object serving the wider community. He was not alone in this misconception. After a geodetic subsection within the Survey Section was raised and set into action in 1914, a survey draftsman in the Victorian Lands Department named H.B. Walters protested to the CGS that geodetic survey was a retrograde step and demanded an inquiry into the matter. He urged a continuation of the AIC's existing system 'inaugurated by Colonel Monash, whose professional qualifications are beyond question'.¹² The motives behind Walters' stance become clearer once it is realised that he was a captain in Monash's section of the AIC and had been passed over for the position which Quinlan secured.

Captain Walters did not get the inquiry he sought, and dispute over the issue which apparently lay at the core of affairs probably only hastened the decision to remove the Survey Section's operations from the control of either the AIC or Engineers by forming it into a separate corps the following year. What is plain is that this brief episode of resistance to the Army's embarkation on what became an eighty-year mission to map Australia was not taken seriously by authorities at the time. Monash's sincerity in expressing concern that the service risked intruding into an area which was properly a civil responsibility cannot fairly be doubted, certainly not on the basis of what little we know about his attitude, but it is also clear that both he and his supporters were technically ill-informed about what was at stake. Thus the Survey Corps was left to soldier on for the next thirty years, through two world wars and an intervening bout of economic austerity which saw its structure cut to the bone. The next challenge to what it was doing, and why, did not arise until World War II was in its final stages, when Army authorities found time to lift their gaze towards the far horizon of a postwar period and begin planning for it.

Late in 1943 an innocent request was made by the premier of Western Australia, about obtaining air photographs for development purposes, which was to have far reaching consequences. This approach prompted a decision to reactivate the Commonwealth Survey Committee, a body formed in 1936 to provide some coordination of mapping needs and activities across Australia but which had gone into limbo since the start of the war. Before doing so, the Committee had made proposals for a national mapping scheme to serve both defence and developmental purposes, which envisaged the creation of a section within a federal department such as Interior that would, functioning under a qualified director, control all government activities in the field. This did not require any change in the way that the Army's survey organisation operated, merely that it worked in accordance with a broad scheme along lines which the Committee laid down. Notwithstanding the promise of great progress which the scheme embodied, the States declined to contribute anything more than approval and access to information that they held, and there matters promptly stalled.¹³

What the request from Western Australia now brought into the open was a determination on the part of the Army's Director of Survey, Colonel L. FitzGerald, that his Corps would assume a pre-eminent role in post-war arrangements concerning survey. Accordingly, he aimed to see the revived Survey Committee become the central advisory body, while the Survey Corps assumed the mantle of national survey organisation and took over responsibility for certain mapping on behalf of the states. For this reason he was convinced that the Survey Committee must be reorganised, to ensure that the Army's authority became paramount.¹⁴ To someone like FitzGerald, who had joined the Corps as a corporal in 1923 and come up through its ranks during a period in which it had the topographical mapping field virtually to itself, such an outcome must have seemed perfectly logical and natural. Not everyone shared his vision, however. Chief among those who opposed FitzGerald's view was F.M. Johnston, the Commonwealth Surveyor-General, who actually chaired the meeting of the Survey Committee which finally took place at Canberra in August 1944. He was considerably put out when FitzGerald, supported by the Navy and Air Force members present, spoke against a call by representatives of the departments of Post-War Reconstruction and Supply and Shipping for the creation of a new authority. The issue Johnston saw at stake was that 'the national survey organisations established in Great Britain, Canada, India, South Africa and USA all function in their respective countries under the control of a civilian department'.¹⁵ While he understood that the services were anxious to maintain their respective survey and mapping organisations in the postwar period, he was as equally determined as FitzGerald that control in this matter would ultimately rest squarely in civilian hands.

The sorry story of the unseemly brawl that erupted in ensuing years is treated at length in my history of the Royal Australian Survey Corps. What is relevant to the theme of this essay is the difference in philosophy and purpose revealed by the dispute over the creation and activities of what began in 1947 as a National Mapping Section within the Department of the Interior. This had become the National Mapping Office in 1951, shortly before the government received a muddled and contradictory report from Major General RL Brown (Director-General of the UK Ordnance Survey) on how Australia's rate of map production could be increased.¹⁶ The result of Brown's visit was an unambiguous Cabinet ruling in July 1954 that the 'single authority' controlling the national mapping effort was to be the Department of the Interior, and that the Army was to hand over all responsibility as well as its 'staff normally employed thereon' for specific tours of full-time civil duty.¹⁷

Predictably, the Army was outraged at this ruling, especially when it received what was effectively a letter of demand that it vacate the survey and mapping field by 1 July 1955. Such a course would have effectively reversed any former cause for complaint that it was intruding into a civilian preserve. Now, all responsibility for military mapping was to be surrendered to a minor civilian department, including the management of Army obligations under top secret agreements with Allies! It did not really soften the blow when the National Mapping Office was transferred next year to the Department of National Development, there to be renamed the Division of National Mapping. Only after many further exchanges of rancorous correspondence was a working arrangement agreed under which the Army remained actively involved in mapping, with the Survey Corps' activities being co-ordinated into a national program approved by a new standing body called the Advisory Committee on Commonwealth Mapping.

Having followed events forward to an extent, let us step backwards for a while to consider the underlying vision for the Survey Corps held by Colonel FitzGerald at the end of the war. Understanding his outlook is important because he remained as Director of Survey until 1960, when he retired after seventeen years in the post. Was it simply, as Johnston seemed to think, a classic case of FitzGerald protecting Army's turf, or was there more to it? The large volume of FitzGerald's correspondence which has survived reveals a complex amalgam of goals and justifications behind his position. Undoubtedly he did not want the Corps, which had surged in size from just 50 in September 1939 to nearly 1700 by 1944, to merely wither away again to its 'starvation prewar number'.¹⁸ But he argued that retention of a Corps of sufficient size (he wanted 500 personnel) was essential to seeing the peacetime task of mapping Australia progressed within a reasonable time-frame, and pointed to the outstanding national asset which the Corps represented in the war's last stages. Did not it make simple sense to employ the skills possessed by the Corps to the nation's benefit?

Johnston and others clearly believed that FitzGerald's enthusiasm for involvement in national development projects was purely a ploy to provide a rationale for maintaining the Corps on a scale which could not be justified on grounds of its military mission alone. (There was certainly truth to this charge, since many of FitzGerald's private utterances give this very distinct impression.¹⁹) Not just the States were prepared to build up the survey and mapping operations of their lands departments to an extent not seen before the war, but the Department of Post-War Construction (later National Development) was a new player on the geographic resources scene which was also keen to recruit surveyors.²⁰ Did it not make equal sense for the skills acquired by members of the wartime Corps to be dispersed back into the civil community via the medium of the rapidly growing number of agencies wanting to become active in the field? Among those who thought so was the Minister for the Army in 1947, C. Chambers, who told his departmental secretary in unequivocal terms that he did not consider that the Survey Corps should be 'built up to carry out work that could be carried out by State or other Federal agencies'.²¹

One of the ironies of the situation which developed was that many of those with whom FitzGerald and his successors had to deal, as heads and senior officers of sister agencies, were men who had also served in the wartime Survey Corps. Even the figure who was FitzGerald's arch-opponent in National Mapping—its director, B.P. Lambert—had been a senior major in the Corps, having finished the war as Assistant Director of Survey with 1st Australian Corps. It has been said, with what accuracy is now impossible to establish, that the enmity between the two men actually dated back to the period in 1940-41 when Lambert served in the Middle East as a lieutenant in the 2/1st Australian (Corps) Field Survey Company commanded by the then Major FitzGerald.

This then was the basis of the protracted dispute which was not finally put to rest until 1987, when the Division of National Mapping was disbanded and its mapping functions absorbed—along with those of the Australian Survey Office—into a new body, the Australian Surveying and Land Information Group. In the meantime, however, the Survey Corps had not been entirely debarred in the immediate postwar period from pursuing its goal of becoming involved in national development projects. These instances occurred in the years before 1950, a time when FitzGerald was vigorously seeking to demonstrate the Corps' capacity for such tasks and, in turn, using this effort as a means to fend off attempts to slash funding for his Corps' activities.

When confronted in August 1946 with a review of budgetary estimates that threatened to further prune £10,000 (\$20,000) from the Survey Corps' funds, FitzGerald was able to point out that since the original figures had been framed the Corps had been directed to undertake two important tasks on behalf of other government departments.²² The first of these was the production of administrative maps required urgently by the Bureau of Census and Statistics to support the conduct of the national census planned for 1947. Because this work was beyond the capacity of the Department of the Interior, the Survey Corps had been directed in early August to assist. A special detachment of some twenty draftsmen was formed in Melbourne and worked for the next six months on completing a total of 74 divisional maps, 1032 subdivisional maps, and 15,376 collectors diagrams which were needed to plan and manage the distribution of census information forms.

The second task which had arisen in 1946 was in connection with the preliminary government considerations which gave birth to the Snowy Mountains Hydro-Electric Power Scheme, a project which has since been hailed as one of the greatest engineering feats ever undertaken in Australia. In June that year the federal government promised the States of Victoria and New South Wales to complete the technical investigation of alternative schemes for tapping the headwaters of the Snowy River for irrigation and power generation purposes. It was soon discovered, however, that this essential supporting work, too, was beyond the capacity of the Department of the Interior, and in July the Survey Corps was called upon to carry out the necessary ground surveys.

This commitment kept detachments of Survey Corps personnel in the Snowy Mountains until late in 1948, working during some of the worst weather experienced for many years. Despite severe cold, flooded rivers and snow blizzards, the Army surveyors obtained the critical data on levels and gradients that would determine the feasibility of the proposed dams and diversion runnels entailed by the scheme. The results of their work became evident in the government decision to proceed with the huge project, leading to the creation in 1949 of the Snowy Mountains Authority to manage the venture. While much has been heard of the Authority and its achievement, most notably during its 50th anniversary celebrations recently, virtually no attention has been given to the critical early role played by the Survey Corps. It should perhaps surprise no-one here that, even at the official inauguration of the scheme by the Governor-General in October 1949, there was not even an invitation to No. 5 Field Survey Company (the Sydney-based unit which conducted most of the work associated with the preliminary fieldwork) to attend. Only after the officer commanding protested at this oversight did the Department of Works and Housing include unit representatives on the guest list—and even then in a manner that practically accused them of inviting themselves.²³

At the same time as the Corps was engaged in the tasks just described, it was also carrying out important work for development tasks elsewhere around Australia. In Queensland, for example, a ten-man detachment had been detailed in 1947 (at the request of the State government) to survey and map the Nogoia and Comet river systems, and the Burdekin Basin, to support water conservation and closer settlement schemes which were under consideration. This task involved observing a chain of triangulation from Rockhampton to Emerald, the standard mapping of the Emerald and Anakie areas, and the production of air-photo mosaics of about 17,000 square miles. At the same time the newly raised Western Command Field Survey Section was sent into the north-west of Western Australia to conduct triangulation surveys and mapping along the Fitzroy River and the Kimberley region, to help provide the Bureau of Mineral Resources with maps needed for geological exploration.²⁴

Although Army support of the civil community's mapping needs was rarely again as direct as the instances just cited, its participation in more general activities such as the production of the standard map series already noted continued unabated. In addition to that, however, the Survey Corps was also producing a range of other map products, including large-scale maps, which were eagerly sought by organisations and agencies with specific interest in areas for which they were available. But this was the case not just within Australia, so that it should be said that civil communities in a number of our regional neighbours—most notably Papua New Guinea and Indonesia—similarly benefited from the Army's participation in this way.

The history of the Australian Army's involvement in mapping is long and distinguished—almost as long as the existence of the Commonwealth. Beginning with the AIC in 1907 and the Survey Section, RAE, three years later, through the 81-year existence of the Royal Australian Survey Corps, and right up to the present where topographical survey units continue to meet current needs, the service has a record of achievement of which it can be justly proud. Much of that achievement has been of immense and wider benefit to the nation, not just the service for which the work was originally undertaken. This fact should not be obscured by the considerable discord which accompanied Army participation in the mapping field at various times. As the Chief of the General Staff correctly observed when the Survey Corps rejoined the Engineers in 1996:

Without the impetus of military' survey, much of this continent would have remained unmapped, and hence much of our civil infrastructure, which we take for granted today, would have been retarded in its development.²⁵

This is a record that should be worth an extra candle or two on the celebratory birthday cake.

Endnotes

1. The substance of this paper draws heavily on my published history of the Royal Australian Survey Corps, *Australia's Military Map-makers* (Melbourne Oxford University Press, 2000), and should be read in conjunction with it.
2. Report upon the Department of Defence, 1 July 1914-30 June 1917, part 1, 83.
3. 'A short history of the Military Survey of Australia, 1907-32'. unpublished document, now held by Army Engineer Museum (hereinafter AEM), Moorebank, Sydney.
4. Report by the Inspector-General, 31 May 1928, *Commonwealth Parliamentary Papers*, 1926-27-28, vol. 2: 228.
5. See my history of the Australian Intelligence Corps 1907-14, *The Citizen General Staff* (Canberra: Military Historical Society of Australia, 1976), 16-18; *Commonwealth Parliamentary Debates*, vol. 48: 2867-8, 2870.
6. See Clem Sargent's 1995 booklet. 'The Royal Australian Survey Corps 1915-90', 2.
7. National Archives of Australia (Vic office), MP 133/2, item 143/10/29.
8. Close's reply is reproduced in John D. Lines, *Australia on Paper* (Box Hill, Vic: Fortune Publications, 1992). 40-3.
9. NAA (Vic), M P 133/2, item 143/10/29.
10. Notes on the Australian Survey Corps in H.A. Roseblade papers, AEM.
11. P.A. Pedersen, *Monash as Military Commander* (Carlton: Melbourne University Press, 1985), 23-4.
12. Ibid.
13. Cabinet submission by V.C. Thompson, Assistant Minister for the Interior, 14 July 1938, AEM.
14. FitzGerald to Lieutenant Colonel J.G. Gillespie, 25 November 1943, on file titled 'Commonwealth Survey Committee and National Mapping Council', AEM.
15. Memorandum by Johnston to the Secretary, Department of the Interior, 1 December 1944, on file titled 'Commonwealth Survey Committee and National Mapping Council', AEM.
16. Brown report, copy held in Department of Defence by DSMGI.
17. Cabinet Decision no. 2 (VP), 22 July 1954, AEM.
18. *Herald* (Melbourne), 27 December 1945; *Argus* (Melbourne), 28 December 1945.
19. See, for instance, FitzGerald's letter to Major A.J. Townshend, 11 October 1945, on file titled 'DO Letters 13/11/44-15/11/45', AEM.
20. NAA (Canberra), A1066/4, item PI45/116.
21. Lieutenant Colonel D. Macdonald to FitzGerald, 5 August 1947, on file '101.945: Military Mapping Conference, London 1947', AEM.
22. FitzGerald to the Director of Military Intelligence, 19 August 1946, on file titled 'Estimate of Expenditure 1942/43, 1945/46, 1946/47-Aust Survey Corps', AEM.
23. Copies of correspondence provided to author by Major E.J. Laker in 1998.
24. Paper titled 'History of the post war army-Royal Australian Survey Corps', September 1953, found with FitzGerald papers, AEM.
25. *Sapper News* (RAE newsletter), 31 August 1996, 2.