THE ORIGIN AND ESTABLISHMENT OF THE SOUTH AFRICAN ENGINEER CORPS (SAEC), 1918-1939

Ian van der Waag[1]

Abstract

This article explores for the first time the early history of the South African Engineer Corps. The difficult environment in which the SAEC was established is investigated first. The factors that militated against growth during this period are then analysed, followed by an explanation of the reorganisations of the mid-1920s and mid-1930s, which, placed in their domestic and international contexts, are set against the background of South Africa's evolving interwar defence policy.

Keywords: Union Defence Force; UDF; Royal Engineers; Cape Fortress Engineers.

Sleutelwoorde: Unieverdedigingsmag; UVM; Royal Engineers; Cape Fortress Engineers.

1. INTRODUCTION

The First World War ended on 11 November 1918. General Jan Smuts, defence minister since 1910 and prime minister from August 1919, faced the task of demobilising and rationalising the Union Defence Force (UDF) from war-inflated strengths to approximate pre-war status. The engineer units that served during the First World War were disbanded from 1919. Only the Cape Fortress Engineers (CFE), which resorted under the South African Coast Defence Corps, remained to maintain the searchlights and communications in the Cape Fortress.[2] Mobilised on 7 September 1914 the CFE performed the engineer duties of Imperial troops, withdrawn in August 1914.[3] At first, the CFE served only in the Table Bay defences, while the 47th Company (Royal Engineers), who trained them, performed similar duties at the Royal Naval base in Simon's Town.[4] The CFE assumed the additional

1 Prof. IJ van der Waag, Department of Military History, Stellenbosch University, South Africa. Assistance from the National Research Foundation, which allowed some further research prior to publication, is gratefully acknowledged.

2 N Orpen and HJ Martin, *Salute the Sappers, Part 1: The formation of the South African Engineer Corps and its operations in East Africa and the Middle East to the Battle of Alamein* (Johannesburg, 1981), p. 8.

3 WM Bisset, "Coast Artillery in South Africa, 1899-1955", in CJ Nöthling (ed.), *Ultima Ratio Regum; Artillery history of South Africa* (Pretoria, 1987), p. 337.

4 Simon's Town is the correct form; however, in much official documentation it is given as Simonstown, which made telegraphic work easier. The former is used in this article.

responsibility for engineering duties at Simon's Town, when the 47th Company RE was withdrawn in March 1916, and their strength was increased accordingly.[5] The CFE served until 1921 in the Imperial garrison, under the British commander of the South Africa Military Command, and until 1939 the Admiralty had a call on South African artillerymen and engineers to man the coastal defences of the Union and on South African sailors to serve on the armed merchant cruisers mobilised for war. Unsurprisingly, this caused some political mischief in a dominion pressing through this period for ever greater self-determination.[6]

There is a growing literature on the difficult course of Anglo-South African relations that presents good material for thought and provides clarity on the nature of Anglo-South African intergovernmental business. The recent work of Andrew Stewart and Ashley Jackson on wartime British-dominion relations is excellent and both give considerable coverage to South Africa.[7] Hyman and Henshaw deal specifically with twentieth-century British-South African relations and include a solid chapter on the Simon's Town naval agreements, although this relates to the post-1945 period only[8], while I have explored elsewhere the struggle for the control of South African coast defences and the creation of an embryonic South African navy in 1939 against the background of a contested dominion nationalism.[9]

The SAEC was established on 1 February 1923.[10] There is no wide discussion of the history of South African military engineering and the interwar period, which saw the founding of the SAEC under rather trying circumstances, is not caught in the historiography, which is limited largely to two monographs focussing on the Second World War. The first part of the magisterial, two-volume, history produced by Neil Orpen and HJ Martin includes a brief overview, of only a few pages, of the pre-1939 history, while Ken Anderson's *Nine flames*, which follows a similar timeframe, contains a short appendix titled "Early history of the SAEC", but this

5 Archive of the Chief Staff Officer, Union Defence Force (CSO), box 42, file 61, Cape Fortress Engineers to replace Royal Engineers. Diverse, box 99, file KA/SAG, Notes on SAEC Summary of Formation SAEC. The archival material referred to in this article is in the custody of the SANDF Documentation Centre (Military Archives), Pretoria, unless indicated otherwise.

6 I van der Waag, "The thin edge of the wedge: Anglo-South African relations, dominion nationalism and the formation of the Seaward Defence Force in 1939-40", *Contemporary British History* 24(4), December 2010, pp. 427-449.

7 A Jackson, *The British Empire and the Second World War* (London, 2006); A Stewart, *Empire lost: Britain, the Dominions and the Second World War* (London, 2008).

8 R Hyam and P Henshaw, *The Lion and the Springbok: Britain and South Africa since the Boer War* (Cambridge, 2003).

9 Van der Waag, "The thin edge of the wedge", pp. 427-449.

10 Government Notice 17 of 1923 (*Government Gazette* 1289, 26 January 1923) promulgated in terms of the *South Africa Defence Act Amendment Act* (Act 22 of 1922), sections 1(3)(iv) and (vi).

too is vague and non-descript.[11] The reasons for this may be archival. The archives of the individual engineer units of the interwar period – the SAEC(PF), the CFE and the ten Citizen Force companies – no longer exist, a hiatus that is compounded by the absence of traces in the archives of the Quartermaster General, under whom some of the SAEC units resorted at various times during this period. The surviving documents relating to the interwar SAEC are scattered widely across the archives groups of the headquarters staffs.[12] This article, which draws on what remains of the archival traces in South Africa complemented by some British material, aims to do three things. The difficult environment in which the SAEC was established is investigated first. The factors that militated against growth during this period are then analysed and, finally, the reorganisations of the mid-1920s and mid-1930s are explained in terms of the politico-strategic context. It seeks therefore to contribute also to larger themes on Anglo-South African and dominion affairs during the interwar years.

2. IMPERIAL POLITICS AND SOUTH AFRICAN DEFENCE POLICY 1918-23

1921 was a watershed year. The UDF underwent major reorganisation following the withdrawal of the Imperial garrison from South Africa in 1921 and the concomitant transfer of all War Office and certain Admiralty property in South Africa to the UDF during 1920 and 1921. Moreover, the threat perception emanating from the 1921 Imperial Conference highlighted the need for an engineering capability to undertake specialist duties in the Cape Peninsula Garrison, maintain defences, and support any expeditionary force sent north of the Union's borders.[13]

The continued presence of a British garrison in South Africa was related closely to the matter of demobilisation. The UDF assumed the duties of Imperial troops withdrawn for war service in Europe. However, as late as July 1918, the Army Council had wanted to provide a fresh garrison after the termination of hostilities. This Smuts believed to be unnecessary as South Africa had proven herself to be both loyal and capable of defending herself. Moreover, the defeat of Germany and the removal of the menace associated with the German colonies implied an absence of immediate external threat. Smuts believed that the return of the garrison would be a clear indication that Britain did not fully trust the loyalty

11 Orpen and Martin, pp.1-13; K Anderson, *Nine flames: The story of the SA Engineers during World War II* (Cape Town, 1964).

12 Diverse, box 94, file AG(3)215/15, Historical Records SA Engineer Corps Correspondence.

13 I van der Waag, "The Union Defence Force between the two World Wars, 1919-1939", *Scientia Militaria* 30(2), 2000, pp. 183-220.

of her South African subjects.[14] Although the presence of a British garrison was financially beneficial, and Pretoria was eager to reduce defence expenditure, Smuts contended that South Africa, having self-respect, had *earned* the right to assume full responsibility for her own defences.[15] The Imperial garrison was a "stigma" that had been removed from August 1914 when the British troops left South African soil.[16]

After negotiations, in December 1918, between generals JJ Collyer and A Martyn, on behalf of the Union and Imperial authorities, it was agreed to further reduce the garrison and to use South African troops returning from Europe for the infantry, artillery and engineer duties, until the arrival of the Imperial troops. This reorganisation contrasted sharply with the same position in 1914, representing a reduction of 345 on the total strength of the garrison (table 1). Although the basis of these reductions was to arrive at approximately the pre-war peace status, Smuts believed a more drastic reduction possible as an attack on the Cape defences was even more unlikely than it had been prior to the outbreak of war. The post-war situation, he contended, did not warrant defensive measures against a sea-borne attack and it was unnecessary to maintain an anti-sea assault garrison.[17] Pretoria had undertaken to provide the garrison pending the return of Imperial troops. However, while such an arrangement provided employment for returning soldiers, they were not prepared to pay indefinitely for a superfluous garrison. Smuts suggested that, should Whitehall insist on garrisoning the Cape fortress, then London should carry the cost.[18]

---

14 Some senior British officers mistrusted their South African counterparts; some still perceived South Africa to be the defeated enemy of the Anglo-Boer War. See, for example, Archive of the Secretary for Defence (DC), box 1142, file DCDB 2394/7. Suggested recall of General Cavendish G.O.C. South African Military Command and appointment of General Martyn. Similar sentiments remained until at least 1939, see I van der Waag, "Smuts' Generals: Towards a first portrait of the South African high command, 1912-48", *War in History* 18(1), January 2011, pp. 25-26.

15 DC, box 566, file 1/70019, Cape and Simonstown Defence and future of the Cape Garrison. Secretary of State – the Governor General, Pretoria, 25 July 1918; and Secretary for Defence – Chief of the General Staff, 30 October 1918.

16 P van der Byl, *From playgrounds to battlefields* (Cape Town, 1971), p. 108.

17 The reduction of the mobilised strength of the CFE by two officers and 15 other ranks brought about an approximate annual saving of £238 on pay and allowances and £51 on rations. DC, box 566, file 1/70019, Cape and Simonstown Defence and future of the Cape Garrison. Ministers' Minute 1762, 9 November 1918; Chief of General Staff – Minister of Defence, 10 December 1918; Secretary for Defence – the Chief of the General Staff and Adjutant General, 22 January 1919.

18 During 1919, the maintenance of a relatively small unit, the CFE, had cost £700 per month in salaries alone. DC, box 422, file 1/51203, Pay Cape Fortress Engineers. Telegram Defence – Disso, 5 January 1920, box 566, file 1/7001, Cape and Simonstown Defence and future of the Cape Garrison. Cable Colonel Mentz – General Botha, 22 January 1919.

TABLE 1: UNION AND IMPERIAL TROOPS IN THE CAPE GARRISON, 1914 AND 1918 COMPARED.[19]

	PRE-WAR ESTABLISHMENT		AGREED (1918) FUTURE STRENGTH		29 NOV 1918 ESTABLISHMENT	
	Officers	Ranks	Officers	Ranks	Officers	Ranks
British forces:						
Royal Garrison Artillery	14	279				
Royal Engineers	8	153				
Infantry	29	904				
UDF:						
Cape Garrison Artillery			20	420	14	269
Cape Fortress Engineers			5	142	3	127
Cape Peninsula Rifles			26	860	25	893
Cyclists			6	164		
TOTAL	51	1336	57	1586	42	1289

With British consent, the Cape Peninsula garrison was again reduced in March 1919 to little more than 500 - less than half that negotiated by Collyer and Martyn. The garrison, excluding the medical element and mechanical transport, now stood at 100 artillerists, 320 infantrymen, 50 engineers, and 30 members of the SA Service Corps. In terms of the revised agreement, the UDF had to maintain the CFE at the approved establishment of two officers and 48 other ranks. However, it was soon realised that this would be extremely difficult. Troops in the CGA and CFE were volunteers and could not be held to serve indefinitely; many claimed their discharge once the state of war was terminated. As a volunteer unit, the CFE should have been demobilised immediately. However, Whitehall, while procrastinating over the return of the Imperial garrison, refused at first to agree to a further reduction in the garrison and only acquiesced after a personal request from Smuts.[20] The demobilisation of the CGA and CFE started in January 1920. The prospect of increases in pay and allowances for engineers could keep the volunteers in the garrison. The salaries were not competitive and the CFE did not offer a career. The commander was a captain, insufficient to attract the type of men wanted. The exodus of qualified technical personnel could not be stemmed and new recruits of good calibre were difficult to obtain. By 6 January, half of the CFE had taken

19 DC, box 566, file 1/70019, Cape and Simonstown Defence and future of the Cape Garrison. Assistant Adjutant and Quartermaster General – Secretary for Defence, 4 December 1918.

20 DC, box 566, file 1/70019, Cape and Simonstown Defence and future of the Cape Garrison. Ministers' Minute 472, 26 March 1919; and Lord Milner – Lord Buxton, 10 October 1919. DC, box 422, file 0/51203. Cape Fortress Engineers. General. Buxton – Milner, 15 December 1919.

their discharge. The remaining members of the unit were on the verge of leaving and only remained on to see what would be offered to them should the CFE be transferred to the SA Permanent Force (SAPF).[21]

As a result, with London's approval,[22] the South African Mounted Riflemen (SAMR) and the Railways and Harbours Rifles assumed the artillery and engineer duties performed in the Cape fortress by the CGA and CFE.[23] War Office regulations laid down that civilian labour was not to be used in coast defences. The engineer duties taken over by the infantrymen included the maintenance of the searchlights at Table Bay and Simon's Town; the coast defence telephone system; the telephone exchanges at The Castle, Wynberg and Simon's Town; the electricity supply to military areas; the engine and machinery at the Army Workshops at Woodstock; and the water supply for the personnel of the Coast Defence batteries. On 25 February 1920, the Chief of the General Staff instructed the Adjutant General to arrange the demobilisation of the remaining First World War volunteers in the CFE.[24] Unsurprisingly, the new recruits and infantrymen in the CFE, unqualified as they were, found it extremely difficult to maintain the necessary services.

Then, in March 1920, to the dismay of the British commander of the fortress, Major General HSL Ravenshaw, the UDF declared their intention to withdraw the 50 members of the SAMR serving under his command; allotted equally - 25 as gunners to the Cape Garrison Artillery (CGA), 25 as riflemen to the CFE.[25] The SAMR were to return to Pretoria, as a precautionary measure, in view of trouble brewing on the Witwatersrand. Ravenshaw, under protest, released the men. However, with a fresh spectre of disbandment looming over the CFE, he complained to the Governor General that it was not possible to cease engineer services and at the same time continue to man the guns of the fortress. The coastal artillery depended on engineer services as the defences contained an extensive and complicated communication and searchlight network on which the control of the fire of the guns depended.

21 DC, box 422, file 1/51203, Pay Cape Fortress Engineers. Secretary for Defence – Secretary for Finance, January 1920; District Staff Officer, 1 Military District – the Secretary for Defence, 6 January 1920.

22 DC, box 422, file 0/51203, Cape Fortress Engineers. General. Secretary of State for the Colonies– Governor General, Pretoria, 11 February 1920.

23 Archive of the South African Mounted Riflemen (SAMR), box 1085, file 839/1, Detachments Cape Fortress Engineers. General Collyer – Inspector General, Permanent Force, 15 January 1920; and DC, box 567, file DC G4/70019, SAMR to replace Fortress Engineers at Cape Town. Chief of the General Staff – Secretary for Defence, 15 January 1920; and General Manager SAR&H – the Secretary for Defence, 24 January 1920.

24 DC, box 567, file DC G4/70019, SAMR to replace Fortress Engineers at Cape Town. Chief of the General Staff–Adjutant General, 25 February 1920.

25 SAMR, box 1085, file 839/1, Detachments Cape Fortress Engineers; DC, box 567, file DC G4/70019, SAMR to replace Fortress Engineers at Cape Town. Chief of the General Staff – Inspector General, Permanent Force, 5 March 1920.

Ravenshaw felt bound to maintain the coastal defences in their existing state unless express authority for any change in policy came directly from the War Office and, after careful reconsideration, he informed the Union government that 18 was the minimum number of permanent skilled personnel required to continue the most important of the engineer duties.[26] He was otherwise not prepared to accept responsibility for the care and maintenance of the defences. Moreover, if the South African government was not prepared to supply the required personnel, Ravenshaw threatened to send a request to the War Office for the despatch to the Union of a draft of 25 Royal Engineers to do the work.[27] Pretoria now faced two options: continue to maintain the CFE on the reduced establishment of one officer, 18 skilled men and 12 men of the Returned Soldiers' Battalion, or suffer the indignity of having Ravenshaw obtain 25 Royal Engineers.

The Secretary for Defence, Sir Roland Bourne, preferred the second alternative, which would save hundreds of pounds per month. However, the Chief of the General Staff and Smuts, more particularly, favoured the first option politically and Pretoria informed the Colonial Office that the Union was willing to maintain the minimum of 18 members of the CFE under Ravenshaw's command. However, less than ten of the 18 men in the CFE had the requisite skills and Ravenshaw required the strength in fully-qualified men. This was almost impossible, as qualified personnel could not be secured unless permanent employment, promotion and a reasonable salary was offered.[28] It was not.

As a result, in May 1920, Hendrik Mentz, Smuts' successor as defence minister, approved the reorganisation of the CFE. The new establishment table included one officer (to be detailed for duty from the SAMR), one Company Quartermaster Sergeant (to perform the duties of pay sergeant, quartermaster sergeant and sergeant major), two NCOs (to be detailed from the SAMR, for administrative duties, one in Cape Town and one at Simon's Town), the 18 skilled men (as required by Ravenshaw), and 16 men from the Returned Soldiers' Battalion (12 for general duties, and four as cooks and orderlies). The rate of pay for the skilled tradesmen was increased to approximate market rates. Lieutenant G Roddy, 4th Regiment, SAMR was posted to the reorganised CFE, as the commander. Sergeants F Baker and SA Falecki of the 2nd Regiment, SAMR were appointed to the clerical posts.[29]

---

26 Ravenshaw detailed his requirements as two mechanists (machinery), two mechanists (electricians), three electricians (rank and file), three telephonists, six fitters and instrument repairers, two carpenters, and 12 unskilled labourers.

27 DC, box 422, file 0/51203, Cape Fortress Engineers. General Ravenshaw – Lord Buxton, 3 March 1920.

28 DC, box 422, file 0/51203, Cape Fortress Engineers. General. Secretary for Defence – Chief of the General Staff, 12 March 1920; Ministers' Minute 255, 22 March 1920; Ravenshaw – Buxton, 9 April 1920; and Secretary for Defence – Chief of the General Staff, 16 April 1920.

29 SAMR, box 1085, file 839/1, Detachments Cape Fortress Engineers. Staff Officer, Permanent Force (SAMR) – Officer Commanding, 2nd Regiment, SAMR, 6 May 1920; DC, box 472, file

Toward the end of 1920, Whitehall introduced a drastic change in policy with regard to the defence of the Cape fortress. The decision, for so long pending, to withdraw the garrison was finally taken.[30] The South African Military Command was disbanded on 1 December 1921.[31] The last remnants of the British forces left, with the exception of the small enclave at Simon's Town. The UDF now controlled all of the defences in South Africa and the care of the armament, the searchlights and other equipment in the Cape fortress was now her sole responsibility and she needed an efficient engineer service to do the work.[32]

Furthermore, ownership of the vacated War Office and Admiralty property was transferred to the Union government with effect from 1 December 1921.[33] These cantonments had to be converted into permanent camps, but most of the buildings were of wood-and-iron construction, on principally stump foundations and had been in existence since the Second Anglo-Boer War. Only minor repairs had been carried out during the First World War. The Union Quartermaster General assumed responsibility for their upkeep on 9 December 1921, a week after the closure of the SA Military Command. By this time, they were in a bad state of repair. Extensive alterations and renovations to all the camps were required and an efficient maintenance organisation to undertake the work was needed.[34]

Moreover, the geopolitical landscape had changed considerably. In 1918, the perceived threats to the security of the Union were industrial trouble, which finally erupted in 1922, and African uprisings within South Africa. By the early-1920s, two further threats were noted. First was the potential danger of a general uprising against European rule on the continent, as a result of which South Africa was awarded at the 1921 Imperial Conference the responsibility for the ultimate restoration of order in Southern and Central Africa should the local colonial forces fail.[35] The second perceived threat was a war between the United Kingdom and a

---

DC 1/52201, Cape Fortress Engineers. Chief of the General Staff–District Staff Officer, No.1 Military District, 5 May 1920.

30 DC, box 327, file 34973/0, vol. 1. Union Defence Forces Institutes. General. Telegram Chebec – Defence Pretoria, 2 December 1920. This was confirmed at the 1921 Imperial Conference.

31 DC, box 886, file Q.23892, Transfer South African Military Command to Union Defence. Secretary for Defence – Headquarters, SA Military Command, 28 September 1921.

32 On the position of these troops and the way in which they affected relations between Simon's Town and Pretoria, see I van der Waag, "The thin edge of the wedge", pp. 427-449.

33 An Act providing for the transfer and maintenance of properties, was passed by the Union Parliament in 1922, and came into effect on 26 July of that year. The *Defence Endowment Property and Account Act* (Act 33 of 1922).

34 Archive of the Adjutant General (AG) 3, box 97, file 213/22, Establishments SAEC (Maintenance Sections). Report on the Cantonments Roberts Heights and Artillery Barracks, Pretoria; and file 212/23, Establishment Tables SA Engineer Corps Permanent (Fortress Engineer and Signal Sections). Quartermaster General – the Adjutant General, 26 July 1922.

35 Archive of the Chief of the General Staff (CGS), box 356, file 13/40057, Intelligence Service – Scheme of Organization. Major Leipoldt – Chief of the General Staff, 11 November 1921.

European power that maintained a "native army" in Africa. Hypothetically, South Africa could find herself drawn into an African war involving the colonies of two or more European powers entangled in a war in Europe. Whereas South Africa, like other British territories in Africa, followed a policy of disarming Africans, the French, Belgian and Portuguese colonial administrations militarised large numbers of their subjects.[36] The problem of defence, therefore, no longer remained confined to disturbances within the Union, but embraced happenings in the greater part of the continent of Africa.[37]

The added responsibilities brought about by the withdrawal of the Imperial garrison and the revised threat perception placed the UDF in a dubious position. The tiny post-war defence force was now tasked with the entire defence of the Union as well as the suppression of any insurrections in the Portuguese colonies and in the High Commission territories of Southern and Central Africa. A restructuring of the UDF was now a necessity. The *South Africa Defence Act Amendment Act* was passed in 1922 and provided, in particular, for a reorganisation of the SAPF. Specific provision was made for a permanent engineer corps and, for the first time, engineers were included among the regular full-time forces.[38] The CFE, now comprising a Fortress Engineer Section and a Signal Section, was transferred to the Cape Peninsula Garrison - the successor of the disbanded South African Military Command - with a peace establishment of three officers and 61 other ranks.[39]

3. FORMATION OF THE SA ENGINEER CORPS (SAEC) 1923-1928

Organisationally, the engineer element in the UDF received new and increased status with the establishment of the SAEC as a unit of the new SAPF.[40] The SAEC, under the functional control of the Quartermaster General, was organised into two sections. The first, the CFE, retained responsibility for the maintenance of the searchlights and engines, military telephones and incandescent lighting. The Maintenance Sections, established on the Cape Peninsula and at Roberts Heights, took over from the Public Works Department the duty of maintaining all Defence buildings and carrying out of works in the Cape Fortress and in Pretoria.[41] The

36 Archive of the Deputy Chief of Staff (DCS), box 3, file SP 9, Capt. Theron's attachment to War Office. Information extracted from War Office, Admiralty and Air Force files by Capt. FH Theron during his attachment, September 1929.

37 CGS, group 2, box 53, file 96, Reorganization - UDF, vol. II. Enc 1 South African defence policy by CGS, 20 September 1933.

38 The *South Africa Defence Act Amendment Act* (Act 22 of 1922), sections 1(3)(iv) and (vi). The Permanent Force was reconstituted 1 February 1923.

39 Government Notice 1124 of 21 July 1922 (*Government Gazette* dd 21 July 1922).

40 Government Notice 17 of 1923 (*Government Gazette* 1289 dd 26 January 1923).

41 Abridged Annual Report of the Department of Defence, Union of South Africa, Year ended 30th June 1923, p. 4.

CFE served in the Cape Peninsula Garrison and resorted under the Coast Garrison Force (CGF). The Maintenance sections, on the other hand, formed part of the SAPF and resorted directly under the Quartermaster General (Q.2 branch). The new establishment tables, already approved in 1922, were gazetted in May 1923.[42]

3.1 Cape Fortress Engineers

There were now two separate engineer elements in the Cape Peninsula Garrison; the CFE (Fortress Engineer Section and Signal Section) and the Maintenance Section, Cape Peninsula. The presence of two units, one in full-time service and the other part-time, fulfilling similar duties within one command, created confusion. The Adjutant General, recognising this in 1922, suggested that the personnel for maintenance services be added to the establishment of the Fortress Engineer Section and Signal Section and that the unit be renamed "Fortress, Maintenance and Signal Section (Cape)".[43] It is not certain when the two units were amalgamated, although this would seem to have been between 1923 and 1925. A study of the peace establishments of the CFE for 1922, 1923 and 1927, reflects an increase in maintenance personnel (table 2) and after 1924/25, the Maintenance Section, Cape, was no longer mentioned on the Defence budget. A change in name did not take place.

TABLE 2: CAPE FORTRESS ENGINEERS, ESTABLISHMENTS OF SECTIONS.

	1922	**1923**	**1927**
Fortress Engineer Section	51	90	102
Signal Section	13	61	12

The peace establishment of the Fortress Engineer Section and Signal Section more than doubled[44], an increase due to the additional provision for mechanics, electricians and, in particular, persons trained in the use of lights (for signals) and visual signallers. In 1922, the approved strength of the signal section stood at one sergeant major and 12 telephonists and telephone operators. A year later, a lieutenant and 50 visual signallers were added to the establishment at the cost of three telephone operators. This marriage of the Fortress Engineer Section and

42 AG(3), box 97, file 213/22, Establishments SAEC (Maintenance Sections). Minute GI 52592 dd 1 December 1922, Chief of the General Staff – Adjutant General; DC, box 422, file 3/51203, War Establishment Cape Fortress Engineers. Lt Col (GI) – Chief of the General Staff, 26 January 1923.

43 AG(3), box 97, file 213/22, Establishments SAEC (Maintenance Sections). Adjutant General – Chief of the General Staff, 31 October 1922.

44 Government Notice 842 of 19 May 1923.

Signal Section does seem curious; an absurdity highlighted by the specialisation taking place in the duties performed by sappers and signallers. A South African Corps of Signals was established with effect from 1 November 1923,[45] and gradually the signallers on the establishment of the CFE were transferred out. By 1927, there were only six telephonist and six telephone operator posts approved for the Signal Section of the unit.[46]

FIGURE 1: The Cape Fortress Engineers in training at Simon's Town, 1930 (Courtesy of the SANDF Documentation Centre (Military Archives) Pretoria)

Although the unit formed part of the 1st Division, South African Coast Defence Corps (CGF), the mustering of the South African members of the Fortress Engineer Section, changed with effect from 1 February 1923 to South African Engineers. In January 1923, the musterings had been as follows:[47]

The officer commanding, Capt. DR Ffrench-Mullen, and the sergeant major were Royal Engineers, seconded to the UDF, whose mustering was unaffected. Ffrench-Mullen was transferred to the new unit with effect from 1 February 1923, as officer commanding SAEC; and the post of officer commanding Fortress Engineer Section

45 FJ Jacobs *et al.*, *South African Corps of Signals* (Pretoria, 1975), pp. 31-35. In the British Army the signal service was until the 1920s a subdivision of the Royal Engineers.

46 General Order 6312 of 23 February 1927.

47 DC, box 1088, file 9/52452, vol. 1. Strength Fortress Engineers and Signal Section - Cape.

was downgraded to lieutenant.[48] This remained the state of affairs until 1926, when the Chief of the General Staff approved a captain's post for the Fortress Engineer Section and Capt. FG Pay was appointed as officer commanding with effect from 1 July 1926.[49]

Status	Mustering	Total
Imperial army	Royal Engineers	2
SA Permanent Force	SAPF Staff	1
SA Permanent Force	SA Mounted Riflemen	2
Coast Garrison Force	Cape Fortress Engineers	19

3.2 Maintenance Sections

The establishment tables for the Maintenance Sections at Roberts Heights and the Cape Peninsula, approved by the Chief of the General Staff on 1 December 1922, were as follows:

	Maintenance Section, Cape Peninsula	Maintenance Section, Roberts Heights
Officers		1
NCOs	4	6
Rank and file	6	18
"Natives"	10	51
Total	20	76

The strength of the two maintenance sections was half that maintained by Whitehall for the same duties; the Royal Engineer establishment in South Africa having provided for six officers, including two lieutenant colonels. Three air force posts - one officer and two other ranks – were utilised to provide the nucleus for the Maintenance Section at Pretoria as no provision had been made on the Estimates for 1922-1923. This was done on the Estimates for 1923-1924,[50] and the details that had temporarily filled the air force posts were transferred to the establishment of the new unit. Lieutenant G Rowe was appointed as the first officer commanding, Maintenance Section, Roberts Heights.[51]

48 Government Notice 842 of 19 May 1923 (*Government Gazette* dd 25 May 1923).
49 AG(1), box 417, file 256/2, Officers Cape Fortress Engineers. Adjutant General – Chief of the General Staff, 23 June 1926; General Order 6312 of 23 February 1927.
50 South African Parliamentary Papers: UG 9-1923. Estimates of Revenue and Expenditure, 1923- 1924.
51 AG(3), box 97, file 213/22, Establishments SAEC (Maintenance Sections).

While the establishment table for the Maintenance Section, Roberts Heights, was published in May 1923,[52] the establishment for the Maintenance Section, Cape Peninsula, was not gazetted. Seemingly this section was amalgamated with, and became the SAPF element of, the Fortress Engineers Section at about this time. However, the strength of the Section at Roberts Heights changed continuously. The civilian labour - artisans and unskilled Africans - were hired and released as necessity dictated. However, this was not the case of its counterpart in the Cape, where military labour preponderated.

The Maintenance Section, Roberts Heights, saw to all minor repairs required by the SAPF. The wide variety of duties carried out included the running of the pumping station at Fountains Valley, which, handed over to the UDF on 31 March 1924, controlled the supply of water to the cantonments in Pretoria. In addition, the SAEC maintained all Defence buildings and the Endowment Property, sewerage, the military cemetery and approximately 25 kilometres of roads. The Endowment Property, in particular, was in a bad state of repair. The question of the return of the Imperial garrison and the uncertainty regarding the future ownership of the property had caused much of the maintenance work to fall into arrears. Some of the buildings had to be partially reconstructed. The wooden flooring in most of the barrack rooms was worn through and all of the exposed woodwork was rotten and had to be replaced. This was quite a task, as most of the buildings were of wood or wood-and-iron construction. Windows, weather-boards, veranda floors and even the piers on which the buildings were built, demanded attention. The kitchens, latrines and bathrooms were particularly bad. In their case, all the woodwork at ground level had to be replaced entirely. A five year plan of reconstruction was implemented and, in view of the major construction involved, it was decided to rebuild the cookhouses, latrines and bathrooms in brick with concrete floors. This also held the advantage of improving sanitary conditions. All other buildings were to have at least concrete floors.[53]

The importance of this task is reflected in the number of carpenters in the section. In January 1923, the carpenters accounted for 25% of the artisans and two years later, they numbered more than half of the artisan strength. For much of the section's existence, the carpenters and handymen made up an overwhelming proportion. In June 1924, they accounted for 28% and 41% of the artisans (figure 2).

52 Government Notice 915 of 28 May 1923 (*Government Gazette* 1323 dated 1 June 1923).

53 Orpen and Martin, p. 8; DC, box 519, file 52592/2, SA Engineers General (This file contains the monthly reports submitted during the period 1922 to 1926).

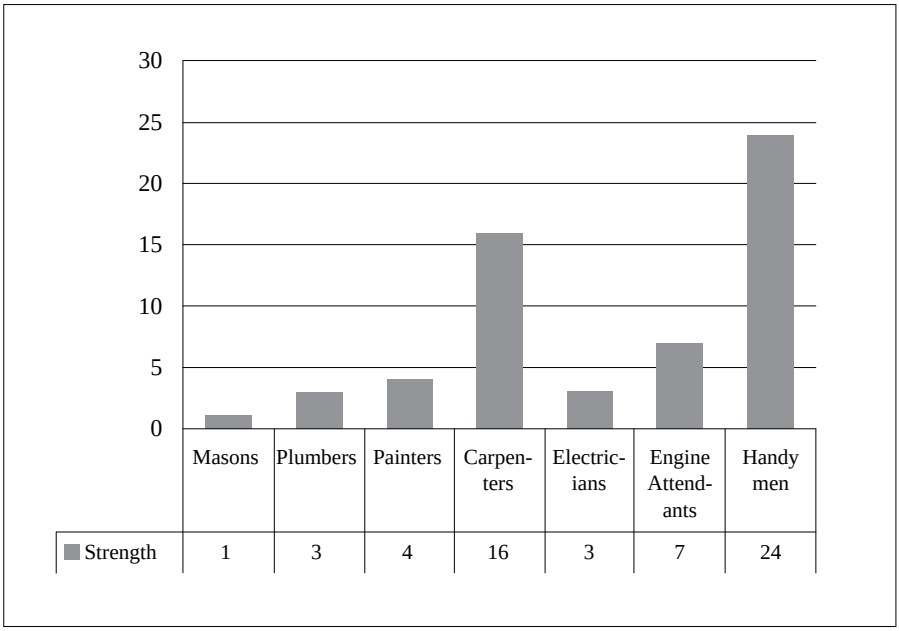

FIGURE 2: Artisan strength, June 1924, Maintenance Section, Roberts Heights.

However, the small section was not without initial problems. Rowe's authority was challenged on a number of occasions, particularly by the Air Force, who refused to recognise his authority. The first incident arose during the erection of hangers at Zwartkop Air Station in 1923. The Quartermaster General referred the matter to Mentz, who expressed "extreme displeasure about the cavilling of the Air Force at instructions given from Headquarters".[54]

The question of maintenance and works services, in the Cape and in Pretoria, had always been problematic. At the time there were three recognised systems for the carrying out of services: by military labour; by directly-employed civilian labour; and by running contract (the system used by the Imperial army). During the 1920s, the UDF made use of a combination of military and civilian labour. At Roberts Heights, the civilian labour system dominated; while at Cape Town, in view of objections to the presence of civilians within the coast defences, the military labour system was used. The higher costs associated with military labour was the system's greatest disadvantage. The Department had to pay soldiers for many

54 Archive of the Quartermaster General (QMG) group 1, box 141, file QMG 132/2/1, Defence Department Organization QMG Section Engineers Branch. Acting Chief of the General Staff – Director Air Services, August 1923.

privileges that would not have accrued to civilians. On the Cape Peninsula, 34 other ranks were employed in 1928, on engineer works. Their weekly cost amounted to £200.0.11 and, in addition, they received fuel and light, furniture, medical and dental treatment, full pay for leave and also a pension. The employment of the same number of civilian workmen, which would never have been necessary as they would have been wholly employed on works with no military duties, would have cost the Department £205.14.0 with no service privileges to add. Military labour was expensive, but they could not simply be replaced by civilians, owing to a War Office prohibition on the entry of civilians into the defensive works and fortifications, which applied to the Cape Peninsula. Therefore, in 1929, the UDF implemented the running contract system. This had been used for many years in the Imperial army, but was soon found to be unsuitable to conditions in South Africa.[55]

4. THE ENGINEER COMPANIES (ACF) 1926-1934

The Active Citizen Force (ACF) engineer companies were created in 1926 against the background of the internal unrest that occurred within the Union and South West Africa during the early-1920s. The revolt of the "Israelites" at Bulhoek (1921) was followed by the 1922 Rand Strike, the Bondelswarts Rebellion (1922) and trouble in Rehoboth (1923-1925). Although these companies were reserved for the support of infantry operations within the Union, their value as suppliers of a nucleus of trained engineers for an expeditionary force was apparent. The border conflicts and minor wars that followed the treaties signed in Paris underscored the need for divisional troops that might have to form part of an expeditionary force.[56]

The question of engineer companies was first raised in 1919 and placed before a Select Committee of the House of Assembly in May of that year. The question, bound to larger defence policy issues, did not receive the recommendation of the Committee and was shelved until September 1919, when resurrected by the Durban branch of the League of Returned Soldiers and Sailors. However, the motivation behind the proposal to establish engineer units was not so much to increase the preparedness of the UDF as to solve the unemployment problem. The League blamed the war for the "unprecedented state of affairs", where the apprenticeship of young men was interrupted; others had enlisted from school and returned from the war too old to commence learning a trade; and active service had created a distaste for office work among young men. The League held that the government, by creating an engineer corps with companies comprising various skilled trades, would

55 CGS, group 2, box 205, file CGS 366/5, vol. 1. South African Engineers Corps - Reorganization. Memorandum on Organization of Works Services c.1928.

56 C Petrie, *Twenty years' armistice – and after; British foreign policy since 1918* (London, 1940), pp. 53-55; A Clayton, *The British Empire as a superpower, 1919-1939* (Basingstoke, 1986), p. 241.

go a long way towards adjusting matters. The idea was to absorb unemployed, unskilled labour (mostly returned soldiers and the sons of deceased soldiers) by giving them the opportunity to enlist and so become proficient in a trade. They would then, after completion of service, take their place and compete with others who had had better advantages and had served a similar period of apprenticeship. The proposal was referred to the Commissioner for Returned Soldiers and once again, due to the rationalisation taking place, the proposal was turned down.[57]

The Committee of Engineer Officers was appointed in 1921, under the chairmanship of Lt Col Colin Clarke, to submit recommendations regarding the establishment and equipment tables for an engineer corps, had recommended that the SAEC be formed in such a way that it could be extended rapidly from a peace to a war footing in the minimum amount of time. In terms of personnel, a reserve of officers had to be formed of qualified engineers only, while the NCOs and men be drawn from properly-trained tradesmen and mechanics, with no "handymen" being enrolled as sappers. All members of the SAEC had to undergo training in military engineering. Finally, Clarke and his team recommended that the companies or troops be numbered and located in the principal towns so that all ranks would be readily available for training. They proposed that four field companies and four field troops be raised and trained as part of the ACF and at the following centres:[58]

Johannesburg	Corps HQ	1 Field Company	1 Field Troop
Pretoria		Field Company	Field Troop
Durban		1 Field Company	1 Field Troop
Cape Town		1 Field Company	1 Field Troop
Bloemfontein		Field Company	Field Troop
Kimberley		Field Company	Field Troop
TOTALS	**Corps HQ**	**4 Field Companies**	**4 Field Troops**

The centres from which qualified engineers would be readily available were taken into consideration. Johannesburg and Kimberley had large mining communities; while Johannesburg and the other towns had universities which might have assisted with the Officer Training Corps programme. The Officer Training Corps programme was launched by the Department of Defence in 1920, when they began to solicit the assistance of universities in the building up of a reserve of qualified

57 CGS, group 2, box 141, file CGS 242, chap. 1, Formation of Engineers Corps. General. Secretary of League of Returned Soldiers and Sailors (Durban Branch) – Minister of Defence, 2 September 1919; Secretary for Defence – Secretary of the League of Returned Soldiers and Sailors, 10 October 1919.

58 AG(3), box 97, file 63/52000, South African Engineer Corps Establishments, Report of Committee of Engineer Officers, 1921.

officers. Ideally, the programme would provide qualified engineer officers without major expense to the Department, as no peace training would have been required. However, only two universities (Cape Town and Rhodes) responded favourably and as a result, as far as engineer training was concerned, the plan was shelved in favour of the establishment of ACF engineer units. These were established with effect from 1 April 1926:[59]

Centre	Unit	Appointment first OC
Cape Town	No. 1 Field Company	1 July 1926
Pretoria	No. 2 Field Company	15 July 1926
Bloemfontein	No. 3 Field Company	1 July 1926
Pietermaritzburg	No. 1 Field Troop	28 June 1926

In accordance with the recommendations of the Clarke Committee, differentiation was made only between the field troop, which was to undertake quick rough work in support of particularly mounted units, and the field companies, which would tackle works of greater permanency. A field company, according to the peace establishment, comprised of two officers and 52 other ranks. A field troop was much smaller; two officers and only 25 other ranks. No specialised units, such as water and roads companies, were formed for it was thought that, while such units served a useful purpose in extended campaigns, they would have lesser value in short wars, such as were likely to be met with in Southern Africa. In the event of an extended campaign, they would be raised and equipped as required. This happened in 1939.

The intention was to accept the units for training as from 1 July 1926. However, this was delayed in view of the difficulty experienced by every unit in obtaining suitable men. The man appointed to the command of No. 3 Field Company disappeared one month after appointment; and in 1927, the officer commanding No. 2 Field Company and his second-in-command were asked to resign their commissions in view of their lack of interest in recruiting members for their unit. Lieutenant JD Reid, the new officer commanding, an employee of the Railway Workshops in Pretoria, was appointed with effect from 1 July 1927 and within three weeks the unit had a strength of two officers and 39 sappers - over 50% of the establishment. Most of these men came from the Railway Workshops. This showed what could be done, although the Defence Department was careful in their appointment of Railway personnel to posts in the Citizen Force.[60]

59 CGS, group 2, box 141, file CGS 242, chap. 1, Formation of Engineers Corps. General. Hand-written note on file - no date.

60 AG(1), box 417, file 256/2, Officers Cape Fortress Engineers, circular AG(3)3/54920/16/4, 18 November 1926.

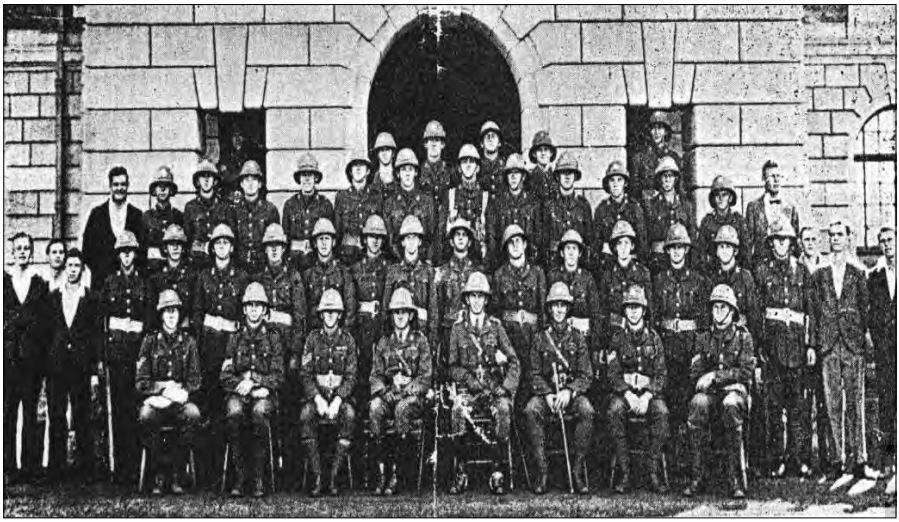

FIGURE 3: No 2 Field Company, Pretoria, [1926].
(Courtesy of the SANDF Documentation Centre (Military Archives) Pretoria)

Instead of establishing the units at practical locations as the Clarke Committee had suggested, Defence Headquarters succumbed to the idea of an engineer unit at each provincial capital. However, practicalities were to show that this did not work. Within six months of the establishment of No.1 Field Troop, the unit had to be transferred to Durban in view of a very poor response to the call for personnel in Pietermaritzburg. Durban had a larger population and the greater industrial activity offered a far better chance of forming and training a useful unit.[61] Durban had been the obvious choice from the start.

A comparison of the strengths of engineer and infantry units in the UDF shows that the establishment of engineers per bayonet was distinctly below that considered necessary. This, no doubt, was due to motives of economy; engineer units being expensive to maintain. Therefore, in the event of a major war, the UDF would be forced to fill the breach by rapidly raising extra units and for this a strong nucleus of fully-trained personnel was required. In 1927, Baillie had proposed the establishment of a small SAPF field company, for posting to new units in the event of war. This, however, was turned down chiefly due to the worsening financial situation.[62]

61 AG(1), box 454, file 258/3, Officers No.1 Field Troop SAEC, vol. 1, Adjutant General – Officer Commanding No.3 Military District, 23 December 1926.

62 CGS, group 2, box 141, file CGS 242, chap. 1, Formation of Engineer Corps General.

From the late-1920s, economic considerations were to play havoc with Defence planning. The growth of the SAEC and the quality of the all-important training was of course also severely restricted by a number of other influences; a point detailed below. The SAPF members of the SAEC (Cape) were tasked with the training of the Citizen and Coast Garrison Force elements of the corps, on both a continuous and non-continuous basis. Continuous training took the form of annual camps of six-week (later ten-day) duration. The first camp was held in Wynberg in March 1928, and the second at the Cape Explosives Works at Somerset West in April 1929. After the Wynberg Camp, Baillie could report:

> "A considerable amount of useful instruction was carried out in the limited period available. All units were exercised in Earthworks, Revetting, Water Supply, Demolitions, Obstacles, Use of Spars, Trestle Bridging, Light Bridging and Bridging expedients ... I consider that a satisfactory foundation for future training has, as a result, been laid."[63]

However, Baillie's many suggestions could not be adopted due to expense. An increase in strength could not be authorised, neither the appointment of a chief engineer at Defence Headquarters to coordinate training. Furthermore, standard working dress could only be considered in the 1929-1930 estimates.

5. REORGANISATION 1928-1933

The depression worked against military innovation and development. The UDF underwent a drastic rationalisation, which the SAEC did not escape.[64] Changes had to be made in order to obtain a reasonable return for the expenditure involved in the upkeep of personnel, who, in most cases, were well-paid artisans. On 21 August 1928, a conference under the chairmanship of the defence minister, Colonel FHP Creswell, met at Defence Headquarters to discuss the reorganisation of the SAEC. The duties of the SAPF engineers were considered and placed in order of their relative importance. War training was the first priority, for the unit itself and for the Citizen Force and Coast Garrison Force units. The maintenance of coast defences in a fit and proper state of preparedness for war was second, while the maintenance of buildings and camps required for the accommodation of troops in peace was prioritised third.[65]

The conference found that a major portion of time and money was spent on the maintenance of property which had little or no tactical value. The maintenance of coast defences, in accordance with War Office stipulations, was thought

63 *Ibid*. Report on Camp of ACF Engineer Units at Wynberg - 7th to 16th March 1928, by Capt. AC Baillie; DC, box 93, file 219/1928/1/5, Training Camps 1928-29 Engineer Camp - Somerset West.

64 L Jooste, *Geskiedenis van Genieskool, 1940-1990* (Kroonstad, 1990), p. 13.

65 CGS, group 2, box 205, file CGS 366/5, vol. 1, South African Engineer Corps Reorganization, conference re organization of the SAEC held at Defence Headquarters, 21 August 1928.

adequate, although it was obvious that the existing organisation of the SAEC did not provide adequately for what should have been the first priority, namely war training. The conference sought an organisation capable of high training standards and efficient maintenance of defence property, without a substantial increase in expenditure.[66] The Cape Town portion of the SAEC, which clearly could not continue as then constituted, was reorganised with effect from 1 April 1929 into an Engineer Training Section and a Works, Defence Electric Lights and Telephone (W, DEL & T) Section. The two sections were treated as one unit under the command of Capt. JL Knobel. The new establishment made provision for two officers and 35 other ranks in the Engineer Training Section and one officer and 21 other ranks in the W, DEL & T Section.

As already noted, this reorganisation fell together with the implementation of the contract system in the Cape Peninsula. Of the two elements, only the Training Section was to carry out works and then only during the non-training period of the year - approximately three months per annum. However, it was not long before the Public Works Department objected to the contract system. The small scale of works undertaken in the Cape Peninsula – only £11 000 per year - in their opinion, did not warrant a system as elaborate as that employed by the War Office, which owned millions of pounds worth of property. As a result, with effect from 1 October 1929, the Public Works Department assumed responsibility for works to all Defence property, with exception of the Defence Endowment property at Pretoria and Roberts Heights. This step made the Works Section of the SAEC in the Cape Peninsula redundant; and the establishment of the SAEC (Cape Town) was, therefore, reduced to two officers, 46 other ranks and one "native". The supernumerary personnel, mostly highly paid artisans, were discharged on 30 September 1929.[67]

The Engineer Training Section, now one officer (Capt. LJ Schoon) and 28 other ranks, was transferred to the Maintenance Section (Roberts Heights) with effect from 1 April 1930. This left one officer and 16 other ranks in the Cape Peninsula, for the maintenance of the searchlights and command communications, and for the training of the Citizen Force section of the CFE.

The transfer of the Training Section to Pretoria, in turn, made a reduction in the strength of the Maintenance Section at Roberts Heights possible. The personnel from Cape Town became involved in maintenance works for three months of each year, as they had done in the Cape, and, as a result, a number of civilian artisans working at Artillery Barracks and in the Heights, were released from service.

66 *Ibid*.

67 CGS, group 2, box 205, file CGS 366/5, vol. 1, South African Engineer Corps Reorganization. Chief of the General Staff – Officer Commanding No.1 Military District, the Quartermaster General, the Adjutant General and the Chief Clerk, 12 August 1929.

This reorganisation placed the CFE in a nebulous position. The once strong unit had by now lost its signal and other functions and had whittled down to a pocket-sized unit. The SAPF members of this unit, together with the Maintenance Section in Pretoria, resorted under the Quartermaster General. The rest of the CFE, all part-time personnel, resorted under the Coast Garrison Force. In order to obtain a measure of uniformity, the CFE, as a unit, was placed under the control of the Quartermaster General in 1930.[68] This was the position until 1931, when the CFE disappeared.

As the depression wore on, the need for further rationalisation in the UDF was felt and the decision to amalgamate the SAPF and Coast Garrison Force units in the Cape Peninsula Garrison was made (table 3). By the middle of 1930, the SAEC(PF) was attached to the South African Permanent Garrison Artillery (SAPGA) for disciplinary purposes. The unit, however, remained independent until 1 April 1931, when the SAEC personnel were absorbed into the SAPGA. The SAEC PF officer was transferred to the SAPGA Headquarters in the new post of "Captain (DEL & T)".

TABLE 3: AMALGAMATION OF ENGINEER AND ARTILLERY UNITS IN THE CAPE PENINSULA GARRISON, 1931.

	ENGINEERS	**ARTILLERY**
SA Permanent Force	SAEC (Cape)	SA Permanent Garrison Artillery
Coast Garrison Force	Cape Fortress Engineers	Cape Garrison Artillery

The CFE, on the other hand, became an additional company of the Cape Garrison Artillery (CGA), with the designation "No.4 Company, CGA (DEL & T)". This took place with effect from 1 July 1931. The two lieutenants on the strength of the CFE (C Gibbons and AP Powell) were transferred to the CGA.[69] The Defence budget of 1930/31 was the last to make provision for the fortress engineers.[70]

68 DC, box 1081, file DC 184/60/4, vol. 3, Strength SA Engineer Corps (Fortress Engineers). Quartermaster General – Adjutant General, 12 April 1930.

69 AG(1), box 417, file 256/2, Officers Cape Fortress Engineers; and CGS, group 2, box 205, file CGS 366/5, vol. 1, South African Engineer Corps Reorganization.

70 This amalgamation, together with the earlier merging (1891) of the Cape Garrison Artillery and the Cape Engineers Volunteers, has created the illusion that a variety of units, including the present Cape Garrison Artillery (quite distinct from its namesake), are descended from colonial units dating from the nineteenth century. These and other dubious claims to colonial descent are tiresomely flaunted from time to time. A case in mind, is the recent claim (1990) by 7 Light Anti-Aircraft Regiment to the history of, *inter alia*, the Cape Sappers and Miners (raised in 1859). It would appear as if the last units with an established claim to the history of both the Cape Sappers and Miners, and the Cape Fortress Engineers, were disbanded in 1958. These units were the three

Only the Maintenance Section (Roberts Heights) and the Citizen Force engineer companies remained after the disappearance of the engineer units of the Permanent and Coast Garrison Forces at the Cape. However, even they did not escape. From 1931, the remaining SAPF unit was gradually demilitarised. This was affected by normal wastage, until only two officers and eight other ranks were all that remained of the SAEC(PF). (The military personnel were responsible for the administration of the unit, while the actual maintenance work was carried out by civilian artisans, employed individually at 24 hours notice.) This effected an annual saving of some £2 000 in allowances alone. Schoon, one of the remaining officers, was transferred to Defence Headquarters and was attached to the SA Staff Corps with effect from 1 October 1931. Captain WB McKay succeeded him as the new officer commanding of the now much-reduced Maintenance Section.[71] This, the last PF element of the SAEC, ceased to exist in 1933.[72] In 1936, Schoon could report that "we have no Permanent Force Engineer establishment whatsoever".[73]

6. FORCES MILITATING AGAINST GROWTH

During the interwar years a number of simultaneous and interconnected forces, two strategic and several others at the organisational level, worked against the further development of the SAEC in general and against engineer training in particular. Each of these forces in isolation might have been overcome. However, occurring in concert as they did between 1924 and 1933, they finally proved insuperable and caused, *inter alia*, the disbandment of the SAPF Engineers in 1933.

The first of these influences was the fall of Smuts in 1924 and a change in defence policy. The new government, a pact of Afrikaner Nationalists and Labour, stressed the Union's right to neutrality in the event of a European war. South Africa, Colonel FHP Cresswell, the new defence minister, declared at the 1926 Imperial Conference had shed her responsibility for the ultimate defence of the British territories on the sub-continent. The ACF would now be used only to combat insecurities *within* the Union. Moreover, in the event of South African involvement in a war, special units would be recruited and undergo a period of intensive training before deployment.[74] This had happened in 1914 and was to happen again in 1939;

Coast Regiments which had been renamed SAS Ubique, SAS Diaz and SAS Malagas, upon their transfer to the Navy in 1955.

71 DC, box 1454, file Reorganization of SA Engineer Corps Roberts Heights.

72 The last Defence budget to make provision for the SAEC(PF) was that of 1932/33. South African Parliamentary Papers: UG 14-1932. Estimates of Revenue and Expenditure, 1932-1933.

73 CGS, group 2, box 141, file G 242, chap. 2, Formation of Engineer Corps. General. Report by Major Schoon on "South African Engineer Corps", 28 August 1936.

74 CGS, group 2, box 141, file CGS 242, chap. 1, Formation of the Engineer Corps. General. Chief of the General Staff – Officer Commanding No.1 Military District, 12 August 1927.

and they were rapidly demobilised once the threat disappeared. Although political motive is clearly discernible, financial considerations, a further higher-level influence, must not be forgotten. An expeditionary force was cheaper to raise and train from scratch, than to maintain on a permanent footing.

The reserve of the ACF for internal deployments had a negative effect on the development of the field companies. Local deployments, necessarily shorter in duration, held the prospect of a poorly-equipped and numerically-weak opposition. Strong, well-equipped specialised companies were therefore not needed. Policy, together with the stringent financial situation, had long-term repercussions in terms of equipment, training and personnel. In 1923, the SAPF members of the SAEC (Cape) were tasked with the training of the CGF members of the CFE and, four years later, they were also assigned responsibility for the training of the newly-established ACF field companies. However, from the very start, it was clear that what training took place would be constrained by several difficulties.

The engineer formation experienced poor command and control. Despite the seriousness with which training was proclaimed, such training remained unstructured and irregular. By 1927, there were seven engineer units scattered through three forces and located at various centres across the country (table 4). Members of all these units had to receive military training in addition to their engineer training. However, the absence of a corps headquarters made cooperation difficult. No standard training structures existed and, as a result, all instruction took place on an impromptu basis. Even the Officer Commanding No.1 Military District (Cape Town) complained that the smaller units under his command, including the CFE and No.1 Field Company, were "greatly handicapped by having no PF instructors" and therefore could not function properly.[75] But the isolated units were most affected. Training did not proceed along uniform and approved lines, which wasted public money and did not equip units to take to the field.[76] A measure of unified command was achieved in 1930 with the transfer of the Fortress Engineers to the office of the Quartermaster General. However, by that date the future disbandment of the CFE was already decided.

Geography compounded the problem. The enormous distances between units did much to weaken inter-unit contact and worked against the standardisation of training. As the country slipped into the depression and defence budgets were reduced, less money became available for the despatch of all units to a single location for the annual training camp. Curiously, these camps were held in Cape

75 CGS, group 2, box 205, file CGS 366/6, SAE Corps Instructional Allowances members of the SAE Corps for duties with the Active Citizen Force Units (Engineers). Officer Commanding No.1 Military District – Adjutant General, 23 June 1930.

76 CGS, group 2, box 141, file G 242, chap. 2, Formation of the Engineer Corps General. Report by Major Schoon on "South African Engineer Corps", 28 August 1936.

Town, the home of the CFE, the SAPF element of which served as the instructors. A more logical venue would have been the Witwatersrand, where the extensive mining infrastructure offered far better opportunities for engineer experience and training existed. However, as we have already noted, there was no engineer unit stationed in Johannesburg.[77]

TABLE 4: THE ENGINEER UNITS OF THE UDF, 1927

UNIT	TYPE OF UNIT	FORCE	LOCATION
Fortress Engineer Section	Works	SA Permanent Force	Cape Town
Cape Fortress Engineers	Coast defence	Coast Garrison Force	Cape Town
Maintenance Section	Works	SA Permanent Force	Pretoria
No. 1 Field Troop	Field engineering	Active Citizen Force	Durban
No. 1 Field Coy	Field engineering	Active Citizen Force	Cape Town
No. 2 Field Coy	Field engineering	Active Citizen Force	Pretoria
No. 3 Field Coy	Field engineering	Active Citizen Force	Bloemfontein

The posting of permanent instructors to the isolated units at Durban, Bloemfontein and Pretoria was impractical and unaffordable. The number of days of non-continuous training was so few that the expense could not be justified. According to Major General AJE Brink (Chief of the General Staff 1920-1933), it would have been better if all the engineer units had been established at one centre; and in the event of war, allocated to brigades as required.[78] Brink, not in favour of the disbandment or relocation of the Citizen Force companies, decided to move the Engineer Training Section, which had been established at Cape Town on 1 April 1929 in an attempt to improve training, closer to the national centre of engineer activity.[79] This section was duly transferred to Pretoria in 1930, where they provided instruction to engineer personnel attending courses at SA Military College. However, in 1933, the last of the SAPF establishment was disbanded and, as a result, engineer training came to an abrupt end.[80]

While the attainment of 100% efficiency was impossible with Citizen Force troops during peace training, and more particularly in the technical arms, it was

77 Orpen and Martin, p. 9.
78 CGS, group 2, box 205, file CGS 366/5, vol. 1, South African Engineer Corps Reorganization. Conference re Organization of the SAEC held at Defence Headquarters, 21 August 1928.
79 This move must also be viewed in terms of the pending disbandment of the CFE.
80 Jooste, p. 13.

nonetheless clear that the standard of instruction received by the field companies was far from adequate; something recognised as early as 1928 at the Engineer Conference which met that August under the chairmanship of the defence minister. The situation worsened and, as the field companies held totally inadequate stores for their efficient training, most sappers were simply trained as infantry.[81]

Furthermore, many members of the SAPF were highly-paid artisans and their commanders were reluctant to send them on military courses, not only on account of financial reasons but also in view of the fact that certain work would have to stop.[82] Moreover, the Citizen Force members experienced similar difficulties. They were simply not able to take six-weeks leave from their civilian employment to attend courses in Cape Town and later Roberts Heights. Coordination of leave, to get all the sappers together for uniform training, also proved impossible. As a result, the duration of continuous training was shortened in 1927. The training of instructors became a four-week course and the annual training camp was reduced from six weeks to ten days. Despite this, the situation did not visibly improve. In 1928, the instructors' course had to be cancelled owing to insufficient nominations - only one officer and seven NCOs from a complement of approximately 55.[83] This lack of qualified instructors became particularly acute after the disbandment of the SAEC (PF) in 1933; no training at all, taking place during the year ending 30 June 1934.

However, the largest single problem facing the SAEC remained the recruitment of qualified personnel. Ideally, all officers were to be qualified engineers; and all other ranks, skilled artisans. In a number of instances this was achieved. South Africa also used the opportunity to send selected officers to the United Kingdom for specialised training. A number of engineer officers received training from the Royal Engineers during the twenties and thirties. A striking example of the ideal engineer officer of this period was NJ Grobbelaar, who, in 1921, was appointed to the CFE as a "field engineering officer" with the rank of lieutenant. Grobbelaar had a Bachelor of Science degree and underwent a two-year course in military engineering in the United Kingdom. He returned to South Africa in 1923, and assumed command of the Works and Maintenance Section, Roberts Heights, in the following year.[84]

Nevertheless, as far as qualifications were concerned, Grobbelaar was generally the exception. Men of the right calibre were simply not attracted to

81 Orpen and Martin, p. 9; and CGS, group 2, box 141, file G 242, chap. 2, Formation of the Engineer Corps General. Report by Major Schoon on "South African Engineer Corps", 28 August 1936.

82 CGS, group 2, box 205, file CGS 366/3, SA Engineer Corps Military Training. Quartermaster General – Chief of the General Staff, 6 March 1924.

83 CGS, group 2, box 141, file CGS 242, chap. 1, Formation of the Engineer Corps General.

84 DC, box 1002, file DF 169/407, student for Military Engineering Course. Secretary for Defence – Chief Paymaster and Accountant, 2 July 1921.

enlistment. Salaries were not competitive and rapid promotion for high-achievers was non-existent. Furthermore, service conditions were less than attractive. The engineer officer, in general, was not accorded professional respect; as Rowe experienced during the erection of the hangars at Zwartkop Air Station, when the Director Air Service refused to submit plans for his approval. Consequently, and all too frequently, the authorities were forced to appoint unqualified personnel in order to maintain engineer services in certain areas. This pattern, set in 1920 with the transfer of 25 SAMR to the CFE, continued for at least the next decade. This is corroborated by the large number of unskilled workers who enlisted as "handymen" with the Maintenance Section; and this despite the recommendations of the Clarke Committee.

To make matters worse, the appointment of unqualified personnel was not restricted to the other ranks. In 1930, when two officer posts fell vacant in the CFE, the Defence Department looked to the SA Railways and Harbours Administration for suitable candidates. However, even this source appeared to be drying up and two applicants, far from being ideal engineer officers, had to be considered. C Gibbons was not a qualified engineer and lacked experience in practical engineering. AP Powell, on the other hand, had no engineering experience of any kind, was over the regulated age and, to crown it all, was employed at a Cape Town station as a baggage clerk. They were not exactly the type of candidates from the Railways the Defence authorities had in mind. However, in view of the great difficulty experienced in obtaining suitable personnel, the Department had no choice and both men were appointed to the strength of the Cape Fortress Engineers as lieutenants.[85]

These influences to a greater or lesser extent were either caused or aggravated by the worsening economic climate, a strategic influence over which little control could be had. The large budgetary cuts after 1928 induced a long term lack of equipment, instructors and training opportunities. As a result, both the quality of such training which took place and the general preparedness of the field units, suffered. In fact, even before the financial pinch was felt (1927), the establishment of engineers per bayonet was distinctly below that considered necessary in other armies. Although this may partly be ascribed to the new policy of reserving the Citizen Force for service within the Union, the economic motive weighed heavily. Engineer units were substantially more expensive to maintain.[86]

85 AG(1), box 417, file 256/2, officers Cape Fortress Engineers.

86 CGS, group 2, box 141, file CGS 242, chap. 1, Formation of Engineers Corps General. Captain Baillie – Officer Commanding No.1 Military District, 26 July 1927.

7. EXPANSION, REORGANISATION AND MOBILISATION 1935-1939

The international climate changed dramatically during the 1930s with the weakening of colonial authority in the French mandate territories and in India. France, perceived as a possible threat to British Africa in the 1920s, bound herself to Britain in view of shared colonial concerns and fear of German interest in regaining lost colonies. International stability had furthermore deteriorated rapidly with the rise of authoritarianism in Central and Southern Europe, while Japanese aggression in China and the Italian invasion of Abyssinia and the growing accord between the fascist leaders divided the world into hostile camps.[87] As a result, the focus of British defence policy swung from the other colonial powers to the fascist powers.[88]

In South Africa, with a recovery in the economy and a new coalition government in power since May 1933, a number of defence policy changes, including a shift in attitude with regard to Imperial defence. Following discussions through 1933, at service and ministerial level, South Africa indicated that, although they would not commit themselves in advance, the government would decide on participation in the light of the circumstances of the emergency. Oswald Pirow, defence minister (1933-39), however emphasised that under no condition would the UDF be available for service outside Africa.[89]

This was still an important concession on the part of the Union government and, as a result, the UDF enjoyed expansion. Eight new infantry units were established and a field organisation of six brigades was formed into "forces" corresponding to divisions. This, of course, demanded a number of changes in the SAEC. No.1 Field Troop was converted into a field company as from 1 July 1934;[90] and with effect from 1 April 1935, two more field companies were established at Uitenhage and Johannesburg.[91] There were now six field companies, each with a strength of three officers and 52 other ranks (table 5).

87 The National Archives, Kew, London (TNA), DO 35/186, file 6984/164, Union Defence. Acting High Commissioner – Dominions Office, 28 May 1936; C Andrew, *The defence of the realm; The authorized history of MI5* (London, 2009), pp. 186-213.

88 CGS, group 1, box 47, file 71, Intelligence Contré Espionage (MI5). Chief of the General Staff – Colonel Sir Vernon Kell, 26 August 1926; MI5–Chief of the General Staff, 25 September 1926; O Pirow, *James Barry Munnik Hertzog* (Cape Town, 1957), pp. 218-219; HE Chilvers, *The yellow man looks on* (London, 1933), pp. 214-231.

89 TNA, DO 35/186, file 6984/2, South African Defence. Minutes of a Meeting, 24 July 1933.

90 AG(1), box 454, file 258/3, Officers No.1, Field Troop SAEC, vol. 1, circular AG(3)208/1934/0/1, 22 September 1934.

91 AG(1), box 426, file AG 257/25, Officers 2nd Field Company SAEC (Uitenhage). Adjutant General – Secretary for Defence, 16 April 1935; Government Notice 1066 of 26 July 1935 (*Government Gazette* 2290 dd 26 July 1935).

TABLE 5: THE SIX SOUTH AFRICAN FIELD COMPANIES, 1 APRIL 1935.

UNIT	LOCATION	PREVIOUS DESIGNATION
1st Field Company	Durban	No. 1 Field Troop
2nd Field Company	Uitenhage	-
3rd Field Company	Cape Town	No. 1 Field Company
4th Field Company	Bloemfontein	No. 3 Field Company
5th Field Company	Johannesburg	-
6th Field Company	Pretoria	No. 2 Field Company

The six field companies were not specialised units. In 1936, Schoon, now a major, proposed the establishment of two distinct engineering corps, and the separation of military engineering activities into those of a permanent or semi-permanent nature in the rear areas; and those of a temporary nature in the forward areas. He suggested that all works of the first category be carried out by an "Engineer Corps", a non-combatant organisation controlled directly by the Quartermaster General, and which would work closely with the Public Works Department and the building trade. On the other hand, according to Schoon, all works of the second category would best be the responsibility of a "Corps of Sappers" - a combatant organisation controlled by the General Staff, through a "Sapper Directorate" at Defence Headquarters. Furthermore, he proposed to rename the existing units of the SAEC "Sapper Companies", and establish a "Field Works Branch" at the Military College to conduct specialised training.[92]

Schoon's report, generally, met with a favourable response. An engineer branch at Military College had been provided for in the original (1933) reorganisation scheme. The necessity of a corps headquarters for the coordination of the training of the field companies was also widely accepted.[93] However, in terms of organisational changes, little was done.

Nonetheless, training was taken under the magnifying glass. During 1937 and 1938, field exercises, sometimes in concert with other army elements, were held at East London, Hammanskraal and Beit Bridge. Gradually, some of the field companies began to specialise in certain engineer tasks. The two companies stationed within Transvaal Command, benefited from their proximity to Defence Headquarters; and therefore became possibly the most advanced of the SAEC

92 CGS, group 2, box 141, file G 242, chap. 2, Formation of Engineer Corps General. Report by Major Schoon on "South African Engineer Corps", 28 August 1936.

93 CGS, group 2, box 141, file G 242, chap. 2, Formation of Engineer Corps General. Col. FH Theron, OC Roberts Heights and Transvaal Command – Chief of the General Staff, 19 September 1936.

units. The 5th Field Company, at Auckland Park, developed systems of trenches, including barbed wire entanglements, machine-gun emplacements and booby traps. Pretoria's 6th Field Company, on the other hand, concentrated on demolition tasks and bridge building.[94]

Early in 1939, Major GH Cotton, who had commanded the 5th Field Company (1935-1938), and Major A Fraser-Lawrie, commander of the 6th Field Company since March 1938, instituted a comprehensive and uniform training programme and an engineering branch was established at the Military College. These two field companies underwent continuous training at the College, after which they were earmarked as training companies for the personnel of the other field companies.[95] However, as Louise Jooste notes, the Second World War broke out before the engineering branch could become a reality.[96]

Although South Africa only entered the war three days after its start, the UDF had in fact begun a low-key mobilisation many months before. Already in 1938 another World War had begun to seem inevitable. The general staff realized that a strong military capability was essential and, as a result, definite steps were taken to strengthen the UDF and the SAEC was not neglected in the ensuing restructuring. A part-time post with the designation "Staff Officer Engineers", was created in the Directorate Army Training and Cotton was appointed to this post with effect from 28 September 1938. This was the first time since the inception of the corps, that the engineers had a representative at Defence Headquarters. Later, a second staff officer engineers post, also part-time, was created for Fraser-Lawrie. Although both were Citizen Force officers, this was certainly an improvement.[97]

TABLE 6: 1ST FIELD SURVEY COMPANY.

	COMMAND	LOCATION	STRENGTH
Headquarters	Cape	Cape Town	6
No. 1 Platoon	Cape	Cape Town	15
No. 2 Platoon	Voortrekkerhoogte and Transvaal	Pretoria	15
No. 3 Platoon	Natal	Durban	15
No. 4 Platoon	Eastern Province	East London	15

94 Orpen and Martin, pp. 11-12.
95 CGS, group 2, box 142, file CGS 242/2, Engineers Corps Training. Col. GE Brink, Director of Army Training – Officers Commanding Commands, 20 February 1939.
96 Jooste, p. 14.
97 *Ibid*., pp. 13-14; and AG(1), box 458, file 259/6, Officers 5th Field Company SAEC (Johannesburg). Adjutant General – OC Witwatersrand Command, 20 October 1938.

The 1st Field Survey Company (ACF) was established with effect from 1 April 1938, in view of the increased possibility of having to deploy a field force.[98] Although initially allotted to the Transvaal Command, the unit was reorganised with effect from 1 August 1939, into a headquarters with four Mapping Platoons and allocated to various commands (table 6).[99]

The importance of field survey and mapping had been stressed at the Imperial conference which met in London in May 1939. Major CW Couchman, commander of 5th SA Field Company since 30 September 1938, had emphasised that "the times were far too short for result ... (and) that Units must wherever possible spend more time than laid down (in ACF Regulations)" on training. By August 1939, ten hours during engineer courses were allotted to "Field Survey and Mapping" at the cost of "Mining" and "Tubular Water Towers".[100] Training was brought into alignment with the now very realistic possibility of deployment.

TABLE 7: THE THREE NEW ACF FIELD COMPANIES ESTABLISHED WITH EFFECT FROM 1 APRIL 1939.

UNIT	COMMAND
7th Field Company	Natal Command
8th Field Company	Cape Command
9th Field Company	Witwatersrand Command

Moreover, as a further step in the expansion and overhauling of the SAEC, three more field companies were created, together with no less than 21 other ACF units, with effect from 1 April 1939 (table 7).[101] And so, when German forces entered Poland on 1 September 1939, there was now a field company to support each of the nine infantry brigades in the Union Defence Force.[102] Cotton, transferred to the SAPF on 4 September, was appointed in the new post of Assistant Director Training (Engineers) in the office of the Director Military Training on 5 September. Fraser-Lawrie was concurrently transferred to the SAPF and was appointed to Cotton's staff. Fraser-Lawrie, the "small, quick fellow with a nice sense of humour" that a young Guy Butler encountered in 1942[103], was at the time attached to the Royal

98 Routine Order 240 of 28 May 1938.

99 AG(1), box 486, file AG(1)258/29, Officers – 1st Field Survey Company SAEC (No.3 Platoon) Durban; CGS, group 2, box 205, file CGS 366/5, vol. 2. SAEC re Organization.

100 CGS, group 2, box 142, file CGS 242/3, Engineer Corps Training. Major A Fraser-Lawrie, S.O. Engineers – Director of Training and Operations, 5 August 1939.

101 Routine Order 427 of 8 July 1939.

102 Orpen and Martin, p. 12.

103 G Butler, *Bursting world: An autobiography, 1936-45* (Cape Town and Johannesburg, 1983), p. 160. Fraser-Lawrie, served in Johannesburg during the war as the chief engineer in the Inland Command.

Engineers in Britain for a training period of six months.[104] South Africa went to war on 6 September.

8. CONCLUSION

"An army", as a British general noted in 1952, "is a depressing place after a great war".[105] The period from 1918 was bleak for armed forces internationally. Military innovation was very difficult and often the best personnel left the service. South Africa was no exception. The SAEC was established in 1923 and was, despite the creation of a part-time complement from 1926, constrained almost immediately by influences that militated powerfully against innovation and growth. The reserve of the ACF for internal wars had a negative effect on the development of the field companies, while changing defence policy and the stringent financial climate caused a long term lack of equipment that impacted severely on training. Growing insecurity, following the advent of Hitler and Mussolini's African adventures, led again to a reshaping of defence policy during the 1930s and, as a result, by April 1935 there were six field companies in the UDF and a further three were created in April 1939 so that there was a field company for each of the nine infantry brigades. These formed the nucleus of the wartime SAEC organisation that served so meritoriously, building roads and bridges, excavating tunnels, laying on water, clearing minefields and other field engineering works, in four theatres of the Second World War.

104 Orpen and Martin, p. 14.

105 Lt. Gen. Sir Giffard Martel, *East versus West* (London, 1952), p. 23.