Journal of the Namibia Scientific Society

Volume 72 – 2025
Date: 22 December 2025
ISSN (e-version): 2026-9250
ISSN (print): 1018-7677
ISBN (print): 978-99998-82-00-2
Contact: journal@namscience.com

Open Access

DOI: https://doi.org/10.66365/jnss.2025.01

Shaping the Cartography of Southwestern Africa: Coastal Charts and Orientation Maps of the Interior, 1502–1902

Imre Josef Demhardt

University of Texas at Arlington, Department of History & Geography, Box 19529, Arlington, Texas 76019-0529, United States of America, demhardt@uta.edu

Keywords: Southwestern Africa, Cartography, Portuguese Discovery, Enlightenment, Nineteenth Century.

Abstract

A dangerous barren coast, a harsh interior environment, and at times violent conflicts among its inhabitants were all obstacles to the exploration and mapping of southwestern Africa. Looking back on more than five hundred years of mapped history, Namibia nevertheless boasts one of the richest cartographic heritages of the African countries south of the equator. For a concise orientation on significant milestones of that extensive cultural heritage, this paper selects for discussion sixteen outstanding coastal charts and orientation maps of the interior[1] from the four centuries between the years 1502 and 1902. For the continuity of contextual circumstances that drove the cartographic unveiling of southwestern Africa, this paper presents the selected charts and maps in a chronological order from the time of the Portuguese discovery until the eve of the major cartographical changes brought about by the Herero and Nama uprisings.

Portuguese discoveries along the coasts of Africa

The Mediterranean coasts of Africa and their hinterland into the Sahara Desert appeared on European maps from Roman times, but it was left to late medieval Portugal to explore and map the Atlantic coastline of Africa. By the middle of the fourteenth century the Black Death had reached Portugal and brought about a decline in agriculture, which almost inevitably pushed the country towards maritime alternatives such as fishing and, increasingly, trade. By the fifteenth century the country's reliance on the sea stimulated a creative form of merchant venture capital that under royal privilege funded a commercial fleet and the employment of its ships and talents for southward-bound explorations (Newitt 2005). Since the 1410s Portuguese seafarers methodically inched their way down the western coast of Africa.

The final push was made under Diogo Cão (ca. 1452–1486) and Bartolomeu Dias (ca. 1450–1500). During a first voyage in 1482 Cao had reached Cabo Santa Maria, about 150km south of Benguela. On his second voyage he proceeded further south, passing the mouth of the Kunene River, and in January 1486 reached a cape along the Skeleton Coast. Before turning back, Cao erected there a Padrão, a stone cross claiming possession, which resulted in its name Cabo da Cruz (Cape Cross). Swiftly following was Bartolomeu Dias, whose small fleet passed Cape Cross in stormy weather on 4 December 1487 and on 8 December reached the anchorage of Golfo da Conceição (either Conception Bay or Walvis Bay). Still under storm the ships passed within sight of Hottentot Bay and Elizabeth Bay but then found it safer to make a wide circuit into the open Atlantic, which took them out of sight of land for many days.

1 Some of the charts and maps discussed in this article will form part of the forthcoming book by *Elri Liebenberg & Imre Josef Demhardt: Historical Maps of Southern Africa. Selected Maps of Africa south of the Zambezi River, 1795–1914,* expected to be published in 2026 by De Gruyter Brill (Berlin/Leiden) in the series *Explokart Studies in the History of Cartography.*

Thus, unbeknown to Dias, his ships rounded the southern tip of Africa, not to touch land again until Mossel Bay on 3 February 1488. Running out of provisions, Dias turned back, this time landing on 6 June at the Cape Peninsula, which southernmost point was named Cabo Tormentoso (Cape of Storms, later euphemistically Cape of Good Hope) and where a Padrão was erected. Sailing northwards along the southwestern coast of Africa, Dias made landfall in what for its size was named Angra Pequena (Little Bay), where on a rocky promontory on 25 July another Padrão was erected (Fig. 1). The discoveries by Dias had shown the access to the Indian Ocean and in December 1497 Vasco da Gama rounded the southern tip of Africa to reach Calicut in India on 20 May 1498, ushering in the Portuguese trade empire in Asia (Axelson 1988).

The 'appropriation' of maps was always part of the cross-fertilisation of cartographic cultures. In early modern history stealing maps or their intellectual content was a significant means to pass on critical yet classified knowledge from Iberian explorations in the Americas, Africa, and Asia to emerging rival maritime merchant nations like the Netherlands and England (Demhardt 2025). The most famous steal of that era is the Cantino Planisphere, today named for the spy, Alberto Cantino, who 'acquired' it in 1502 in Portugal for the Italian Duke of Ferrara. The huge planisphere (220x105cm, ink and pigment on vellum) is the oldest surviving manuscript map/chart that shows – with largely correct latitudes – the contemporary Portuguese discoveries in Brazil and India as well as in the southern half of Africa (Gaspar 2012). Cantino's underhand acquisition significantly shaped the European view of many parts of the world.

In physical terms southwestern Africa occupies the western portion of the continental rim which lends the southern tip of the continent the appearance of

Figure 1: Detail of the Cantino Planisphere (1502) showing the southwestern coast of Africa with a Portuguese standard instead of the stone cross at Cape Cross and two Padrãos at Angra Pequena [Lüderitz] and Cape of Good Hope with either Table Mountain or Drakensberg Mountains. (Source: https://en.wikipedia.org/wiki/Cantino_planisphere)

an upside-down plate, with three distinctive natural realms: the coastal Namib Desert, the (sub-)humid highlands on top of the continental rim, and the basin of the semi-desert Kalahari basin. The Namib Desert, the namesake of the modern country Namibia, extends for more than 1900km along the coastal frontage on the Atlantic Ocean from southernmost Angola to northernmost South Africa. This desert within the normally humid subtropics owes its existence to the cold Benguela ocean current that swells up along the immediate and steep sub-marine descent of the continental margin, bringing cold fog to the coast. The Portuguese discoverers had already found coastal sailing under these foggy conditions treacherous. That peril discouraged coast-based exploration of the hinterland until well into the nineteenth century (Seely 2004). There are only two natural ports along the whole coast. The southern one, and cut off from the hinterland by sand dunes, is the sheltered but rocky Angra Pequena (26° 37' South); and the other the rather open, sandy lagoon Walvis Bay (22° 57' South), centrally located with easy travel connections up to the interior highlands. Both ports would become staging points for the competing British and German aspirations of colonial penetration in the second half of the nineteenth century.

Throughout the seventeenth and eighteenth centuries, however, this inhospitable coast attracted no merchant ships to approach the shore voluntarily – let alone for its passengers to go ashore. The closest European settlements, each more than 500km away from the perimeter of this desolate terrain, were the Portuguese port of Benguela in Angola, founded in 1617 and situated at 12° 33' South, and the Dutch settlement Kaapstad (Cape Town), founded in 1652 and situated at 33° 55' South. Notwithstanding its remoteness and inaccessibility, early charts and maps depicted the southwestern African coast as having an elaborate coastline with an abundance of topographic detail in its hinterland (Bodenstein 2017). It was only gradually that the true environmental setting began to feature, namely a boring and almost linear shoreline framing a cold and foggy desert.

In 1655 Frenchman and *Geographe Ordinaire du Roy,* Nicolas Sanson (1600–1667), published the map *Basse Aethiopiae* […] (Fig. 2), a copperplate engraving with hand colouring, which misrepresented the in reality mostly linear southwestern coast of the subcontinent as being excessively serrated. Also notable is the fact that in Sanson's map about a dozen rivers flow from the Namib Desert into the ocean, and that even an 'Aboretum' with three green-coloured dots is depicted, symbols of trees situated immediately north of the Tropic of Capricorn. The coastal plains, which extend inland as far as a distant mountain range, are devoid of (then still unknown) anthropological detail.

Two generations later noted French mapmaker Guillaume de l'Isle (1675–1726), who would become *Premier Géographe du Roi,* for his *Carte du Congo et du pays des Cafres* seems in 1708 to have had more reliable geographical information available, which he also processed more critically (Fig. 3). The fictitious rivers are no longer present, with the remaining ones more or less reflecting the reality on the ground. In the north the 'Cuneni' (Cunene River), an actual permanent hydrographic feature, seems to have a dead end which leaves the reader with the assumption that it may either

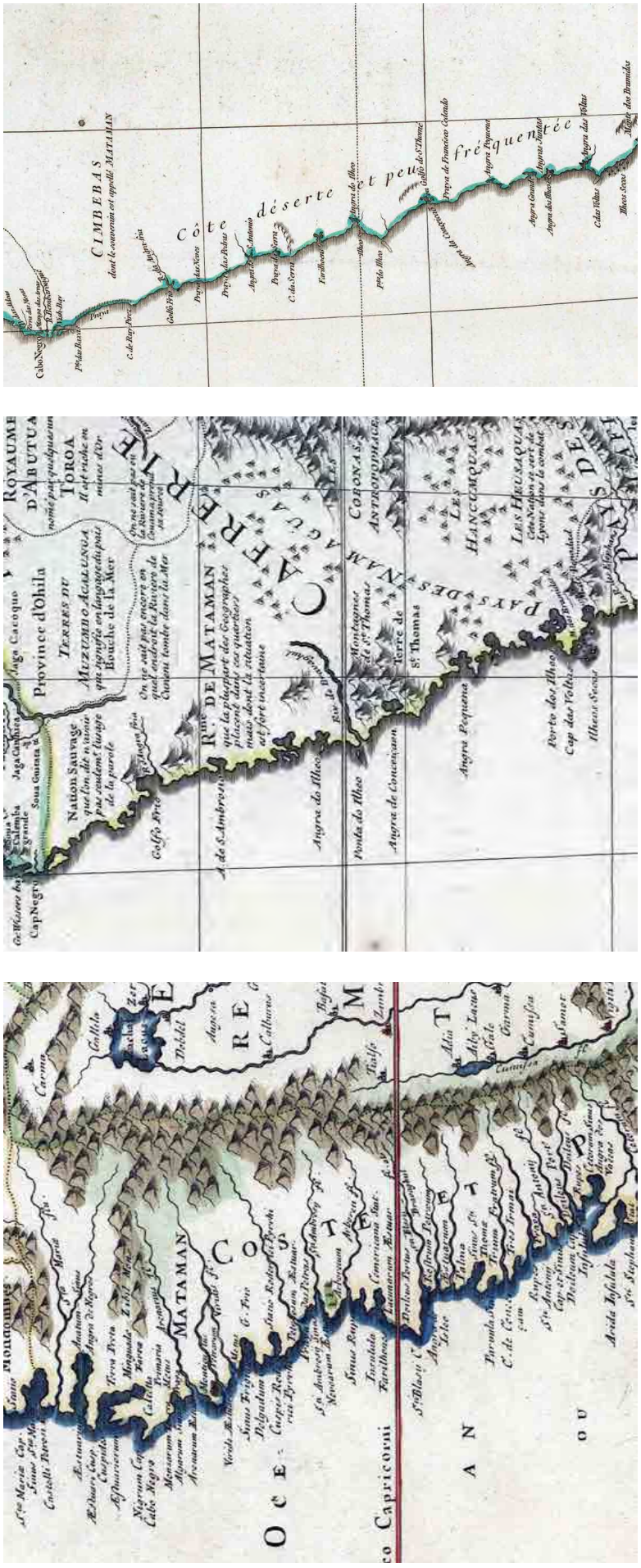

Figure 2 & 3 & 4: Details of Nicolas Sanson's *Basse Aethiopie, qui comprend les Royaume de Congo, Coste, et Pays des Cafres ; Empires du Monomotapa et Monoemugi* [...] (Paris 1655), on the left ; Guillaume de l'Isle's Carte du Congo et du pays des Cafres [...] (Paris 1708), in centre ; and Jean-Baptiste d'Anville's Afrique publiée sous les auspices de Monseigneur le Duc d'Orléans [...] (Paris 1749), on the right. (Source Fig. 2 + 3: Bodenstein 2017, Maps No. 24 and No. 32; Fig. 4c: David Rumsey Map Collection, List No. 2603.009)

continue as the 'Riv. De Bravaghul' (identifiable as the Swakop, a seasonal river) or as the upper reaches of the Zambezi, which enters the map detail on the upper right. Concerning the hydrographical features along the coast, the absence of the Orange River, the largest river south of the Congo, is conspicuous. There is no trace of it to be seen between Angra Pequena (Lüderitz Bay) and the Olifants River ('R. des Elephans'), situated approximately 270km north of Cape Town.

As for the topography, only the few peaks around the (non-existent) 'Golfo Frio' (related to the hardly noticeable real Cape Frio) bear any resemblance to the very real rugged mountains of the Kaokoveld. South of the mouth of the Bravaghul the coastal 'Montagnes de St. Thomas' (Mountains of St Thomas) are an exaggeration of the ever-changing high sand dunes which are indeed found in this region. Unlike Sanson, de l'Isle includes some anthropological detail in the area between the coast and the (in that form, fictitious) internal mountain spine, the latter being either the misplaced cuesta landscapes found much closer to the coast, or part of the huge existing semi-desert of the Kalahari basin. Remarkably, de l'Isle populates these plains correctly with the 'Namaguas' (Namaqua or Khoi), although he identifies them using fictitious tent-like symbols instead of their rounded clay huts. He also fantasises about cannibalistic humans ('Les Cobonas Antropophages') who allegedly lived in the mountains of the interior.

Two generations later, Jean-Baptiste Bourguignon d'Anville (1697–1782), the most notable French mapmaker at the peak of the Enlightenment and likewise *Premier Géographe du Roi*, in 1749 deliberately cleared his map *Afrique* […] (Fig. 4) of all depictions which until then could not be authenticated by a scholarly source. In doing so, unfortunately, he did away with some of de l'Isle's insertions and assumptions which, in hindsight, were correct. D'Anville's 'Cote desérte et peu fréquentée' (Desert and rarely visited coast), is here appropriately depicted as an almost linear coast which, due to geomorphological grading, bears little resemblance to de l'Isle's huge Gulfo Frio or his prominent St Thomas Mountains. Likewise, d'Anville's information on the hinterland of the coast was now assessed as unreliable because not a single feature is depicted. And very strangely for the middle of the eighteenth century, the Orange River, the longest stream in southern Africa and in its lower reaches the modern border between Namibia and the Republic of South Africa, is omitted from the map.

By the mid-eighteenth century the *Vereenigde Oostindische Compagnie*, which in 1652 had founded the victualing station at Cape Town, which grew into a colonial settlement, became interested in the regions north of the Cape. In 1761 the Company sent an expedition under Captain Hendrik Hop northwards to investigate the possibilities of trade with the indigenous communities. The expedition was accompanied by Carl Friedrich Brink (1731 – later than 1784), who arrived at the Cape in 1758 from Berlin as surveyor and mapmaker. On 16 August 1761 a party of 85 people set off from the Olifants River,

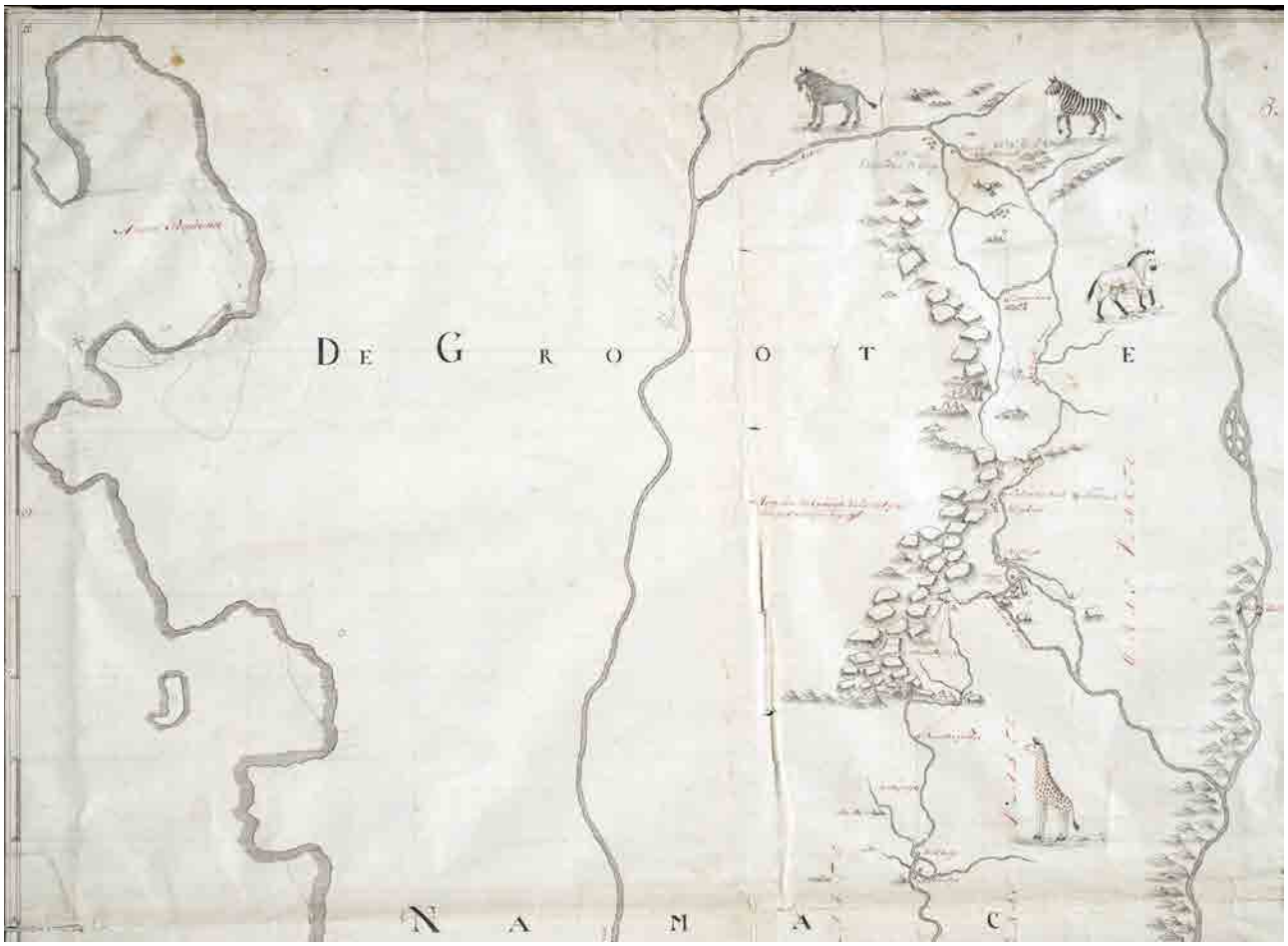

Figure 5: Detail of upper third of Carl Friedrich Brink's manuscript *Land Caarte van een Gedeelte van Zuyd Africa* […] with route through mountainous area between Fish River (west) and an erroneously north-southward flowing Orange River (east). (Source: Dutch National Archives [Den Haag], NL- NA 4.JSF 2)

crossed the Orange River, and moved northwards via Warmbad across the Klein and Gross Karas Mountains towards the vicinity of present-day Keetmanshoop. The expedition met with various Namaqua clans, but by 6 December 1761 the constant lack of water, the difficult terrain, and the unbearable heat made them decide to turn back at about 26° 18'South (Huigen 2009b). Brink's manuscript map (Fig. 5), the first experience-based map of the southern part of Great Namaqualand and thus of any part of the interior, logs the expedition's route, albeit with inaccurate geodetic observations, which can however be retraced with reasonable precision. The coastline, however, from which the party remained about three hundred kilometres distant, is recognisable but grossly distorted.

Twenty years later the French naturalist François Le Vaillant (1753–1824) undertook three journeys within southern Africa between 1781 and 1785. His lively travel journals were immensely popular and remained influential with mapmakers on southern Africa for about a generation. Le Vaillant claimed to have crossed the Orange River in 1783-84. Because Le Vaillant lacked surveying training, the map makers Francoise Perrier and Jean-Benjamin de la Borde 'translated' his accounts into several versions of a map, including a 1790 approximately 3.2x2.2 metre manuscript map, lavishly decorated, for King Louis XVI.

While Le Vaillant added new spatial knowledge as well as inaccuracies on the regions south of the Orange River, the mapping to the north of the river was, at best, based on hearsay (Huigen 2009a; Glenn 2007), with many gross mistakes that make it rather unlikely that he actually crossed the Orange River and undertook the extensive route explorations as far north as 23° 23'

Figure 6: Detail of the version *Carte de la Partie Meridionale de l'Afrique par servir d'intelligence aux deux voyages de Levaillant* [...] (Paris 1794/95), design claimed on map by the author but drawing mainly attributed to Jean-Benjamin de la Borde. (Source: Private Collection)

South as claimed on the map. The most notable of many topographical mistakes in consistency with any personal observation on the ground is the depiction of an erroneously east-west course of the *Fleuve des Poisons* (Fish River). On Le Vaillant's map the river empties directly into the Atlantic Ocean, with extensive forests along its lower course (Fig. 6), instead of its correct north-south direction to its confluence with the Orange River.

Experience-based mapping of southwestern Africa took off in the eighteenth century with, at first, crude charts by the Dutch *Vereenigde Oostindische Compagnie* and British East India Company of the few anchorages along the inhospitable rocky or sandy coastline. The British Admiralty chart builds on earlier plans of Angra Pequeña of 1781, 1791, and 1796 drawn by Alexander Dalrymple (1737–1808), hydrographer of the British East India Company from 1779 and from 1795 head of the newly created British Admiralty's Hydrographic Office. The Admiralty began engraving its own charts in 1800, but for many years re-issued or revised Dalrymple charts. The 1791 Dalrymple plan is obviously the basis for this chart (Day 1967). Although the best harbour along the Namib coast, Angra Pequena until late in the eighteenth century was rarely visited because of its complete lack of potable water, absence of permanent inhabitants and by it being sealed off from the hinterland by a desert. In 1838 Captain Alexander (see introduction to Fig. 8) reported that occasionally Nama brought animals to the bay to barter with calling whalers.

In 1821 Acting Master P. Brady surveyed the intricate rocky bay with its islands and reefs, enabling this Admiralty Chart 632 of 1828 (Fig. 7) to show a corrected outline close to true and adding a great number of soundings (in feet) with indication of three suitable berths. Although the most sheltered place along the entire coast, Britain in 1867 would annex only Seal and Penguin Islands for harvesting guano, thus leaving Germany the opportunity in 1884 to annex Shark Island, the shores of the bay, and the hinterland. The German colonial harbour Lüderitzbucht was to be built on the beach marked 'Good Landing' next to Shark Island. As customary on charts well into the twentieth century, the sheet contains three coastal profiles to help with the navigational approach, indicating the desert environment, the treacherous approach, and the stone cross erected in 1488 (on the map: 1486) by the bay's discoverer Bartolomeo Dias.

James Edward Alexander (1803–1885) was a British soldier who served on all settled continents and co-founder of the Royal Geographical Society (RGS). The RGS commissioned him to leave Cape Town with a party in September 1836. Alexander crossed the Orange River in November and for twenty months explored the highland corridor of southwestern Africa up to the Kuiseb River and the Khomas Highland in the central region, including a visit to Walvis Bay. In July 1837 he crossed the Orange River once again and read his paper to the RGS on 22 January 1838. According to the accompanying notes – and like all reliable pre-colonial era maps – it was compiled from 'daily tracks, showing the course by compass, and the distances calculated from the rate of a wagon drawn by bullocks, travelling three British miles an hour; when we rode on pack-oxen, four miles an-hour have been allowed' (Alexander 1838: 25). This exploration-based map with hachured terrain sketches is complemented by astronomical observations and information from the indigenous people about places not visited (Fig. 8). This basic route map became the cartographic backbone for map representations of southwestern Africa for the next three decades.

In August 1850 the wealthy British gentleman Francis Galton (1822–1911), who went on to become a Victorian polymath, accompanied by the Swedish trader-cum-explorer Karl Johan Andersson (1822–1867) and seven servants, left Walvis Bay and followed the Swakop River upstream. The British-Swedish duo was among the first Europeans to seriously explore, not merely visit, the northern half of southwestern Africa. In May 1851 they discovered the Otavi Highland and Lake Otjikoto before reaching the fertile and populous Ovamboland. The expedition was threatened by skirmishes between the Herero and Oorlam, which plagued southwestern Africa for decades during the nineteenth century and contributed significantly to Galton's rather hasty return to Walvis Bay in December 1851 (Galton 1853). The map is the first to indicate the northern central highland with the Erongo Mountain and further east the twin mountains Omatako, for long considered the highest peak in that part of Africa. The German cartographer August Petermann (1822–1878) enlivens the conventional linear route map in the scale of ca. 1:750,000, which would have left the sheet rather empty, by using gradual tints for barren (yellowish) and fertile (green) landscapes (Fig. 9). This adds a visually appealing spatial filler to the map.

Topographical knowledge of the north of southwestern Africa in the 1850s and 1860s was added only in incremental steps. This map by Swedish trader Karl Johan Andersson, who kept on exploring after Galton had returned to England, is the best account of these explorations. The map title nicely sums up what was expected from travellers towards the construction of correct maps: *South-West Africa. Map of the principal part of Damara Land; based on Prismatic Compass Triangulation checked by observed latitudes* (Fig. 10). Andersson provided the British mapmaker John Arrowsmith with 39 new observed latitudes within the triangle between the Swakop River, Ovamboland, and the Okavango River.

In 1856 Andersson became director of the Walwich Bay Mining Company when established in Otjimbingwe, his trading base for almost a decade. An expedition with hunter Frederick Green to reach the Kunene River failed, but in 1860 Andersson was the first European with a mapped route to reach the Okavango River. The same year he bought the Otjimbingwe buildings and traded in cattle, ivory, and firearms. This got him embroiled in the conflicts between Herero and Oorlam, including a bloody siege of Otjimbingwe in 1863. Andersson sold Otjimbingwe to the Rhenish Missionary Society in 1864. After sending the draft of this map to London, summarising years of his wanderings (Baines 1866), he left for a trading expedition to Ovamboland, reaching, shortly before his death, the Kunene River. This map not only indicates Andersson's routes, complemented by many text annotations, but also otherwise not logged routes of fellow trader-hunters like Smuts, who in 1864 was the first reported European

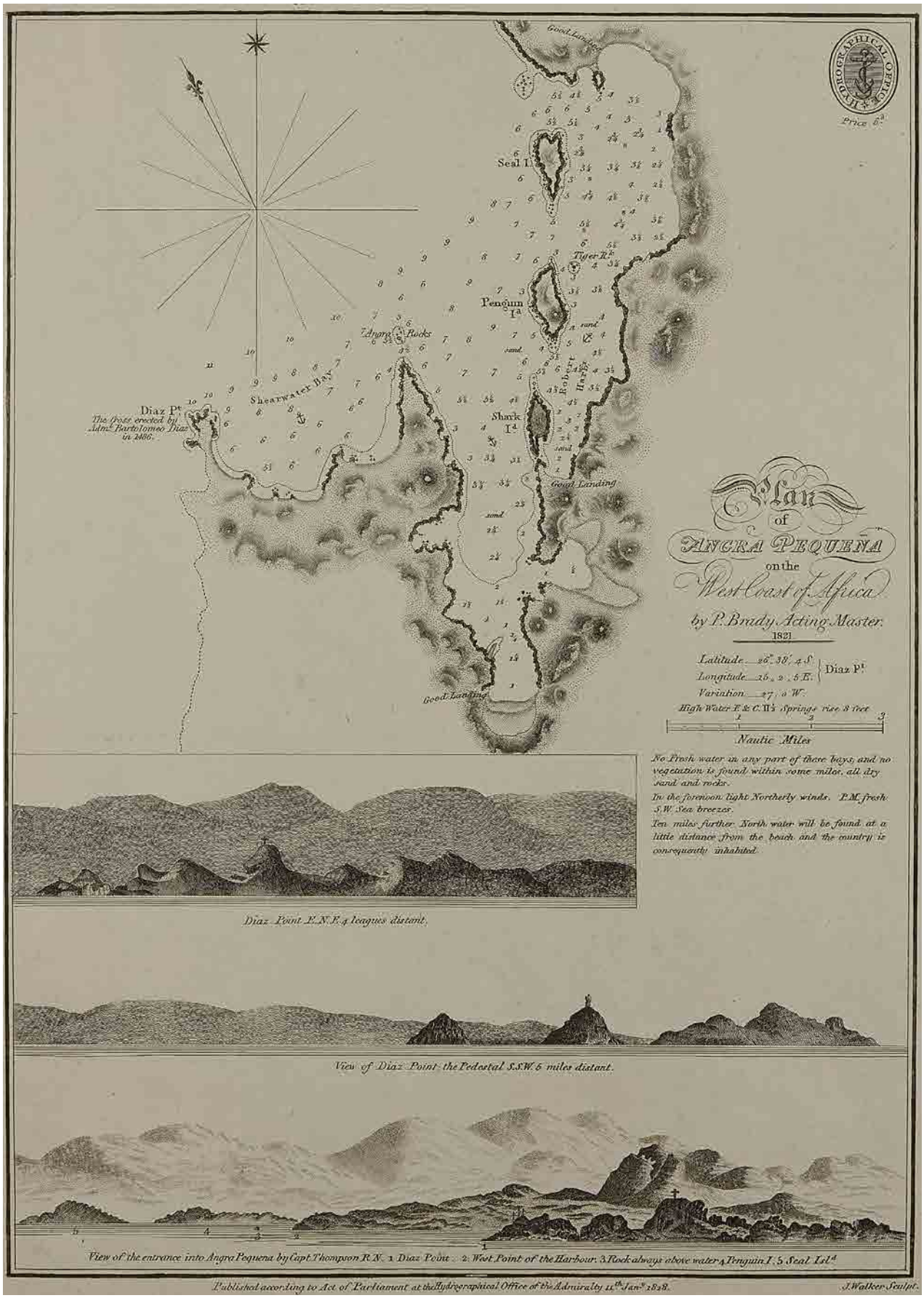

Figure 7: British Admiralty Chart No. 632: *Plan of Angra Pequena on the West Coast of Africa* (London 1828), without a legend but with the note that fresh water can be obtained only ten miles north (Boat Bay?) 'at a little distance from the beach and the country is consequently inhabited'. (London 1828). (Source: United Kingdom Hydrographic Office [Taunton], Archives, Old Copy Bundle, Series A, Sequence No. 2A)

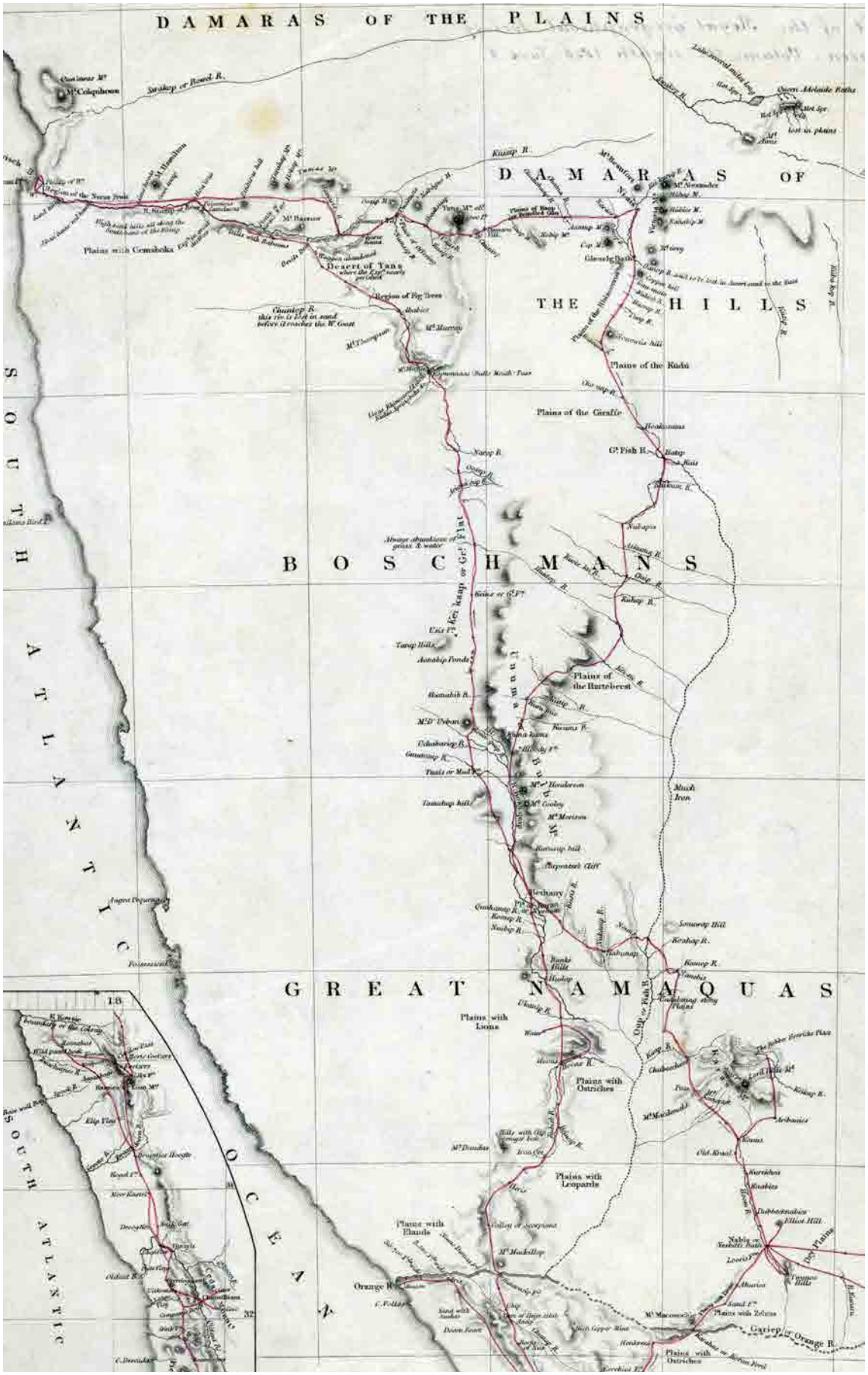

Figure 8: Detail of *Map to illustrate Captn. Alexander's Route* [...] (London 1838) through the highlands of Great Namaqualand up to the Kuiseb River and Windhoek area. (Source: Staatsbibliothek zu Berlin, Kartensammlung, Kart C 14070)

to reach the Kunene River from the south. While topographic details are still sparse, the sheet records many toponyms.

The wars between the Herero and Oorlam, ongoing since the 1820s, ravaged central southwestern Africa and eventually drove away most European traders and travellers. Adding topographical knowledge was thus left largely to the Rhenish Missionary Society, which until the 1870s expanded a network of stations in the southern and central regions and into Hereroland. Their missionaries travelled extensively and observed keenly the encountered topography.

A quarter century after his mapping of Galton's single route (1853), cartographer August Petermann summarised the significant progress on the spatial knowledge of the approximately same regions in this map of north central southwestern Africa from the Kuiseb River to the Etosha Pan, based on routes already followed by twelve individual travellers or parties (Fig. 11). It uses simple morphological terrain rendering to consolidate the explorations by the earlier British travellers from James Alexander to Thomas Baines with six routes by German missionaries from 1857 to 1877 (Anonym 1878). It is also the first map to show topographical details of the later so-called northern Damaraland and southern Kaokoveld between the Ugab River and the Hoanib River, based on an 1877 journey by missionaries Johann Böhm and Friedrich Bernsmann. The topographical knowledge of the depicted region at the scale of 1:2.2 million was not significantly surpassed for the next two decades.

Johann Theophilus Hahn (1842–1905) was the son of a Rhenish missionary and grew up among the Nama people on the mission stations of Bethanien and Berseba before being sent to Germany in 1852 for his education. In 1871 he returned with a PhD in Nama languages and made a living as a trader, and land and political agent, arbitrating between the conflicting interests of the scattered indigenous communities, the immigrant Baster group that had arrived at Rehoboth, and the Cape Colony's mid-1870s attempts to extend the British grip north of the Orange River. During that time, with funding from Germany, Hahn travelled extensively in Namaland, undertaking lunar observations of longitude (four) and sun or star culminations of latitudes (89, of which 45 on NE and 38 on SE sheets). Some of his large-scale drafts were linked to the few earlier trigonometrical observations and incorporated outlines of maps from James Alexander to the Rhenish missionaries. His fortunes then declined and in 1878, by which time the Cape Colony's interest in southwestern Africa had vanished, Hahn resettled in Stellenbosch in the Cape. He was obliged to sell his cartographic drafts to the Cape government (Hahn 1993), which commissioned its Surveyor General to draw and publish Hahn's observations and compilations, which was unfortunately done inefficiently. (Fig. 12).

The map depicts about two thirds of southwestern Africa between the Orange River and Otavi (19° 15' South), with few details north of the Omaruru River, and from the coast eastward to about the Waterberg in Hereroland (19° 45'East). Despite noticeable deficiencies in the final drafting, some very crude morphology in certain places, and numerous spelling errors, the map has exceptional merit. The dense terrain hachures, network of water features, tracks, and many named places are not only appealing but, more importantly, they are surprisingly true to nature.

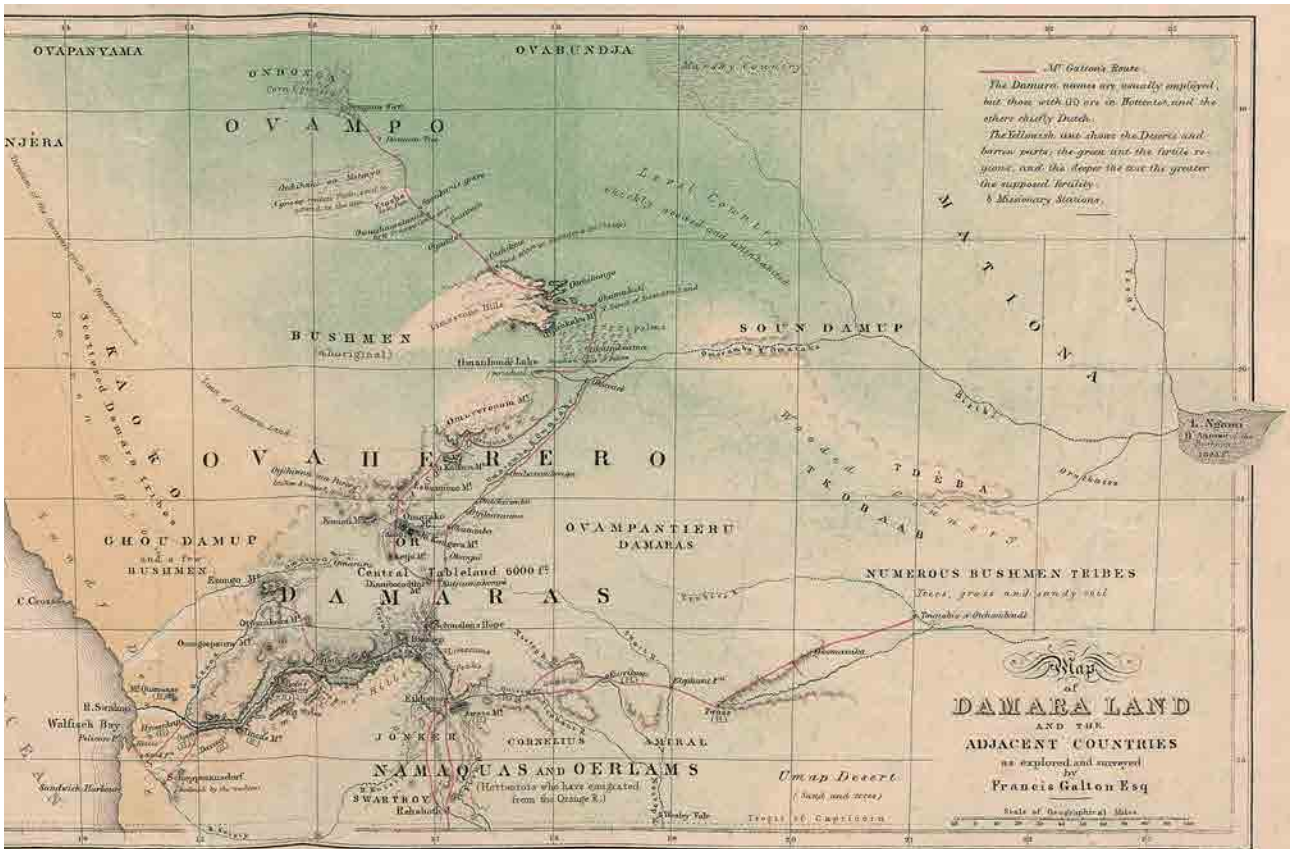

Figure 9: Detail of August Petermann's *Map of Damara Land and the adjacent countries [...] (London 1853). (Source: Galton 1853)*

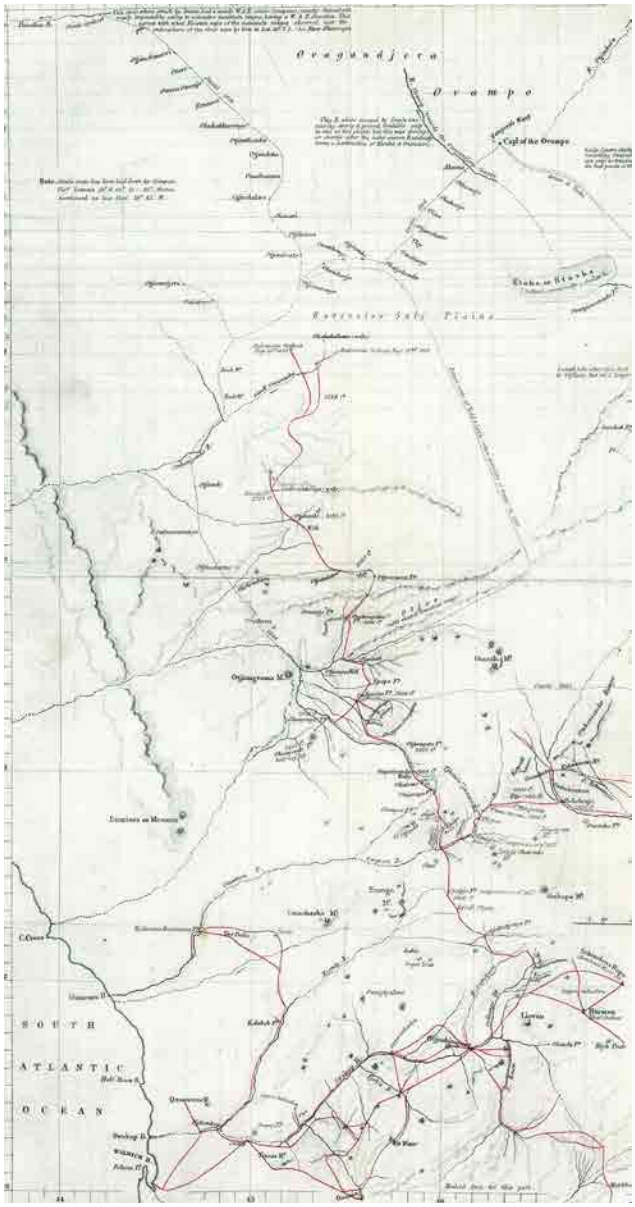

Figure 10: Detail of John Arrowsmith's construction of Karl Johan Andersson's *South-West Africa. Map of the principal part of Damara Land* [...] (London 1866). (Source: Staatsbibliothek zu Berlin, Kartensammlung, Kart GfE J 8317)

Moser (2004) suggests that samples of the longitude are generally off to the east, but only between 900 and 5,000 metres, and that heights given for settlements are more accurate than those provided for mountain peaks (Moser 2004).

Both by the exceptionally large size (157x107cm) and scale (1:742,016) the map in four sheets far exceeds any previous map representing all or most of southwestern Africa. The large size of the four merged sheets allows for a rendering in hitherto impossible detail. The map shows geodetic observations of numerous settlements and mission stations, indicates roads and tracks, as well as providing symbols for pans which hold water in dry seasons. Such details, as well as the reliability of the geodetic observations, explain why Hahn's map was the first really reliable orientation map of southwestern Africa and remained in use until after the turn of the century.

Only after much hesitation, did Britain in 1878 annex Walvis Bay in southwestern Africa, the only harbour along the coast with easy access across the Namib desert to the interior highlands. The 1884 surprise German declaration of protection over F.A.E. Lüderitz's acquisitions of Angra Pequeña and all the coast between the Orange and Kunene Rivers convinced the Cape Colony, to which Walvis Bay had been transferred in 1884, to dispatch Cape surveyor Phillip Wrey (1858–1936) in 1885 to unilaterally survey and demarcate the boundary (claim) of the now enclaved harbour. Wrey's *Plan of Walwich Bay* of 12 December 1885 to the scale of ca. 1:119,000 (Fig. 13) gives only a very rough terrain representation by symbolic (not to scale) molehills but prominently shows counterclockwise numbered surveyed points A (Pelican Point at tip of the peninsula) to N (settlement 'The Bay'). Since there was no potable water at the bay, the British settlement depended on pumped water from above a rock bank across the wide sandy bed of the Kuiseb River at Rooibank. Wrey included an 8km stretch upstream to Ururas in his claim for the Cape Colony (Wrey 1886), which led to a long-running dispute with Germany over the interpretation of the term 'including the plateau' in the 1878 annexation proclamation, settled only in 1911 by an international Arbitration Award in favour of Wrey's boundary interpretation.

In April 1886 geologist Friedrich M. Stapff (1836–1895), an officer at the Royal Prussian Geological Institute, visited Sandwich Harbour and the lower Kuiseb River valley. His brief but intensive geomorphological reconnaissance resulted in a superb map to the scale of 1:225,000, the first thematic map of any part of the new German protectorate by a visiting academic (Fig. 14). It has no fewer than 58 line, colour, symbol, and abbreviated word features, as well as views and profiles, especially of the short cut between 'Zandvisch Haven' and the lower Kuiseb River just upstream of the British-German border at Ururas. For topographic or thematic content such close attention to detail was not matched until the discovery of diamonds in Lüderitzbucht in 1908.

While geologist Stapff was not expected to find mineral riches in the hinterland of Walvis Bay, the nucleus of German colonial administration in 1886 was desperate to identify a landing site outside the British enclave, because Angra Pequeña was too far south for commercial access to the area of the interior which was to be colonised. The hope then rested on Sandwich Harbour to become a viable alternative port on the new German protectorate's central coast, if only the silting progress in the small bay and its water supply could be understood. Therefore, geologist Stapff paid close attention to underground water in the lower Kuiseb River and whether it permeated under the sand dunes to 'Zandvisch Haven' (Stapff 1887). While Stapff proved that Kuiseb water filtered all the way to Sandwich Harbour, it was too little, and the bay had almost completely silted up.

When it became clear that Sandwich Harbour could not be developed and efforts to negotiate an exchange with Britain to gain the Walvis Bay enclave ultimately failed in 1890, for the lack of a better landing place on the central portion of the coast from which to connect

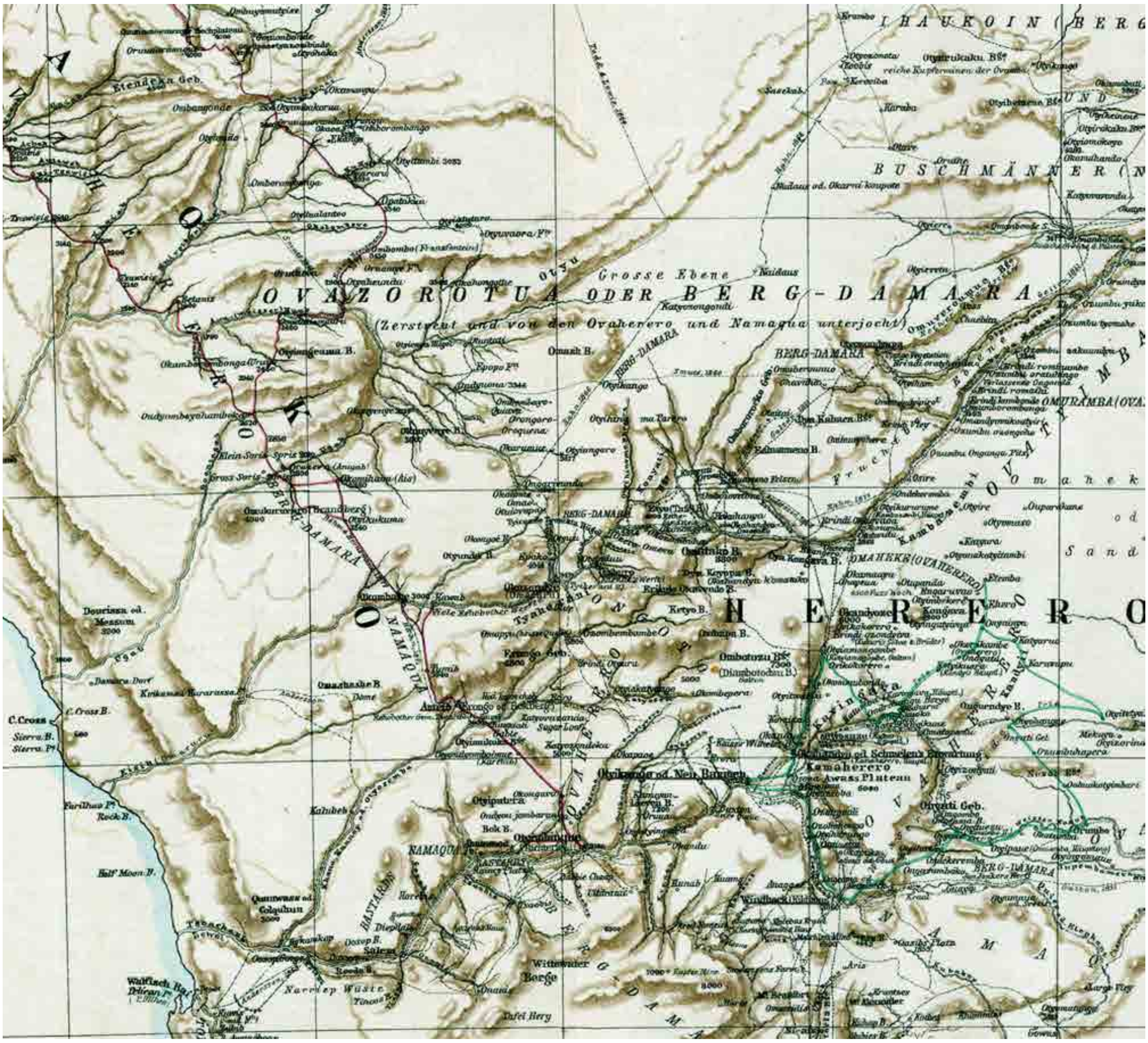

Figure 11: Detail of August Petermann's *Originalkarte des Herero & Kaoko-Landes nach allen bisherigen Aufnahmen & Reisen* [...] (Gotha 1878). (Source: Universitätsbibliothek Johann Christian Senckenberg [Frankfurt am Main], Zsq 23645, Vol. 24)

by ox wagon to the inland, Swakopmund was established about 35km north of Walvis Bay in 1892. By 1894 Swakopmund had only 19 inhabitants. This chart of 1897, based primarily on a June 1896 survey by *HMS Hyäne* under Commander Lieutenant Karl Deubel, is one of the earliest German Admiralty charts of the coast of German Southwest Africa. It shows the 'roadstead' of Swakopmund, in fact a rather dangerous shallow coastal anchorage.

In preparation for the construction of a pier harbour (shown as projected) to replace the hitherto landing of open barges through the surf, many soundings (in metres) explore the wide tidal stretch, separated from deeper water by a zone of dangerous heavy breakers (Fig. 15). In 1896 there was still only one bi-monthly steam line service calling (von François 1899). Today of greater interest than the navigational content of this chart is the general view of the fledgling upstart port with the government station and few merchant homes on the left margin of the sheet. Like the British Admiralty charts their German counterparts often carry such views, now valued time capsules of a bygone stage of development.

The colonial development of the Protectorate of German Southwest Africa remained slow until the turn of the century. On the eve of the Herero and Nama uprising it was still a farming based colonial economy – the mining for copper in Otavi and diamonds in the Namib still lay in the future – and therefore the likely best gauge of the colonial status is property maps. The first official census map on land ownership was published in 1902 by Chief Land Surveyor Hugo Görgens: *Besitzstands-Karte von Deutsch-Südwest-Afrika. Stand am 1. Januar 1902. Aufgestellt im Bureau der Landesvermessung* (Property Map of German Southwest Africa. Status on 1 January 1902. Compiled by the Bureau of the [Imperial] Land Survey, Fig. 16). Well after the halfway mark of the three decades of German colonial rule, land held by concession companies, indigenous groups, and the government by the

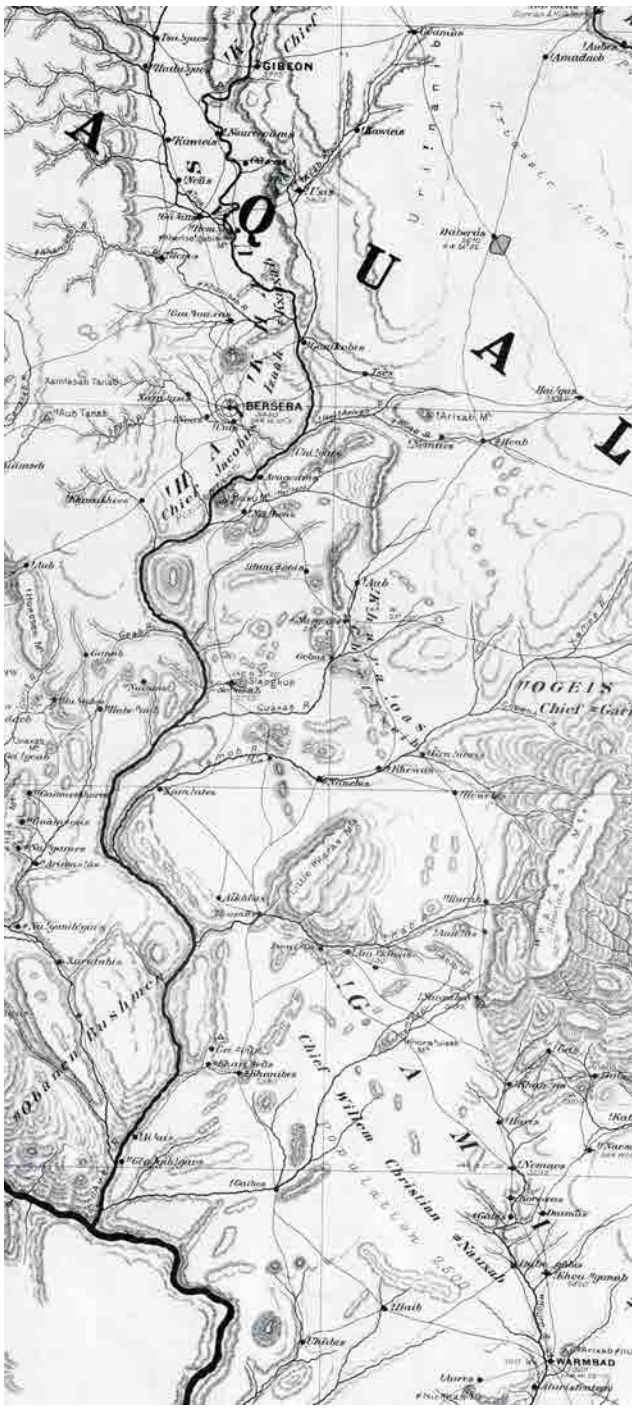

Figure 12: Detail of Johann Theophilus Hahn's *Original Map of Great Namaqualand and Damaraland compiled from his own Observations and Surveys* [...], southern Great Namaqualand between Gibeon and Warmbad with Fish River and Karas Mountains, on Southeast Sheet (Cape Town 1879). (Source: Western Cape Archives [Cape Town], Map M3.1722)

end of 1901 cover this property map with only a sprinkling (green) of sold farms in the central and southern parts of the protectorate.

Not surprisingly, well-watered land (springs and rivers) with good grazing were taken first, preferably in clusters with other farmers for mutual support, followed by land in the vicinity of the railways constructed since 1897. According to the protectorate's annual report, the building of a railway from Swakopmund to Windhoek, fully operational by 1902, increased the sales of government and indigenously held land (excluding that held by concession companies) by 1901 to 53 farms of 4006.9 square kilometres (of a then total of 269 farms), which was almost double the total sales of the previous three years: 1898 – two farms (199.2km^2), 1899 – ten farms (704.6km^2), and 1900 – 21 farms (1585.6km^2) (Jahresbericht 1903). The detail shown for the central region reveals a complicated pattern of land concessions (blue border), indigenous land (orange border, here Herero in the north and Rehoboth Baster in the south), and the often sandwiched areas of government land (yellow). Farms are indicated as sold (green border) or already surveyed (green area). The latter was easier once it was possible to link to the Imperial Land Survey triangulation chain, but by 1901 this was available only for the Windhoek region.

Looking beyond 1902

The 1902 *Besitzstands-Karte* logged the eventual slow uptick of colonial development in German Southwest Africa around the turn of the century as well as the brewing land conflict with European farms that were encroaching upon indigenous lands, which triggered the 1904 Herero and Nama uprisings. To suppress these 'insurrections' the German government in Berlin dispatched a previously unimaginable massive detachment of German military and accompanying surveying units, which became the watershed for the cartography of German Southwest Africa. Ushered in by *Kriegskarte von Deutsch-Südwestafrika* (War Map of German Southwest Africa, 1904, scale of 1:800,000, first topographical map series in 8 sheets), today likely the best known of all German era maps of the Protectorate-turned-Colony, was just the opening fanfare for an exponential and sustained increase in official and private surveying followed by a corresponding output of maps in a variety of scales from small to very large in the decade until 1914. An appropriate discussion of these new developments must be saved for another chapter in the history of the mapping of southwestern Africa.

References

ALEXANDER, J.E. 1838: Report of an expedition of discovery through the countries of the Great Namaquas, Boschmans, and the Hill Damaras, in South Africa. *The Journal of the Royal Geographical Society of London*, 8: 1–28.

ANONYM 1878. Herero-Land, Land und Leute. *Mittheilungen aus Justus Perthes' Geographischer Anstalt*, 24: 306–311.

AXELSON, E. (ed.) 1988. *Dias and his successors*. Cape Town: Saayman & Weber.

BAINES, T. 1866. Notes to accompany Mr. C.J. Andersson's map of Damara Land. *Journal of the Royal Geographical Society*, 36: 247–248.

BODENSTEIN, W. 2017: *Exploring Africa with ancient maps.* Tervueren: Royal Museum for Central Africa.

DAY, A. 1967. *The Admiralty Hydrographic Service, 1795–1919.* London: Her Majesty's Stationery Office.

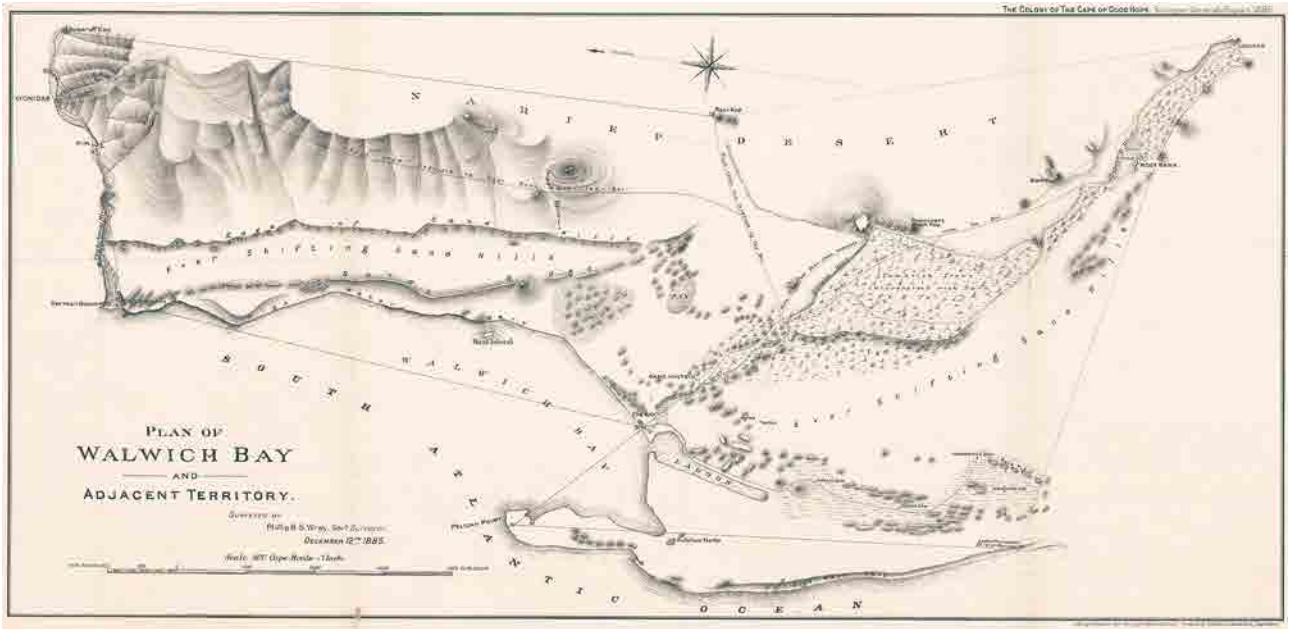

Figure 13: Surveyor Phillip Wrey's *Plan of Walwich Bay* [...] (Cape Town 1886) with unilaterally set southeastern boundaries to include the Kuiseb River ground water reservoir upstream of Ururas. (Source: Wrey 1886)

DEMHARDT, I.J. 2025. Maps in history: Stealing maps – boon and bother. *International Journal of Cartography,* 11:4, 646–647.

GALTON, F. 1853. *Narrative of an explorer in tropical South Africa.* London: John Murray.

GASPAR, J.A. 2012. Blunders, errors and entanglements: Scrutinizing the Cantino Planisphere with a Cartometric Eye. In: *Imago Mundi,* 64: 2, 181–200.

GLENN, I. 2007: Francois Levaillant and the mapping of Southern Africa. *Alternation* 14:2, 25–39.

HAHN, H.L. 1993. *Die rol van Dr. J. Theophilus Hahn in Suider-Afrika, 1871–1905.* M.A. proefskrif, Universiteit Stellenbosch.

HUIGEN, S. 2009a: The adventures of a Surinamese Frenchman in South Africa: The travel accounts of François Levaillant. Huigen, S. *Knowledge and colonialism: Eighteenth century travelers in South Africa.* Amsterdam: Brill, 119–145.

HUIGEN, S. 2009b. Trade and science. Reports of the VOC expedition by Hendrik Hop from 1761-1762. Huigen, S. *Knowledge and colonialism: Eighteenth century travelers in South Africa.* Amsterdam: Brill, 75–91.

JAHRESBERICHT ÜBER DIE ENTWICKELUNG DER DEUTSCHEN SCHUTZGEBIETE IN AFRIKA UND DER SÜDSEE IM JAHRE 1901/1902. Berlin: Ernst Siegfried Mittler und Sohn, 1903. Loosely added to: Deutsches Kolonialblatt. Amtsblatt für die Schutzgebiete in Afrika und in der Südsee, Vol. 14 (1903).

MOSER, J. 2004. Die frühesten Karten Südwestafrikas zwischen 1761 und 1879. *Cartographica Helvetica,* 30: 35–41.

NEWITT, M. 2005. *A history of Portuguese overseas expansion, 1400–1668*. London: Routledge.

SEELY, M. 2004. *The Namib: Natural history of an Ancient Desert.* 3rd edition. Windhoek: Desert Research Foundation of Namibia.

STAPFF, F. 1887. Karte des untern !Khuisebtales. *Dr. A. Petermanns Mitteilungen aus Justus Perthes' Geographischer Anstalt* [...],33: 202–214.

VON FRANÇOIS, C. 1899. *Deutsch-Südwest-Afrika. Geschichte der Kolonisation bis zum Ausbruch des Krieges mit Witbooi.* Berlin: Dietrich Reimer.

WREY, P. B.S. 1886: Report on the survey of the Territory of Walfish Bay. In: Cape of Good Hope. Ministerial Department of Crown Lands & Public Works. *Report of the Surveyor-General for the Year 1885.* Cape Town: W.A. Richards & Sons, 15–22.

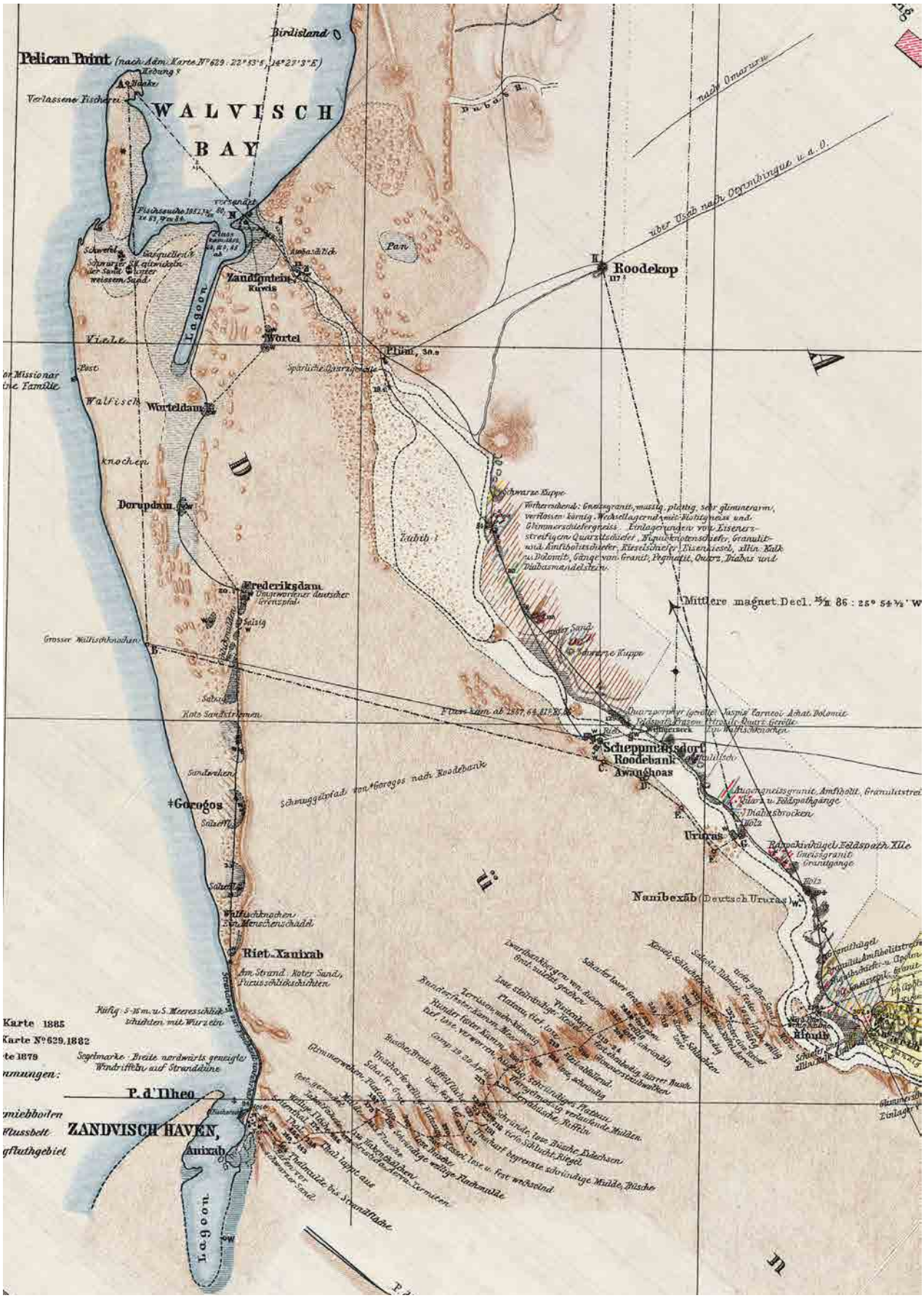

Figure 14: Detail of Friedrich Stapff's *Originalkarte des unteren !Khuiseb Thales* [...] (Gotha 1887) in the large scale of 1:225,000 with the geologist's crossing from Hinub on the Lower Kuiseb River (about 250m above sea level) across the sand dunes down to the coast at Sandwich Harbour. (Source: Universitätsbibliothek Johann Christian Senckenberg [Frankfurt am Main], Zsq 23645, Vol. 33)

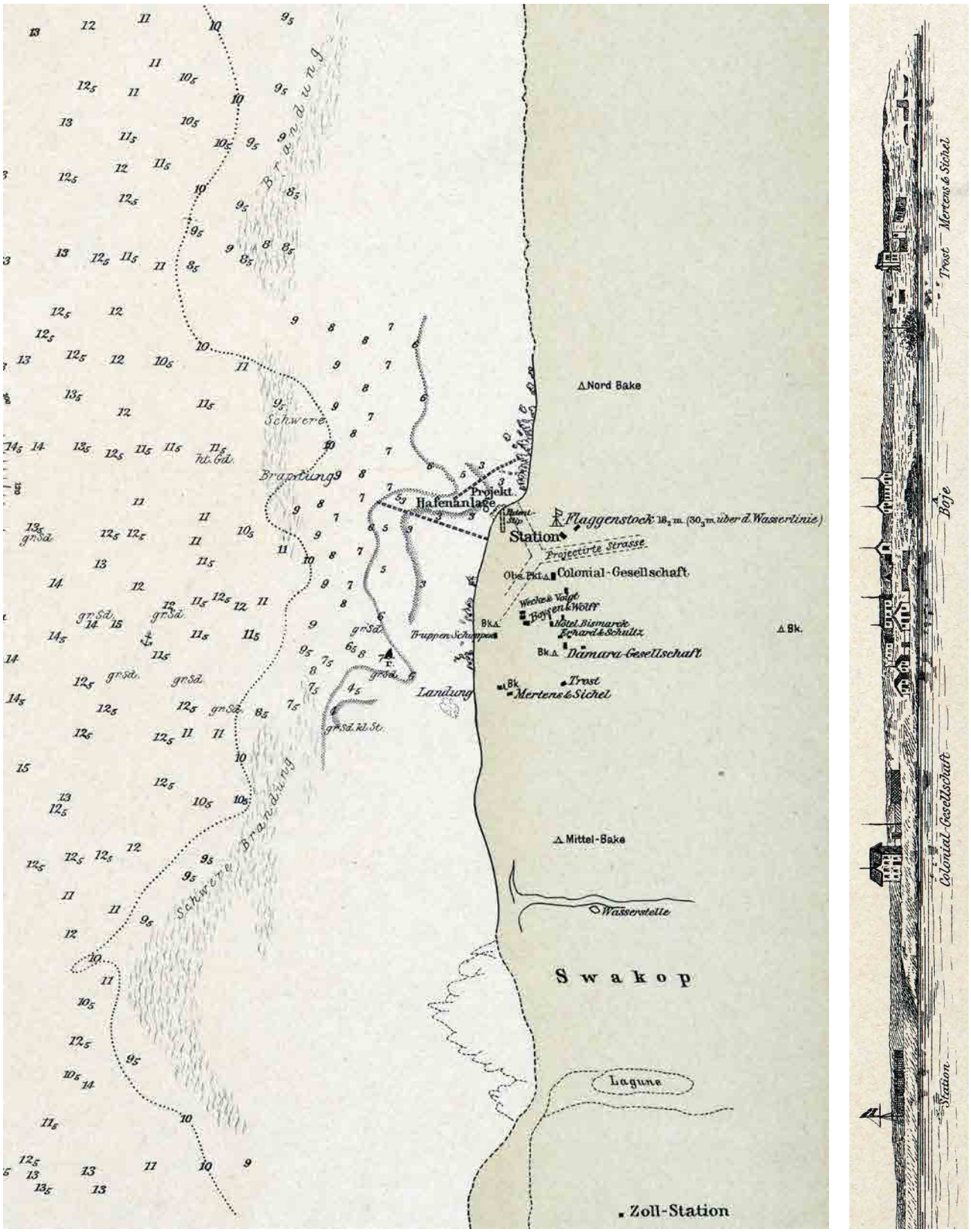

Figure 15a & 15b: Detail of German Reichs-Marine-Amt, No. 132, *Rhede von Swakopmund* (Berlin 1897, Fig. 15a) and to the right a detail of the view *Ansteuerung von Swakopmund* (= Approach to Swakopmund) outside the left neat line (Fig. 15b). (Source: Staatsbibliothek zu Berlin, Kartensammlung, Kart S 401 – Karte 132 of 1897)

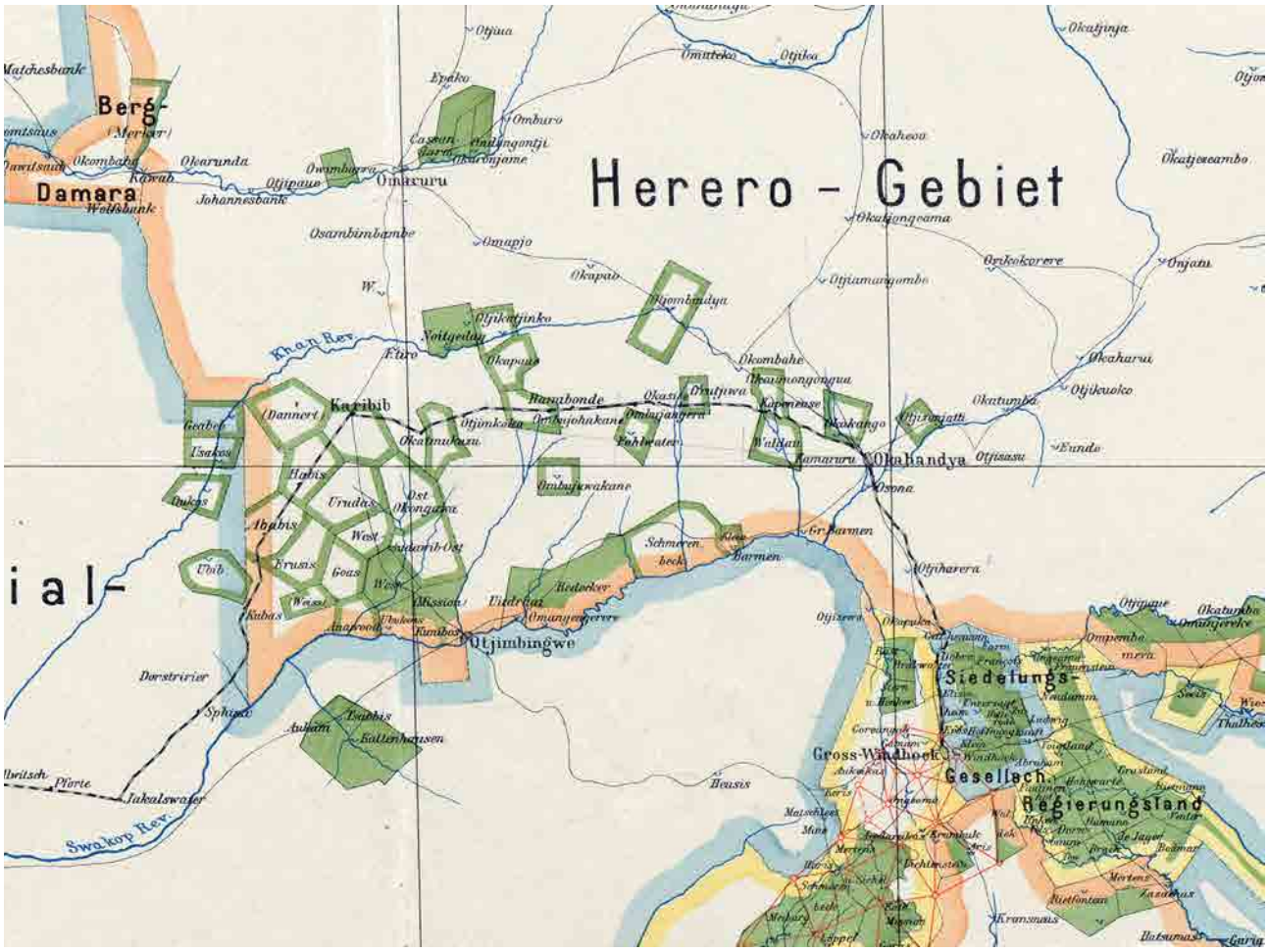

Figure 16: Detail of *Besitzstands-Karte von Deutsch-Südwest-Afrika* [...] (Berlin 1902), from the upper of two sheets. (Source: Staatsbibliothek zu Berlin, Kartensammlung, Kart C 14900-5)