

The Springboks in East Africa: The role of 1 SA Survey Company (SAEC) in the East African Campaign of World War II, 1940-1941

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Abstract. As a member of the British Commonwealth, South Africa was part of Britain's war effort since September 1939. When Italy entered the War on the side of Germany on 10 June 1940, the Italian territories in East Africa comprised Abyssinia together with Eritrea, now part of Ethiopia, and Italian Somaliland, now part of the Somali Democratic Republic. Although pre-war plans did not anticipate that the SA Army would fight outside southern Africa, Italy's involvement in north-east Africa made it inevitable that South African troops would be deployed to the new war frontier.

The South African forces (commonly known in the media as "Springboks") played a major role in the fall of Mussolini's East African Empire. The war was fought under extreme physical circumstances, and it was especially the SAEC (South African Engineering Corps) which rendered invaluable services. By 1940 East Africa was still largely unmapped, and one of the SAEC units, 1 SA Survey Company (initially named the 1st Field Survey Company), supported by 60 Photographic Squadron of the South African Air Force, mapped large parts of the war zone and provided essential military intelligence.

This paper deals with the formation and subsequent deployment of 1 SA Survey Company in Kenya, Abyssinia and Somaliland, as well as the achievements of its various sections. The maps which were produced, are analysed against the background of the available source material and prevailing circumstances. Their quality and style compared to contemporary military maps on the same scale issued by the Union Defence Force (UDF) in South Africa during the War.

Keywords: East Africa, Survey, Map

1. Introduction

After September 1939 the entry of Italy into the war against the Allies was

a very real possibility. South Africa was ill-prepared for war, but the government was adamant that the country would fully cooperate with its friends and associates in the British Commonwealth. Immediate measures to expand and mechanize the Army and improve the capacity of the Air Force were put in place and by December 1939 the Mobile Field Force of the UDF had been formed and was being trained and mobilized (Orpen & Martin 1981:16). It was clear that, should Italy enter the war, Italian forces operating from Eritrea and Abyssinia would pose a real threat to Allied shipping in the Red Sea, and that Germany would support an Italian invasion of Kenya. As a precautionary measure, the Union Defence Force (UDF) sent several reconnaissance parties to Nairobi to report on local conditions. One of the important issues which was investigated, was the level of surveying and topographical mapping in north-east Africa.

The probable area in East Africa over which operations were expected to take place, was a large one. The Italian possessions formed a solid block of territory with an area of over 1 000 000 sq miles extending from the border between Kenya and Italian East Africa in the south, to the northern boundary of Eritrea, and from the Anglo-Egyptian Sudan in the west, to the Indian Ocean, British Somaliland, the Gulf of Aden, and the Red Sea in the east (see *Figure 1*). Very little of this area had been properly surveyed, and there were large tracts for which little cartographic information was available. The most up-to-date published maps of Abyssinia and Italian Somaliland was

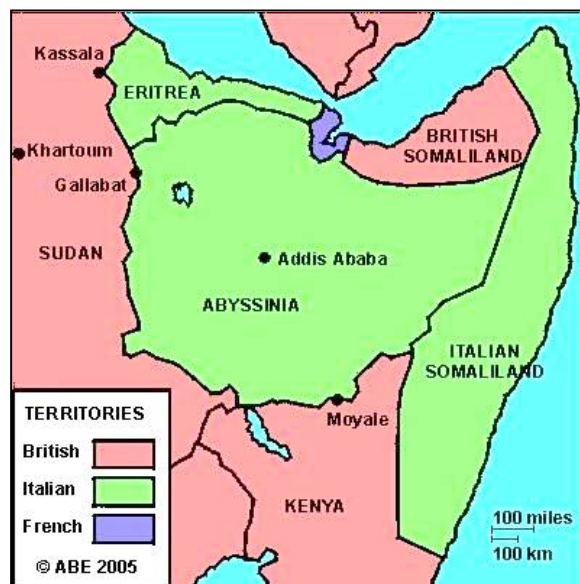


Figure 1. The war zone in north-east Africa

a 1 : 400 000 Italian series which was on public sale in places such as Mogadishu, but of which only a few sheets had been secured prior to the war. By 1939 the only available War Office maps of East Africa were the 1 : 2 000 000 standard African series covering the whole of East Africa; a 1 : 1 000 000 series of Tanganyika, southern and north-western Kenya, and Uganda, but without any coverage of Abyssinia or Italian Somaliland; and a 1 : 250 000 series comprising 17 sheets covering British Somaliland (Clough 1952: 151).

With the existing maps being totally inadequate for a military campaign fought with modern warfare, the immediate mapping of East Africa became a matter of the utmost urgency. With the resources of the local East African Survey Company in Nairobi severely limited, it was obvious that South Africa would have to take a leading role in providing the necessary topographical information and maps for military purposes.

2. Background

When the Union of South Africa was established in 1910, the country had no central mapping organisation and was virtually unmapped except for a few compilation map series produced by the British forces during the Anglo-Boer War of 1899 to 1902 (Liebenberg 1974). After the War, the British War Office mapped the Orange River Colony at a scale of 1 : 125 000, and the north-western Cape Colony at a scale of 1 : 250 000, but almost no mapping was done after that. When the UDF was established in 1912, South Africa was entirely dependent upon the British War Office for its intelligence (Van der Waag 1995: 22). This was still the situation in 1914 when the country was subjected to a threatening invasion of German South West Africa, and was also called upon to assist in the defense of East Africa. After World War I, the South African engineering units which served in German South West Africa and East Africa were disbanded (Clough 1952: 8).

When the South African Trigonometrical Survey Office (TSO) was established in 1921, its first priority was not mapping, but the completion of the primary and secondary triangulation network of the country. The country remained unmapped for both military and civilian purposes until 1936 when the situation became so untenable that a high-level decision was taken by the government that the TSO should undertake the mapping of the country on a scale of 1 : 50 000 using aerial photography (Liebenberg 1974: 334-344). On 7 January 1936, with war already looming on the horizon, the Director of the TSO, William Whittingdale, was appointed ex-officio Director of Military Survey of the UDF with the rank of Lieutenant-Colonel in the

Active Citizen Force (ACF). In the same year the Mapping Officer in charge of the new Topographic Branch of the TSO, N. Gordon Huntly, was sent on an overseas tour to study both military and civil mapping and survey methods in the USA, Europe, and the UK, a tour which included six months at the Ordnance Survey and three months at the British War Office (Watson 1952). On his return, he was appointed Assistant Director of Military Survey and, on 1 April 1938, under his guidance, the First Field Survey Company was established as an ACF unit of a revamped South African Engineer Corps (SAEC), the core of which had been in existence since 1923.

On 6 September 1939 South Africa declared war on Germany. The mobilisation of the First Field Survey Company was already ordered in May 1940 before Mussolini joined forces with Hitler. The Company, less the Mapping Group, left South Africa on 14 July 1940 and, after a road and rail journey of 3 000 miles, reached Nairobi in Kenya on 3 August 1940. They took up quarters at Langata Camp, five miles west of Nairobi, but by the end of August moved into "The Gables" in Sclaters Road which would become their permanent address until the end of the East African Campaign (Visick ca 1945?: 5). The Mapping Group joined the Company in December 1941.

In February 1941 the establishment of the unit was altered. It was now called 1 SA Survey Company and consisted of 35 officers, 209 Europeans of other ranks, 241 Black and Brown South Africans of other ranks, and 142 vehicles.

3. Mapping policy

In July 1940, and again in November 1940, the following mapping policy decisions regarding East Africa were announced by the Director of Survey of the Middle East operational area (Clough 1952: 153-155):

- The existing 1 : 2 000 000 War Office series (GSGS 2871), would remain the standard map series of Africa with the Union of SA undertaking the maintenance and printing of all sheets south of latitude 4° N.
- The existing 1 : 1 000 000 series (GSGS 2465), which covered Tanganyika, Kenya and Uganda had to be extended to Abyssinia and Somaliland as far north as 8° N. The responsibility for this series would lie with the East African Survey Group (EASG) which was instructed to mainly concentrate on the area of potential operations and movement.

- A 1 : 500 000 series, which was to consist of sheets compiled on a regular system of sheet lines measuring 2° each way, covering the whole battle area, would be the standard series for the operational area. The series was to be based on surveys of accessible areas, reconnaissance reports and other map material that could be obtained. Special features were to be photographed from the air.
- A 1 : 250 000 series of the more developed areas was to be undertaken by 1 SA Survey Company.
- Maps on scales of 1 : 50 000 and 1 : 25 000 of selected areas were to be produced by making use of rapid air surveys by 60 SA Air Photographic Squadron.

To fully understand the complexity of the mapping effort envisaged, it is necessary to move forward in time and provide a brief summary of the military operations which took place during the period August 1940 until the Italian East African Army finally surrendered in May 1941.

4. Abyssinian Campaign

As from June 1940, Italy tested the resolve of the British and Commonwealth forces in north-east Africa. On 13 June 1940, Italian forces bombed the Rhodesian air base at Wajir in Kenya; on 4 July the Italians in Eritrea crossed the Sudanese border to capture various Sudanese villages, and on 3 August 1940, Italian troops invaded and conquered British Somaliland. By December 1940, the Italian forces were firmly established in Eritrea, at various strategic points in the Abyssinian Highlands, and along the coast of Italian Somaliland at Kismayu and Mogadishu.

The SA forces left South Africa for East Africa in July 1940. Whilst 1 SA Survey Company settled in Nairobi, the 1st SA Division under the command of Lieutenant-General George Brink was assembled at its headquarters at Marsabit in central Kenya. The first British assault on the Italian forces did not involve any South African soldiers. In January 1941 British and Commonwealth troops under General William Platt invaded Italian Eritrea from the Sudan. Agordat was taken on 1 February, and on 27 March 1941 General Platt broke the core of Italian resistance in a decisive Allied victory at the Battle of Keren. Asmara surrendered five days later, and Massawa was occupied on 8 April 1941.

The offensive from the South as planned by the British Officer Commanding the East African Force, General Alan Cunningham, was two-pronged -

an Allied force should move from Kenya north-east into Italian Somaliland, whilst another one should move north into Abyssinia. The Springboks were involved in both arms of the pincer (see *Figure 2*). Together with British, West African, East African and Rhodesian troops the 1st SA Infantry Brigade under Brigadier (later general) Dan Pienaar attacked Somaliland, whilst the 2nd and 5th S.A. Infantry Brigades under Lieutenant-General George Brink, assisted by the 25th East African Brigade, struck north to capture the strategic Italian bases of Mega, Yavello, Neghelli and Moyale.

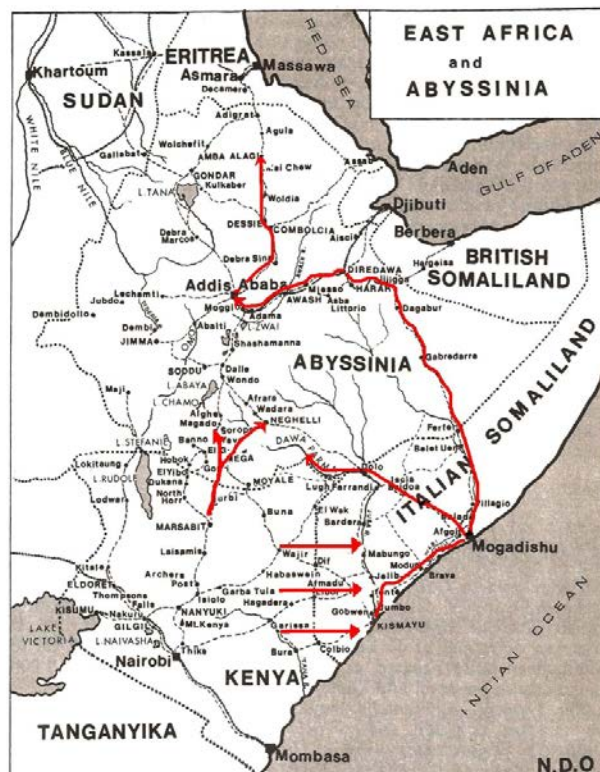


Figure 2. Movement of SA Forces in their attack on Italian East Africa.

To reach the border between Kenya and Abyssinia, and Kenya and Somali-land, the South African and East African forces had to cross Kenya's formidable North Frontier District, a dry and barren wasteland comprising two deserts; namely the one the soda-sand desert of the Chalbi stretching northwest of Marsabit, and the other the uninhabitable lava desert, the Dida Galgalla, running north to the Moyale escarpment. With the average daily temperature well in excess of 110 °F and no surface water, water sup-

ply was a vital problem resulting in each soldier receiving only two gallons of water per day for personal use. It was in such circumstances that 36 SA Water Supply Company of the SAEC rendered an heroic service to the Allied forces by drilling water holes and pumping water day and night to keep the military operation going (Orpen & Martin 1981: 40, 129-130).

The assault of the S.A. 2nd and 5th Infantry Brigades together with the East African 25th Infantry Brigade on the enemy in southern Abyssinia was highly successful and in February 1941 the fort at Hobuk and the fortress of Mega fell to the Allies. In the mean time the S.A. 1st Brigade, joined by a battalion of the Gold Coast, defeated the enemy at El Wak on the Kenya-Somaliland border from where they triumphantly moved to Kismayu on the coast. After crossing the Juba River, the Allies moved to Mogadishu which was captured on 24 February 1941. With the Italian resistance in Somaliland eliminated, General Cunningham decided to immediately strike north from Mogadishu, following the Italian-built *Strada Imperiale* across the barren plains of north-eastern Abyssinia towards Jijiga and Harar, the latter being the country's second-most important city. The distance of 750 miles was covered in 17 days. After fierce fighting in the vicinity of Harar and Diredawa, the Allied troops reached the Awash River on 2 April 1941, and on 6 April captured the Abyssinian capital Addis Ababa unopposed.

The war was not over yet. After their defeat by General Platt at the Battle of Keren, the remnants of the Italian Eritrean army had fallen back to the south-east towards Dessie and Amba Alagi where they would link up with the defeated armies fleeing north from Addis Ababa. In the mean time the Emperor of Abyssinia, Haile Selassie, who had lived in exile in Britain since 1936, had returned to his country via the Sudan and had collected a motley army of brigands and rebels, called the "Shifita", which was now also marching on Addis Ababa and the Italians strongholds at Amba Alagi and Gondar.

The two fiercest battles the South Africans would fight during the entire campaign were in the mountain maze of Dessie and Amba Alagi north of Addis Ababa. Towering 10 000 ft into the sky, the peak of Amba Alagi was surrounded by a tumbled maze of mountains and ravines which, in May 1941, were enveloped by biting winds, rain, mist and sleet. On 18 May 1941, after fifteen days of tenacious attack by British, Indian and South African troops, the Duke of Aosta, Commander-in-Chief of the Italian East African Army, formally surrendered. The rain season postponed the final reduction of some Italian garrisons which had taken refuge in ancient forts in the mountain country of north-west Abyssinia, but on 27 November 1941 General Nasi, the last of the Italian commanders in the field, surrendered the fortress at Gondar. The war in Abyssinia had ended.

Apart from 1 SA Survey Company, the other SAEC companies also rendered invaluable services throughout the campaign. The SA Water Supply Company drilled wells, built water installations and lay pipelines in the dry, desert areas of the south whilst the Water Maintenance Company treated large quantities of poor quality water to make it potable. The Road Construction and Road Maintenance Companies built roads and passes in rocky and mountainous areas and lay pontoon bridges; the Railway Companies built railway lines for the transport of military equipment and troops; and the Field Sections cleared sites for camps; built base camps and field hospitals; built airstrips and landing grounds, and cleared roads of land mines. The SAEC on the whole, performed prodigious feats in all theatres of the campaign.

5. Organisational structure

1 SA Survey Company was not the only African survey unit which served in East Africa. Other units were the

- East African Survey Unit of Tanganyika, originally known as the Field Survey Unit, the King's African Rifles, originally located at Dar-es-Salaam.
- Southern Rhodesian Survey Unit, recruited from the staff of the Southern Rhodesia Survey Department.
- West African Survey Unit, made up of the Nigerian and Gold Coast Survey Departments.

In July 1940 the presence of these divergent survey units and the imminent arrival of the SA Survey Company, made the military authorities in East Africa realise that some form of central survey control was necessary. Two steps were taken to address this situation (Clough 1981: 145-146):

- On 23 July 1940 the Survey Directorate EAF (East African Forces) was established and responsible for all surveying and mapping in East Africa. Colonel Martin Hotine acted as Deputy Director Survey from November 1940 until February 1941 when he was succeeded by Major JES Bradford of the Southern Rhodesia Survey Company.
- On 1 August 1940 an East African Survey Group (EASG) was formed which consisted of the East African Survey Unit, the Southern Rhodesian Survey Unit, and the West African Unit. Major JES Bradford of the Southern Rhodesia Survey Company was appointed Commander of the Group.

1 SA Survey Company was not at any time included within the EASG, but worked as a parallel organisation, reporting directly to the Survey Directorate (Clough 1981: 145). Lieutenant-Colonel Gordon Huntly, an engineer survey officer in the UDF, was appointed Assistant Director Survey EAF, responsible for the South African troops. Although not officially a member of the Survey Directorate EAF, he served as *de facto* member until April 1941 when he left to take up a post in the Survey Directorate, GHQ, Middle-East Command.

To facilitate the distribution of survey, photographic and cartographic information and data to the various units, three central Offices were established which operated under the technical control of the Survey Directorate EAF: the Central Trigonometrical Records (CTS), the Central Photographic Records (CPR), and the Central Cartographic Records (CCR) (Clough 181: 154).

6. The 60 Photographic Squadron, SAAF

The size of the potential battle area and the fact that the surveyors could only work to a very limited extent in enemy territory, made it apparent from early on that air survey methods would be of the utmost importance. In June 1940 the task to photograph large areas of East Africa for mapping purpose fell to 1 Survey (Flight) of 60 Photographic Squadron of the South African Air Force (SAAF). The operational instructions given to this Flight were to take photographs of the areas required by the Survey Directorate, to develop the films and to produce contact prints which were then handed over to the Photo-Topo Sections of the EASG and 1 SA Survey Company. Personnel of the Squadron were attached to the latter unit to form a photo developing and printing section. With only a few aircraft and limited resources to their disposal, the pilots, ground staff and photographic personnel produced valuable and urgently required photography on an ongoing basis (Clough 1981: 144-145).

7. Activities of Groups and Sections

Commanded by Major John Short, 1 SA Survey Company comprised the following groups (Visick ca. 1945?: 6):

- Field sections
- a Geodetic Section
- a Map Production Group

- a Photo-Topo Group
- a Map Reproduction Group
- an Instrument Repair Section

Five sections of 1 SA Survey Company operated in the field, each consisting of four officers, 12 other ranks and 20 to 30 African labourers. In addition to these, survey parties were also attached to the 1st South African Division and the 25th EA Infantry Brigade at Marsabit. The operational orders to the Field Sections were to continue the existing Kenya primary triangulation northwards into south-eastern Abyssinia to be connected to the Uganda triangulation, if time permitted; to establish a secondary and minor triangulation network to provide control points for artillery purposes and subsequent aerial photographic surveys; to map large areas by ground methods (plane tabling) for road building and other infrastructure purposes; to check the topography on existing captured maps; to prepare sketch maps from aerial photographs, and to maintain the records of the surveys undertaken (see *Figure 3*). The triangulation required thorough reconnaissance exercises, night observing to attain good visibility (no mirage or glare) and stable conditions (no wind), baseline measurement, and beacon building. Many points were inaccessible by vehicles and necessitated long safaris on foot through dense bush, and over boulder-covered ground. The lack of

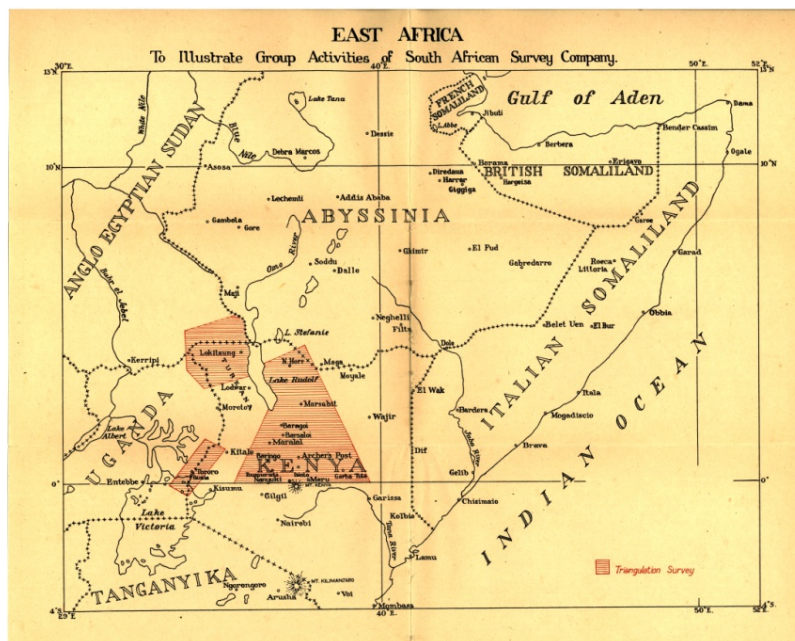


Figure 3. Triangulation surveys by 1 SA Survey Company, 1940-41.

water was an ongoing problem, and a certain amount of bush cutting was necessary to clear lines of sight. The plane table mapping was done on a scale of 1 : 100 000 with contour intervals of 250 ft, and it was required to fix the position of all roads, buildings, villages, boreholes, permanent water holes and military positions. The country was generally difficult to access as large areas were covered by an extensive lava sheet consisting of jagged and loose boulders in an endless series of shallow hollows and mounds.

The information collected by the surveyors in the field was passed on to the Photo-Topo and Map Production sections which were responsible for the transfer of topographical information from aerial photographs to plane tables, and for the actual compilation and fair drawing of the maps. The members of the SA Photo-Topo Group were mostly drawn from the staff of the TSO in South Africa and were therefore trained in topographical work.¹ The Map Production Group consisted of volunteers from various government departments and municipal and private drawing offices in the Union. Although trained draughtsmen, they had very little mapping experience and no knowledge of reproductive methods used in cartography. After being trained in map production methods, they worked in shifts of 10 hours on and 20 hours off, and produced roughly 3,5 maps per day. Every effort was made to issue maps at least one jump ahead of the troops, but movement was so rapid that it sometimes became necessary to stop work on those maps of an area already covered, to jump ahead of the troops once more.

Map reproduction was concentrated in Nairobi throughout the campaign (McGrath 1976: 100). The EA Survey Group had a hand-operated map printing plant to its disposal to which additional equipment was supplied in October 1940 from the Middle East command. In the Union of South Africa the lithographic printing of peace-time topographical maps was not, as in most other countries, undertaken by the TSO, but by the Government Printer. On mobilization, the Government Printer became the UDF Director of Army Printing and Stationery Supplies (DAP & SS). The DAP & SS soon formed a Mobile Printing Company which in 1940 was moved to Nairobi to be attached to 1 SA Survey Company. The printing work was divided between the EASG and 1 SA Survey Company, and although some sheets were compiled, drawn and printed by only one of these units, many were compiled and drawn by the one, and printed by the other.

8. Maps produced

¹ Altogether 74 members of the TSO were recruited for active service from 1939 to 1945 and most of the technical and transport equipment used by 1 SA Survey Company was provided by the TSO.

1 SA Survey Company was involved in the production of the following map series:

8.1 East Africa 1 : 500 000 series

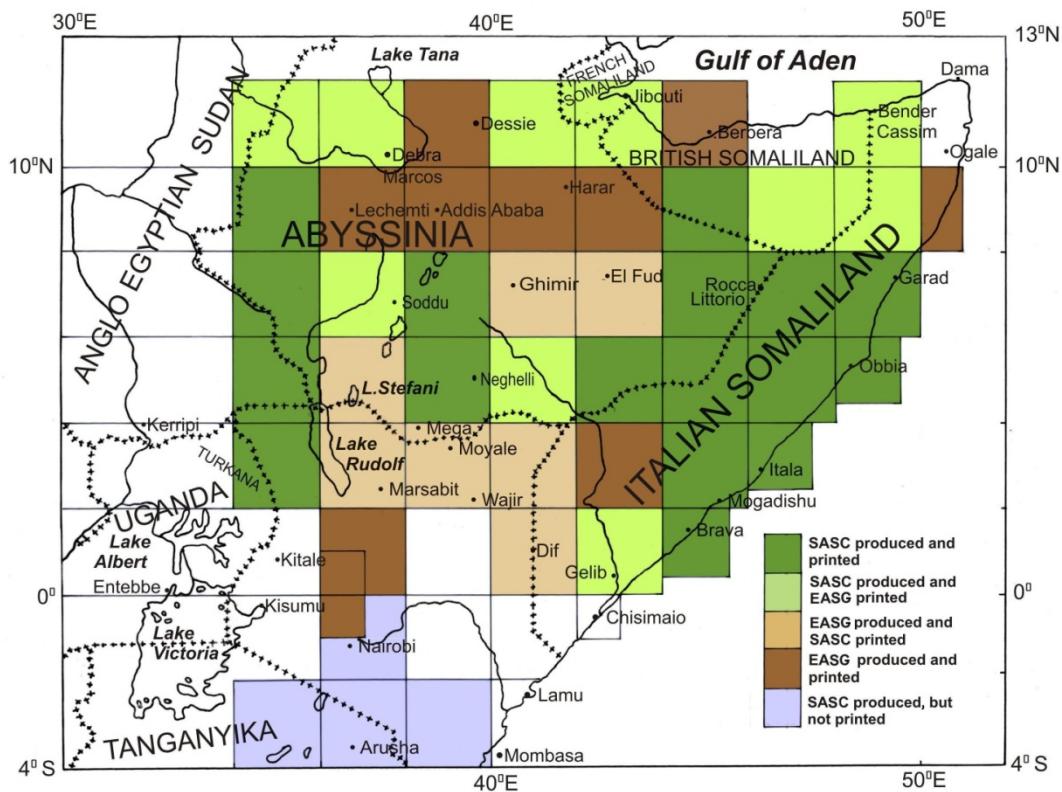


Figure 4. 1: 500 000 mapping by 1 SA Survey Company and the East African Survey Group, 1940-41.

This series was compiled on the Transverse Mercator Projection based on the Clarke 1880 spheroid. After examining the actual map sheets available in South Africa², it was still unclear which maps were published for the first time during the campaign, and which after the campaign. The index map in an official UDF publication (Visick ca 1945) was also found to be incomplete as it does not show all the sheets which were identified, nor does it differen-

² Two institutions in SA were consulted: The SANDF Archives (Pretoria) and the Ditsong Museum of Military History (Johannesburg). Both collections hold incomplete sets of the East African 1 : 500 000 series.

tiates between the work of 1 SA Survey Company and th EASG. *Figures 4 and 6* attempt to address this problem by depicting the First Edition and First Printing of the various sheets produced by each of these units during the period December 1940 to May 1941. Due to the shared responsibilities, the Second or Third Edition of a sheet which was issued by a particular unit, was later often done by the alternative unit with a corresponding change in appearance. After May 1941, the 1 : 500 000 series became the sole responsibility of the EASG.

As most maps had to be compiled from information collected by the field sections and whatever other sources were available, many sheets depict a “reliability diagram” announcing that “This map is compiled from the best available information. Surveys on the ground have not been made and the map may be unreliable”. Some sheets, however, show reliability diagrams giving more exact information regarding the actual sources used (see *Figures 5A and 5B*).

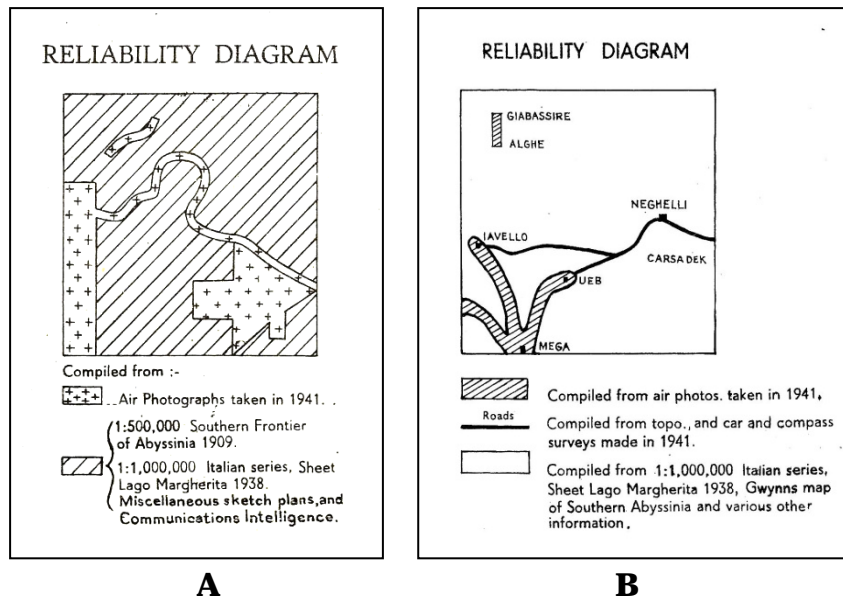


Figure 5 A: Reliability diagram of 1 : 500 000 sheet GABREDARRE
 B: Reliability diagram of 1 : 500 000 sheet NEGHELLI

The 1 : 500 000 maps of East Africa produced by 1 SA Survey Company were published in either 3 or 4 colours. As South Africa was still un-mapped at that stage, the style and appearance of the maps resemble the South

Africa UDF 1 : 250 000 series which was to be produced by 45 Survey Company, SAEC, upon the latter's return to the Union in 1942.³

8.2 East Africa 1 :125 000 series

The coverage of the 1 : 125 000 maps produced by 1 SA Survey Company during the campaign are shown in *Figure 6*.

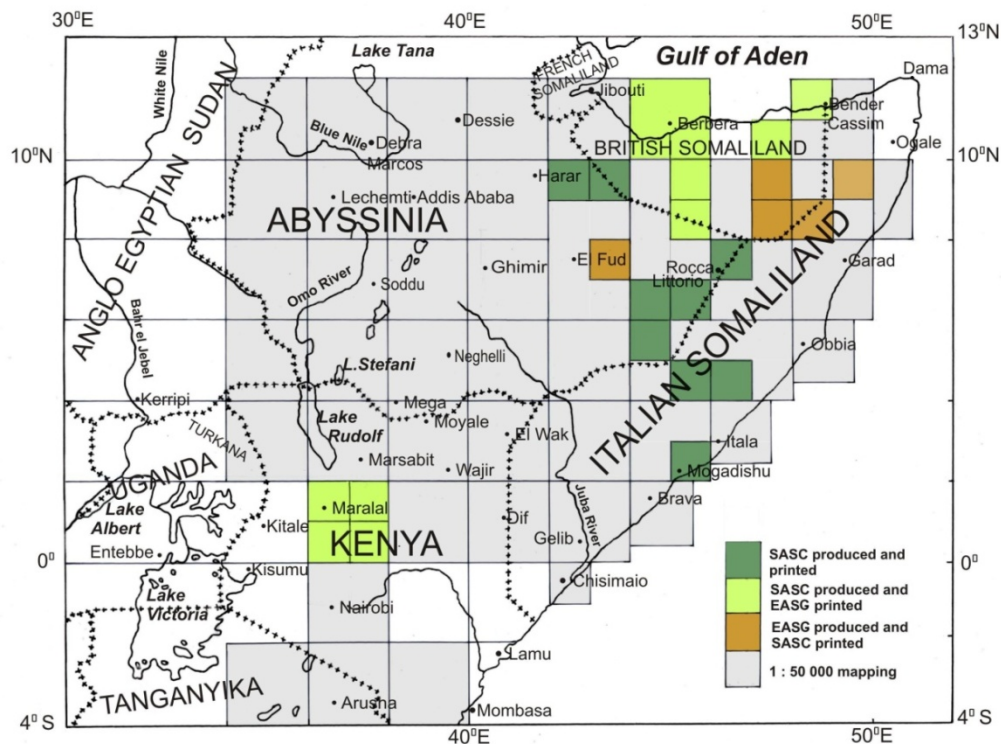


Figure 6. 1 : 250 000 mapping by 1 SA Survey Company and the East African Survey Group, 1940-41

8.3 Africa 1 : 2 000 000 series

³ By 1942 the Japanese threat had necessitated some provision for the defense of the Union of South Africa. The largest scale map completely covering the Union was the so-called Irrigation Map on a 1 : 500 000 scale, which was inadequate for military purposes. In 1942, 45 Survey Company was returned to South Africa from Egypt to carry out a crash mapping programme on a scale of 1 : 250 000 of a belt of approximately 250 km wide around the entire South African coast from Mocambique to Angola (see Orpen & Martin 1981: 323).

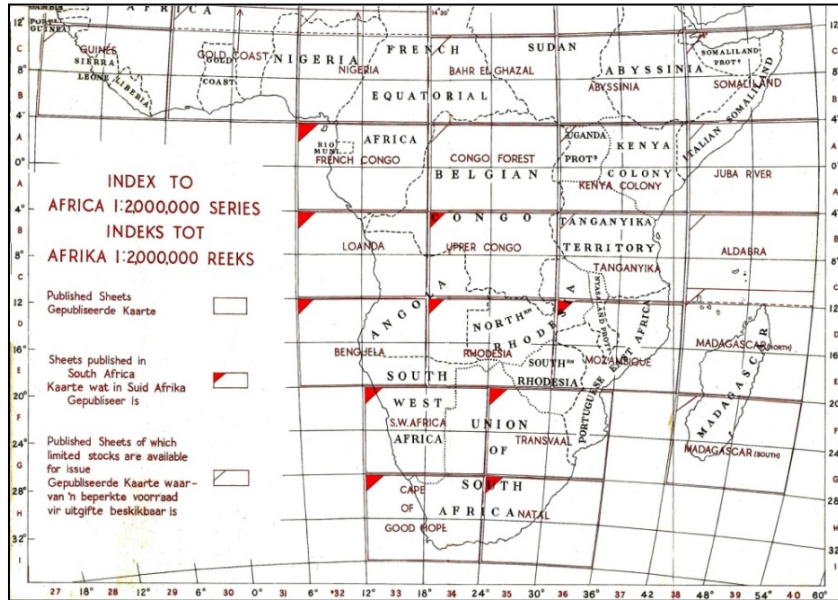
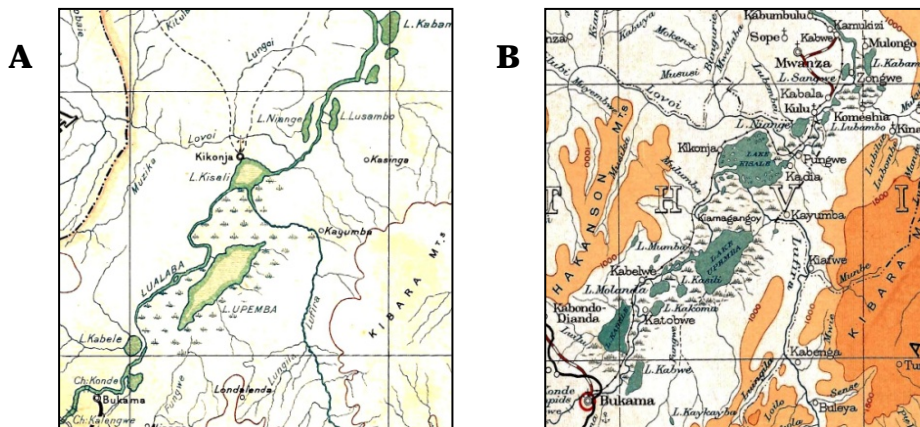


Figure 7. Sheets of the Africa 1 : 2 000 000 series produced and printed in South Africa

South Africa honoured its undertaking to maintain and print the sheets pertaining to GSGS 2871 south of 4°N. This task involved a complete revision and redrawing of the existing maps by the TSO (see *Figure 7* which depicts an area on the sheet UPPER CONGO). The South African maps were published as UDF 656 (see *Figure 7 C and D*). The first edition (1940), appeared in black and white only, with blue hydrographical features, but in 1943 a new edition with layer tinting for altitudes was published.



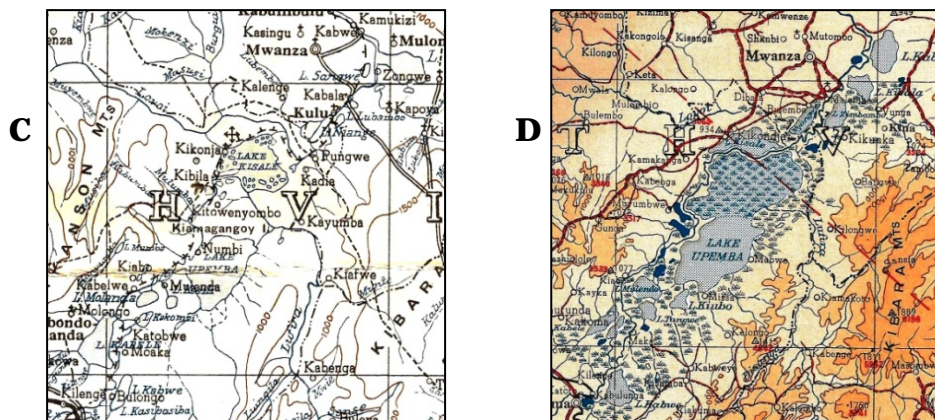


Figure 8. A: GSGS 2871, War Office, 1919
 B: GSGS 2871, War Office, 1935
 C: UDF 656 TSO, South Africa, 1940
 D: UDF 656 TSO South Africa, 1943

9. Gazetteer

In May 1941, 1 SA Survey Company was moved to the Middle East with all its equipment and personnel, including the attached lithographic section. Before leaving Nairobi, the Company had completed a gazetteer for use with the 1 : 500 000 map series. The gazetteer contained over 23 000 place names, for which grid references were provided. The compilation took approximately 3 000 man- hours in addition to a further 600 man-hours for subsequent checking.

10. Conclusion

In May 1941, 1 SA Survey Company was moved to Egypt to serve in the Western Desert. On 2 April 1942 the Company was split into two units: A type “A” unit, now called 45 Survey Company, was returned to South Africa under the command of Lt.-Col WF Short, with 13 officers and 103 other ranks. A type “B” Company was retained in the desert as the operational field unit and was re-designated 46 Survey Company, SAEC, with 25 officers and 240 other ranks, and assigned to the (British) 8th Army. In August 1943, after the conclusion of the North African Campaign, 46 Survey Company was reorganised in Cairo, and on 14 August 1943, prior to the invasion of Italy, reassigned to the 5th US Army at Tripoli. Whilst serving in Italy, 46 Survey Company, SAEC

was twice awarded the 5th Army plaque for excellence in discipline, performance and merit.⁴

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