

THE CARTOGRAPHIC LEGACY OF THE ANGLO-BOER WAR, 1899-1902

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ABSTRACT

The Anglo-Boer War (also known as the South African War or Boer War) was fought by the two Boer Republics (the Orange Free State and the South African Republic) against the British Empire, from October 1899 until May 1902. When the war broke out, South Africa was, as far as large-scale mapping was concerned, still unmapped. Prior to the war, the War Office despatched officers to Natal and the Cape Colony to do reconnaissance mapping, and during the war two survey and three mapping sections were sent to South Africa to provide in the need for reliable maps. The military surveyors who served in the British Army as Royal Engineers, and the non-commissioned officers making up the mapping sections, worked closely with the existing Offices of the Surveyors-General to produce two types of map – one from existing sources called a compilation map, and the other a conventional topographic map based on a topographic survey. The local survey departments acquired valuable expertise in surveying and mapping during these exercises and the maps thus produced would be the only maps of large parts of the country for many years. With the cessation of hostilities, Britain realised that if it wanted to sustain its imperial influence in Southern Africa, it would have to make provision for the topographic mapping of the colonies. As a result, survey sections were despatched to South Africa to undertake accurate topographic mapping in the Orange River Colony, the southern Transvaal and the north-western Cape Colony.

After the war, South Africa found itself in the cartographic wilderness for almost 40 years in the sense that no topographic mapping was done while the SA Trigonometrical Office devoted its time and attention to the primary and secondary triangulation of the country. The systematic mapping of the country only started off with the reorganisation of the Trigonometrical Office in 1936. The maps produced during the Boer War can be seen as contributing to this in the sense that they laid the foundation for the decisions taken by the Topographic Conference of 1904, many of which would later be pursued by the Survey Commission of 1921, the Land Survey Act of 1927 and the interdepartmental committee which gave rise to the official mapping policy accepted in 1936. The other side of the coin is the question whether the systematic mapping of South Africa would have been delayed as late as 1936 had the cartographic legacy of the Boer War not been available. Fortunately it is not the aim of this paper to either prove or disprove this hypothesis.

1. INTRODUCTION

The Boer War was fought by the two Boer Republics (the Orange Free State and the South African Republics) against the British Empire from October 1899 until May 1902. The inhabitants of the two republics were emigrant farmers, called Boers, who had left the Cape Colony during the 1830's to settle in the area to the north of the Orange River where they would be free from British rule. This dream would, however, never materialise. Although they had obtained their constitutional independence from England in 1854 and 1852 respectively, Britain's imperialistic drive, fired by the discovery of diamonds at Kimberley (1869-70), soon caught up with them. Both republics had continuous clashes with Black tribes on their borders who would then seek the protection of the British crown. To protect them, and to also give effect to his federation plans, Lord Carnarvon, the British Secretary of State for the Colonies, had Transvaal annexed in 1877. The Boers took up arms in the First War of Independence, and on 27 February 1881 fought the famous battle of Amajuba where the British were defeated. The South African Republic regained its independence, but hereafter relations between the Boers and Britain would be tense and volatile. When the world's richest goldfields were discovered on the Witwatersrand in 1885, the table was again set for political strife. The thousands of cosmopolitan town-dwelling fortune-hunters, called "Uitlanders", who descended on the Transvaal after 1885, created problems of unsuspected difficulty for the local government which fuelled the enmity with Britain. Chamberlain, the Colonial Secretary, and Sir Alfred Milner, Britain's High Commissioner in South Africa, decided to support the Uitlanders and to use their political aspirations to overthrow the local government. On 12 October 1899 the South African Republic was forced to declare war against the British Empire. The Orange Free State joined in because of an agreement it had with the Transvaal, and thus began a war which would last for almost three years and which would have a lasting effect on the political, economical and social future of Southern Africa.

2. THE INITIAL DEARTH OF ACCURATE MAPS

When the war broke out, South Africa was, as far as large-scale mapping was concerned, still unmapped. Although the Orange Free State and the Transvaal both had a Surveyor-General, these officers dealt solely with cadastral matters. The Surveyor-Generals of the two Republics had no tradition of topographical mapping and made no concerted effort to obtain large-scale maps of the area of war. The general feeling was that the Boers, being intimately acquainted with the terrain, had little or no use for maps. With the exception of a few small-scale maps compiled before the war by a number of government officials for administrative purposes, the Boer forces entered the war without any significant official maps or cartographic material. Indeed, the Report of the Royal Commission on the War mentions that some of the maps compiled by the British were reproduced by the Boers for their own use (1).

The Cape Colony, having been a British possession since 1806, was slightly better off. Here there existed a system of Divisional Maps which were compiled by fitting together the farm diagrams in each fiscal division of the country. These maps were, however, of little use for military purposes as they were not intended as topographical maps, but as cadastral index maps or property diagrams for quickly tracing the filed freehold or quitrent grants in a specific fiscal division. The amount of topographic information shown on them depended on what appeared on the original survey diagram with the result that almost no hill features and only some streams were mapped. In Natal a military sketch map on a scale of 1 inch to 1 mile had been carried out in 1896 of the triangular portion of the Colony to the north of Ladysmith, but the maps were not reliable as they were not based on a proper topographical survey.

The fact that the Orange Free State and the Transvaal had never been mapped, proved problematic for the British troops who not only had to supply their own maps, but also had very little access to topographic intelligence. The state of tension between Britain and the two republics in the years immediately preceding the war had also made it impossible to undertake any serious surveying and mapping in either the Orange Free State or the Transvaal. During the first months of the war the British forces found themselves in the tricky situation of having to wage campaigns in a relatively unknown and virtually unmapped area five times the size of the United Kingdom and almost twice the size of France. Given the evidence of Lord Roberts before the Royal Commission that Buller at the Tugela, Gatacre at Stormberg and Methuen in his advance to Modder River were all greatly hampered by the want of maps [2], it seems logical to conclude that the British would not have suffered such heavy losses at Colenso, Stormberg and Magersfontein if they had reliable maps.

The fact that South Africa was without topographic maps was, in a way, ironic as the Cape Colony and Natal both possessed an excellent geodetic triangulation by 1892. Sir David Gill, HM Astronomer at the Cape, had persuaded the British authorities in 1879 that a geodetic triangulation was necessary for all future surveying and mapping of the country. He also considered such a survey as the beginning of a measurement along the 30th Arc of Meridian which would not only act as a backbone for all surveying and mapping in Africa, but could also be used for precise geodetic measurements to calculate the figure of the earth. After the Boer War, Gill continued negotiating for the Geodetic Survey to be extended to the two new British Colonies, the Orange River Colony and the Transvaal. This project was completed in 1905 and can be regarded as a direct spin-off of the war as it is doubtful whether the two Boer Republics would ever have accomplished such an undertaking on their own. Until the 1930's the Geodetic Survey was, however, of no value for mapping purposes since it first had to be broken down into a primary and a secondary survey before it could be used for compiling topographic maps. As late as 1928 Winterbotham, the Director-General of the British Ordnance Survey, would write to Whittingdale, the Director of the South African Trigonometrical Survey, that the South African Geodetic Survey was like "a wife without children" in the sense that it served no practical end [3].

3. THE ORGANISATION OF SURVEY AND MAPPING WORK

By the end of the 19th century the fact that maps are an absolute necessity in war was generally accepted by the British whose national mapping organisation, the Ordnance Survey was also in charge of the Intelligence Department of the War Office. Military surveyors serving in the British army belonged to the corps of Royal Engineers and all maps of overseas areas published during this period were published under the cereal number IDWO, designating the Intelligence Department, War Office. A unique IDWO number was allocated to each map in the order in which it was issued. In February 1904 the Directorate for Military Operations was formed as a branch of the Department of the Chief of the General Staff. The practical implication of this was that thenceforth all new maps would bear the serial number TSGS (Topographical Section, General Staff). In April 1907 the Topographical Section was renamed Geographical Section, after which all maps of foreign areas carried the serial number GSGS (Geographical Section, General Staff). Maps printed and issued in South Africa by the Field Intelligence Department were designated FID.

At the outbreak of the Boer War Britain immediately took steps to try and remedy the shortage of suitable campaigning maps by sending survey and mapping sections to South Africa to serve under the Director of Military Intelligence. A survey section normally consisted of an officer and six to eight specially trained non-commissioned officers and men, while a mapping section consisted of one officer and between five and ten non-commissioned officers and men. In some

cases civilian draughtsmen and surveyors were also attached to a mapping section. A survey section normally carried out the actual surveying work, while a mapping section compiled maps based on either the work of the survey section, or on other available sources. The mapping sections were also responsible for editing, printing and issuing the final maps. This division of work was not always rigidly adhered to during the Boer War as survey sections frequently functioned as mapping sections, and vice versa [4].

Two survey sections were despatched to South Africa during the war, and provision was made for three mapping sections. No 1 Survey Section was initially under the command of Captain CF Close, RE, but when he contracted enteric fever, Captain HM Jackson took over the command and accompanied Roberts' main force to Pretoria. Jackson was later promoted to Major and did valuable work in the Transvaal until the cessation of hostilities when he became Surveyor-General of the Transvaal Colony. No 2 Survey Section under Captain PH du P Casgrain, RE, was based in Cape Town, whereas a mapping section was based in Bloemfontein under the supervision of Major AHF Duncan, RE [5].

4. THE COMPILATION MAP

By far the most important cartographic product emanating from the war was the so-called compilation map, a utilitarian cartographic document which was useful for its content rather than its quality. Stone identifies this type of map as one that was characterised throughout by its diverse sources of compilation and which therefore differed from maps based on data derived solely from the fieldwork of survey office staff [6]. In the case of the Boer War the demand for reliable medium-scale and large-scale maps would compel the British forces to revert to the compilation of this type of map.

Prior to the war the best Britain could do was to collect as much information as possible and to make it available in mapped form. Officers were sent along the principal routes in the Transvaal and Orange Free State, and their work was reproduced in the form of notes and route sketches. Sketches were made of all the bridges and their surroundings; where it was proposed to place garrisons; and of the points selected for advanced depots. In 1903 the Report of the Royal Commission on the War noted: "The [Intelligence] Department was in possession, during the period 1896-99, of all map material of all parts of South Africa affected by the war, which was known to exist, either in the shape of published maps and sketches, unpublished surveys and plans, and MS work. Every attention was given to the compilation of this information into map form..." [7].

The first map to be produced as a result of these endeavours was IDWO 1367, Transvaal and the Orange Free State, on a scale of 1 : 250 000 (1 inch per 3.94 miles). This series consisted of 28 black and white sheets and was compiled from existing maps, the information contained in reports and reconnaissance sketches of officers who had been sent to South Africa six months before the war, plans supplied by local surveyors, and the oral accounts of transport riders and commercial travellers. The maps were naturally not very accurate, and it is questionable whether they were ever used for strategic purposes. They were, however, the only maps available when the British Army started its advance on Pretoria from Cape Town in January 1900 and they did show the drifts over the rivers, the roads, some important placenames and the most important watering places. The relief features were merely sketched in. Charles Close, looking back on that period, called them "rough, inaccurate and clumsy" [8] and Major SCN Grant, who supervised their production at the War Office and became Director-General of the Ordnance Survey in 1908, referred to them as follows after the war: "... if you have not money to make a survey, what are you to do? It is either that or to have no maps at all... We had possession of all the material that existed, and we compiled it as best as we could" [9].

Once the war was underway and the Orange Free State and the Transvaal occupied by British forces, it was the Offices of the Surveyors-General that would yield the most information. Similar to their counterparts in the Cape Colony and Natal, the Surveyor-Generals of the Orange Free State and the Transvaal had built up a considerable body of cadastral information since their inception in 1866 and 1876 respectively. The title diagrams filed with them were considered to be the most authoritative cartographic source material available and were joined together by the staff of the survey and mapping sections into makeshift maps fitted together like the pieces of a jig-saw puzzle. This information was subsequently supplemented by sketches and traverses from various sources, as well as by information provided by other topographical exercises such as boundary, mining and railway surveys. The result was a compilation map which was never a source of much professional pride and which certainly met with much criticism in survey and cartographic circles. However, given the serious shortage of maps, they were considered better than nothing at all and decades were to elapse before they would be replaced.

The compilation maps were as accurate as the source material used for their compilation, and in many cases the farm surveys, as well as the prepared title diagrams, were grossly inaccurate. The land registration system of perpetual quitrent tenure which was introduced in the Cape Colony in 1813, and which was also adhered to by the Boer Republics, revolutionised land surveying and land ownership registration by introducing the requirement that new land grants should be issued only on the production of a diagram framed by a sworn land surveyor appointed by the government. However, surveyors were scarce and poorly trained and, owing to the absence of a trigonometric base,

there was no standard against which the accuracy of the farm surveys could be tested. The result was that many surveys were inaccurate, that surveys overlapped and that the title diagrams were not true reflections of the topography of the area concerned.

Three map series were compiled from farm surveys during the war, namely the Imperial Map of South Africa, on a scale of 1 : 250 000 (1 inch per 3.94 mile); Major Jackson's Transvaal and Natal Series on a scale of 1 : 148 752 (1 000 Cape rods per inch), and the Transvaal and Orange River Colony Degree Sheet Series on a scale of 1 : 148 752. Of these three map series, the Imperial Maps were the most important for military purposes as they were on a larger scale than IDWO 1367, showed more information, were in colour, and was the first map series ever to cover the whole of the country. The fact that they showed farm names and farm boundaries made them of inestimable value to the British forces. The Transvaal and Orange Free State sections of the map were compiled by the surveying firm of Messrs JT Wood & AA Ortlepp and the Cape Colony by the Field Intelligence Department. The full series comprised 65 sheets, many of which differ considerably in style and appearance. A large number of sheets ran into second, third and even fourth editions, and many British troops fought the larger part of the war with only these maps to rely on. Although their crude and sketchy representation of hydrological and relief features made them unsuitable for military purposes, they gave the map user a vast number of names of towns, farms and railway sidings. Charles Close said of them: "If they were used with a knowledge of their weak points, their inadequacy and distortions, and their unreliable hill-features, they were certainly better than nothing at all" [10].

Major Jackson's Transvaal and Natal Series was initiated by Major H M Jackson, head of the Topographical Section of the FID soon after Pretoria was occupied in June 1900. Also known as the "First Transvaal Series", this series consisted of 74 sheets of irregular size covering the whole of the Transvaal (except the extreme north-eastern portion), Natal, Zululand and Swaziland, and part of the former Bechuanaland. The maps were printed in monochrome on linen-backed paper and were, like the Imperial Maps, folded to pocket size for easy usage on horseback. Compiled in a hurry for urgent military use, the maps are of a poor standard and it is uncertain whether they were of much use for military purposes. Although farm names and farm boundaries are shown, the physical topography is merely sketched in and no altitudes are given. According to Jackson himself, these maps were based on a mere "patch-work" of farm diagrams and as such included much information that was of dubious value – of not positively misleading [11].

The Degree Sheet Series was compiled on the same scale as Major Jackson's Series but was cartographically of a better quality. Their compilation was more accurately and scientifically done (the data were computationally connected with the Geodetic Survey of the Cape Colony and Natal), and the maps had a cleaner and less cluttered look. Farm boundaries, district boundaries and roads and railways lines appear on the map, with form lines indicating the relief of the country in brown. Rivers and streams are depicted in blue, whereas farm names and the numbers of the original title deeds allocated, appear in black. The compilation of the 25 map sheets pertaining to the Orange Free State was commenced in October 1900 and supervised by Major AHF Duncan, RN, whereas the work on the Transvaal sheets was commenced by Major HM Jackson, RE, in January 1901. By the end of the war only 10 of the total 37 sheets of the Transvaal were completed.

Of all the compilation maps originating during the war, the Degree Sheets left the most lasting legacy. Contrary to the Imperial Maps and Major Jackson's Series which were military maps in the imperialist mould, the Degree Sheets also had a colonial function. The remaining sheets of the Transvaal were completed after the war and because of the lack of reliable topographical maps, the Degree Sheets continued to play an important role in the administration of both the Transvaal and the Orange River Colony. They were repeatedly revised and in 1924, fourteen years after South Africa became a Union, the Surveyor-General of the Orange Free State announced that they "have to be used as they are the only maps available" [12]. That this was indeed the case, is also evident from the rather peculiar praise bestowed on them in 1920 by the Surveyor-General of the Transvaal: "The Degree Sheets show all the topographical detail in my possession and are accurate in every respect excepting that of the relative height of the different mountains and the true position of the roads... I would like, however, to emphasize that the Degree Sheets are the best maps produced in South Africa" [13]. They were indeed the "best maps" of the Transvaal until the reorganisation of the South African Trigonometrical Office in 1936.

5. A SCIENTIFIC SYSTEM OF SURVEY AND MAPPING

The Ordnance Survey of Britain was founded in 1791 and by the end of the 19th century the British Army had a proud tradition of scientific survey and mapping to be passed on to the colonies. Of the four Surveyor-Generals in South Africa, the only ones who had by that time any experience of triangulation work and mapping were the Surveyor-General of the Cape Colony and Natal who shared in the benefits of the Geodetic Survey executed during the years 1883 to 1892, and who had been engaged in compiling medium-scale wall maps of their respective colonies. Both these Offices stood to gain when the War Office sent survey and mapping sections to South Africa. The Surveyor-General of Cape Town worked closely with No 2 Survey Section of the Field Intelligence Department, and in Natal the first half a survey section, sent out in 1896 under the command of Major SCN Grant, RE, was attached to the Office of the

Surveyor-General in Pietermaritzburg. However, it was the Offices of the Surveyors-General of the two Boer Republics who would benefit most from the presence and expertise of the British military surveyors and topographers.

The Offices of the Surveyors-General of the Orange Free State and the Transvaal were not only used by the FID to prepare and revise compilation maps, but also as depots from where Royal Engineers would venture out to execute topographical surveys of strategic places. Because of this the local survey departments acquired valuable expertise in topographic and mapping work. The end of the war also meant that Sir David Gill could continue his negotiations with the British Government for the extension of the Geodetic Survey to the two new colonies, and from 1902 and 1906 a team of military surveyors under the command of Major W C Morris, RE, completed the geodetic survey of the Transvaal and Orange River Colony.

After the cessation of hostilities, Britain's experience as regards survey and mapping during the war made the British Government realise that properly organised survey departments had to be set up in the colonies and protectorates. In effecting this, the government was aided by Sir David Gill who, after the completion of the geodetic survey, was campaigning for a subsequent secondary and topographical survey of the country in its entirety. In March 1904 a congress of the Surveyors-General of South Africa and Rhodesia was held in Cape Town under Gill's presidency to discuss the possibility of establishing a central survey department for British South Africa south of the Zambesi River [14]. A resolution was passed that a general topographical survey was desirable, and recommendations were made concerning the scales to be used for mapping and the basic specifications for such maps. Unfortunately the financial contributions of the respective colonies proved to be too arduous and in May 1905 the proposed trigonometrical survey of South Africa had to be indefinitely postponed.

Although the general scheme for South Africa had failed, the Topographical Congress of 1904 had cleared the way for the formation, in 1905, of a Committee to advise the Secretary of State for the Colonies on all matters effecting the survey and mapping of British colonies in Africa. Called the Colonial Survey Committee, this committee comprised a senior official of the Colonial Office, the Director-General of the Ordnance Survey, and the Chief of the Topographical Section of the General Staff of the War Office. Its formation was a logical outcome of the Boer War and in South Africa it was to be instrumental in the creation of the first real topographic maps of large parts of the country.

6. THE SURVEY MAP

Apart from the survey maps and sketches made by the contingent of Royal Engineers assigned to the peace-keeping force on the Eastern Frontier of the Cape Colony during the first half of the 19th century, the first "modern" survey maps of South Africa based on proper plane-table topographical surveys would be compiled by Royal Engineers during and after the Boer War. For the purposes of this paper we can organise these maps into two groups, namely those based on local, isolated surveys and those based on topographic surveys tied to the geodetic framework.

The various survey and mapping sections produced some beautifully executed maps of strategic places, many of which would only be printed by the War Office after the war. Examples are GSGS 2109 of the country around Harrismith in the north-east Orange River Colony, an important town on the road to Ladysmith in Natal; GSGS 2266 of Bloemfontein and environs, GSGS 2312 of Pretoria and surrounding country, TSGS 2171 of Standerton, an important stopover on the Volksrust-Heidelberg railway line; TSGS 2188, a so-called "radius map" of Middelburg in the Cape Colony; GSGS 2202, a map showing the area lying within a fifteen mile radius from Middelburg, Transvaal, and GSGS 2271, another "radius map" of Potchefstroom in the western Transvaal. These maps provided excellent examples of what real topographic maps should look like and no doubt acted as stimulus for the future mapping of South Africa.

The maps based on surveys that were tied to the geodetic survey vary in appearance as some were published locally by the FID whereas others were issued by the War Office. IDWO 1223, the series of military sketches of Northern Natal produced by Major SCN Grant, RE, before the war, was tied to the geodetic chain and secondary survey in Natal and beautifully executed by the Ordnance Survey, but were of little use as the relief was indicated by means of form lines and areas for which there was little or no information were simply left blank. Captain Charles Close, who was in command of No 1 Survey Section, started in January 1900 on a topographical survey in the north-western Cape Colony, next to the Cape-Kimberley railway line which was to be completed by No 2 Survey Section under Captain PH du P Casgrain. The map series which was published by the FID as a result of this survey is known as Close and Casgrain's Half-Inch Series and comprises six sheets of varying cartographic style and quality. When No 2 Survey Section was called back to Cape Town, half of the section (four men) engaged in some plane-table mapping of the districts of Cape Town and Malmesbury from June 1901 to June 1902. As a result, a map series of six sheets known as Casgrain's One-Inch Cape Series was issued.

The most important series of survey maps to emanate from the war was GSGS 2230 which was published on a scale of 1 : 125 000 as a result of a proper topographical survey of the Orange Free State that was undertaken from 1905 to 1911

[15]. Eager to obtain reliable maps of the colonies, the War Office approached the Orange River Colony in 1905 with the offer to carry out a topographical survey of the colony on the condition that the colony would pay half of the estimated cost of £18 500. The Orange River Colony agreed, with the proviso that the maps would eventually be made available for civil as well as military purposes. The plane-table survey, which was done on horseback, covered the 129 940 square kilometers of the Orange River Colony in five and a half years, but political factors such as the unification of South Africa in 1910 and the First World War (1914-1918) greatly retarded the production of the maps which, in 1922, was taken over by the government of the Union of South Africa. The result was that the full series would not be available before 1929. In spite of this the GSGS 2230 series was completed in the best tradition of British military mapping and compares favourably with the current South African 1 : 50 000 series compiled by modern means. Until the latter was completed in 1972, the GSGS 2230 series of the Orange Free State represented the only accurate maps of this part of the country for many years.

Two other map series to be undertaken by the War Office after the Boer War were GSGS 1764, based on a reconnaissance survey of the north-western Cape Colony and Basutoland from 1903 until 1911, and GSGS 2618 based on a topographic survey of the southern Transvaal during 1910-1911. GSGS 1764 (a series which had already been pursued in Kenya and Nigeria) was published on a scale of 1 : 250 000 and the maps, printed by the Ordnance Survey were, quite obviously, military maps. The political rivalry between England and Germany at the time, and the possibility of a German invasion of the Cape Colony from German South-West Africa (Namibia), probably weighed strongly in Britain's decision to map this area. In 1906 the Colonial Survey Committee described the results of this survey as "not ... all that a geographer might desire, but ... a good deal better than any maps which exist at present" [16]. GSGS 2618 covered the Witwatersrand which was the economically important area of the Transvaal and was, as far as its style was concerned, identical to GSGS 2230. The maps were, however, not as accurate as they were based on a rapid instrumental triangulation of some of Morris' geodetic points instead of a sound secondary triangulation.

7. CONCLUSION

After the war, South Africa found itself in the cartographic wilderness for almost 40 years in the sense that no topographic mapping was done while the SA Trigonometrical Office devoted its time and attention to the primary and secondary triangulation of the country. The systematic mapping of the country only started off with the reorganisation of the Trigonometrical Office in 1936. The maps produced during the Boer War can be seen as contributing to this in the sense that they laid the foundation for the decisions taken by the Topographic Conference of 1904, many which would later be pursued by the Survey Commission of 1921, the Land Survey Act of 1927 and the interdepartmental committee which gave rise to the official mapping policy accepted in 1936. The other side of the coin is the question whether the systematic mapping of South Africa would have been delayed as late as 1936 had the cartographic legacy of the Boer War not been available. Fortunately it is not the aim of this paper to either prove or disprove this hypothesis.

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Biography

Elri Liebenberg is Emeritus-Professor of Geography and Environmental Studies at the University of South Africa since 2000. She obtained her first degree from the University of the Orange Free State, and her MA and D Litt et Phil from the University of South Africa, after which she studied Cartography at the University College of Swansea in Wales. She was appointed lecturer in Geography at Unisa in 1967, senior lecturer in 1976, and full professor in 1991. In 1994 she became Head of the Department of Geography and Environmental Studies, a position she held until she retired in 1999.

Professor Liebenberg has published widely in cartographic techniques and the history of surveying and mapping in South Africa. She was a council member of the Society for South African Geographers and has been a member of the South African National Committee of ICA since 1991. In 1999 she was elected Vice-President of ICA for the period 1999-2003