An Archaeology of Colonialism, Conflict, and Exclusion: Conflict Landscapes of Western Sahara

In Two Volumes:

Volume One

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Abstract

When Spain gave up its colony of Spanish (now Western) Sahara in 1975, it was annexed by Morocco and Mauritania. A sixteen-year war ensued, leaving the country divided between Morocco and the Polisario Front. This unresolved conflict left indelible scars on the landscape, mainly battlescapes, made up of numerous field fortifications littered with the detritus of war, and 'the berm' (or 'berms') a succession of fortified earth and stone walls constructed by Morocco between 1980 and 1987, partitioning a formerly pastoral landscape, and excluding pro-independence Saharawis from the western four-fifths of their country.

This dissertation will explore how this desert landscape has been transformed by colonialism and war, and how in some ways, the Saharawi people are actively re-appropriating their land. This will be done by looking at the landscape at three levels of resolution. The broadest, or national level, will chart the growth and spread of the berms, illustrating the material extent of Moroccan colonial control, and the exclusion of Saharawis within and outside the territory. The middle, or regional level, will explore the militarisation of one settlement – Tifariti – which was fought over during the war, and which hosted a unique art festival between 2007 and 2010. The third, finer level, will look at the land art that was created as a result of the art festival, and which is now a new stratum of contemporary archaeology, overlying the extensive prehistoric archaeology evident in the region.

A great number of national barriers are at this moment being raised around the globe, with countries adopting siege mentalities with their neighbours. This dissertation will explore how archaeology can apply a multi-disciplinary approach, drawing upon a variety of resources, to help us understand the contemporary phenomena of conflict and exclusion, through the unique example of Western Sahara.

Table of Contents

Volume One

Volume Two

List of Figures

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CHAPTER 1

INTRODUCTION

The 20th century, and by extension, the 21st century, is an age in which conflict has forever been present. Indeed, the historian Niall Ferguson has epitomised the many conflicts of this era as one 'War of the World'.[1] This period has seen an unprecedented industrialisation of war, the breaking up of great empires, both old and newly born in the 20th century, and the creation of new nation states. It has also seen the partitioning of countries and territories, and the increasing defence of frontiers with extensive physical barriers explicitly designed to prevent human movement across space. Colonialism was supposed to have ended in the 1960s, but by the middle of the 1970s, extraterritoriality has prospered in its vacuum creating neo-colonial relationships based on newly defined geo-political entities, global economics and cultural hegemonies. In Africa, however, there is still one territory that is often described as the last colony on the continent, and that is Western Sahara, formerly the colony of Spanish Sahara and now known to Morocco – which presently occupies around eighty percent of the territory – as its 'Southern Provinces'. For a location, and general map of Western Sahara, see Fig. 3.1.

As maintained by Mohamed Cherkaoui, Morocco claims that its own Arab-Berber, 'Moorish civilization', has its roots in the Almoravid expansion across much of the Maghreb (see Chapter 3), which started in the far west of the Sahara amongst the Berber Sanhaja tribes in the 11th century, in what is now Mauritania and Western Sahara. In consequence, all of Morocco's subsequent dynasties '… took over this heritage and strengthened it. Without the Sahara, Morocco's history would be incomprehensible, and without Morocco, [Western] Sahara would be no more than a desert'.[2]

Such a view, however, is anachronistic today, as it was when Spain gave up its Saharan colony of 90 some odd years in the winter of 1975-1976. But even with the

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[1] Ferguson 2006.
[2] Cherkaoui 2007: 3.

Western Saharan people – the Saharawis – agitating for their own sovereignty from the early 1970s and before, and their desire for self-determination supported by the International Court of Justice in 1975,[3] Morocco (with Mauritania) persisted in occupying the colony, literally on the heels of the departing Spanish. The violent occupation that occurred, caused the exodus of an estimated maximum of around 100,000 Saharawis out of the country and into refugee camps in Algeria,[4] where their numbers have increased to possibly more than 150,000 in the present day, and with an estimated 90,000 Saharawis presently living in the Moroccan occupied zone.[5] This precipitated 16 years of war which ended with a United Nations brokered ceasefire in 1991, between the Saharawi Arab Democratic Republic (SADR), founded by the Polisario Front (an acronym for the 'Popular Front for the Liberation of Saguia el-Hamra and Río de Oro'),[6] and The Kingdom of Morocco. The hostilities ended with the Western Saharan landscape being scarred in a way that would not have been imagined at the start of the conflict. Not only are there battlescapes littered with the detritus of war, but the country has been partitioned between a 'free' or 'liberated' zone controlled by the SADR/Polisario, and an 'occupied' zone that has, administratively, been incorporated into Morocco.

The nationalist Saharawis (Polisario) opposing the occupation of their country by Morocco and Mauritania, proved to be an extremely effective fighting force. They forced Mauritania out of the territory in 1979, and pushed the Moroccans, more or less, into an enclave in the far northwest of the country. However, in 1980 the Moroccans went on the offensive and started to push the SADR/Polisario eastwards

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[3] Pazzanita 2006: 215-221.

[4] Numbers for refugees in 1975-1976 are only approximations. It has been estimated that the number of refugees fleeing Western Sahara might have risen from 9000 in late 1975 to more than 100,000 by the end of 1976 (San Martin 2010: 109). In comparison, the number of refugees in the camps outside Tindouf, Algeria, were put at around 100,000, only by early 1979 (Mercer 1979: 19).

[5] The figure of more than 150,000 Saharawi refugees was estimated by UNICEF in 2010 and published on their website at http://www.unicef.org/infobycountry/algeria_54061.html accessed 21 October 2013. In contrast, the UNHCR estimated the number of Saharawi refugees at 116,446 as of 2012. See their population statistics website at http://popstats.unhcr.org/ accessed 21 October 2013. A report produced for Forced Migration Online, and available at http://repository.forcedmigration.org/show_metadata.jsp?pid=fmo:5146 (accessed 27 November 2013) has estimated the number of Saharawi refugees at 165,000, with a population of 90,000 Saharawis living in the territory as of 2004. See Smith 2004.

[6] The full name for the Polisario Front in Spanish, or the *Frente Polisario,* is: *Frente Popular para la Liberación de Saguia el-Hamra y Río de Oro.* This recognises the two regions that made up Western Sahara as a Spanish colony – the *Saguia el-Hamra* in the north (the northern panhandle extending to the coast) and the *Rio de Oro* in the south.

and southwards from the confines of their pale. To do so, they started to build a great wall of sand and rocks, referred to as 'the berm', punctuated by forts, and with extensive minefields. As the Polisario were pushed further east and south, successive walls were constructed, one after another, excluding Polisario combatants from an ever enlargening territory regained by Morocco.

A total of six walls (or berms) were raised from 1980 to 1987 consisting of around 4000 kilometres of earthen banks and ditches, and naturally defensive features, with forts and fortlets, and minefields, excluding a very large percentage of the Sahrawi people from much of their own country. Occasionally, Polisario forces broke through the walls, but they were more or less kept in check. This barrier system has parcelled up the territory, cutting swathes through a formerly pastoral landscape, leaving an indelible inscription on the land that will remain for centuries, maybe even millennia in some places. The barriers are clearly visible on satellite imagery and clear for all to see, for instance, on Google Earth. This has marked out the very land of Western Sahara in a distinctly singular way, made even more salient by the fact that the berms are still fortified, manned, and mined.

This dissertation is an interdisciplinary, though archaeologically grounded exploration of this contested landscape. By its very nature, this study is geographically multi-scaled, and historically and culturally multi-layered and multi-vocal. Taking an anthropologically informed archaeological approach, this project is a most needed, and appropriate avenue for examining the materiality of this conflict. From the Moroccan barriers to individual battlescapes, and to the settlements that have been abandoned (and in some instances now being re-settled), the physical reality of this conflict is little known, nor understood, and this unique, material perspective on it has been overlooked by analysts and commentators alike. Their interests have obviously lain elsewhere, since benchmark works on Western Sahara covering the train of events from 1975-1976 to the present day[7] all deal with the geo-politics and history of the conflict, along with the humanitarian issues of the Saharawi people's refugee status in camps in Algeria.[8] This research does not dismiss these important studies in any way,

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[7] Thompson and Ardloff 1980, Damis 1983, Hodges 1983, Lawless and Monahan 1987, Shelley 2004, Zunes and Mindy 2010, Jensen 2011, and the most recent addition, Boukhars and Jacques 2014.
[8] San Martin 2010.

but instead, it aims to bring to the fore, to manifest[9] and make sense of some of those elements of the Western Sahara conflict that have been taken for granted – elements that are rooted in a materiality that has affected the landscape and people of Western Sahara to this day, and tells a story that is uniquely different from those narratives which are pre-occupied with the political machinations on the international stage over the people and country of Western Sahara.

Archaeology and Modern Conflict

The narrative of this research rotates around certain key concepts, themes and approaches to the archaeological understanding of modern conflict, and consequently, the war in Western Sahara. They fall under the rubrics of:

- the archaeology of modern conflict as an archaeology of the present,
- archaeologies of colonialism and imperialism (including an archaeology of occupation), and
- art at an interface with archaeology.

These encapsulate the conceptual drivers that inform this dissertation, and within them (as explained further below) they articulate the relationship between battlefield and conflict archaeology; they emphasise the relationship of forensics to archaeological enquiry; they recognise that archaeology dealing with the modern era is an archaeology in and of the present, and that the present day is essentially extra, or 'super' modern (and this is undeniably reflected in modern war); that archaeology can, as in this dissertation, deal with issues of imperialism, colonialism and foreign occupation, and finally; that archaeology shares with artistic endeavours the aim to investigate and make sense of what it is to be human (though in the specific instance of this research) in the context of a contested landscape.

This chapter will summarily examine and explain these concepts and themes, but it will not attempt an overview of the archaeology of conflict, as a whole, since that is

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[9] González-Ruibal 2008, and Shanks 2004: 148.

better served by John Carman's recent, *Archaeologies of Conflict*.[10] The chapter will then move onto the issues and core questions that have driven this research, and it will end with an overview of the structure and presentation of this dissertation, along with a summation.

The Archaeology of Modern Conflict as an Archaeology of the Present

All human activity takes place in substantive geographic space. There is a concrete relationship between human actions and the places in which they occur, and those places can be landscapes, seascapes, townscapes, buildings, and mindscapes (and even airscapes). They can be unique to an individual or shared by a group, and all are made up of material structure, meaning and human practice.[11] They are the meat of human existence and all too often abstract versions of history and geo-politics, as in the case of Western Sahara, leave them out. Even though the Moroccan berms, as material entities, are described by a number of commentators, all of their renditions are overly generalised, incomplete and inconsistent. To paraphrase Miller (though writing about material culture in general), the berms, to many writers and commentators, have faded out of focus and become peripheral to their vision, yet still serving as a singular determinant in their studies and analyses of the Western Sahara conflict.[12] As a result, a barrier so large as that partitioning Western Sahara cannot be fully comprehended by most readers of the standard works on the conflict. It has, in effect, become obscured, and its tangible and material presence has only been dealt with marginally. The same applies to battlescapes, and this inadequacy can also be found in many published accounts of almost all types of wars. However, John Keegan's *The Face of Battle*[13] aimed to remedy this by deliberately homing in on the human, phenomenological experiences of war, and by so doing, has contributed to changing the complexion of contemporary military history. While the archaeological study of battlefields came to the fore, internationally, with Scott *et al* investigating the site of the Battle of the Little Bighorn in the United States,[14] and as a result, becoming an exemplar for battlefield archaeology since the latter 1980s.[15]

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[10] Carman 2013.
[11] Cresswell 2009.
[12] Miller 2005: 5-6.
[13] Keegan 1978. For other examples, see also Leed 1979 and Holmes 1985.
[14] Scott, Fox, Connor, and Harmon 1989.
[15] Carman and Carman 2006: 5.

Work on the Little Bighorn battle site clearly showed the potency of combining the inherently forensic qualities of archaeology with historical enquiry.

> If it can be said that history turns pages, then archaeology turns the ground. Historical archaeology, as the name implies, does both. Records and documents are essential ingredients in historical archaeology but no more so than the knowledge gleaned from artefacts left behind by historical personages. Thus historical archaeologists weave the strands of history with clues painstakingly sifted from the earth to form a fabric unlike that attainable through history or archaeology alone.[16]

In fact, Scott *et al* go on to characterise the unique histories that can be written by historical archaeology, and in their case battlefield archaeology, by drawing upon the often-used analogy of crime resolution. 'In solving a crime, police rely upon two disparate classes of evidence. Witness testimony is important but so are clues provided by the physical evidence of a crime'. For historical archaeologists, therefore, historical documents, 'especially firsthand accounts.., are tantamount to eyewitness testimony', while 'the archaeological record contains historical clues in the form of physical remains, including artefacts, and their contextual relationships'.[17] Crime investigators will use numerous methodologies to make sense of clues and testimony, as do archaeologists investigating the 'historical' past. On the face of it this multi-methodological approach is a hallmark of the archaeology of modern conflict, but this latter archaeological sub-discipline is palpably different from battlefield archaeology as it is usually practiced. Battlefield archaeology usually deals with a single event in history at a specific location. It has a strong emphasis on field methodology, be it terrain analysis or patterns of projectile residues, making its theoretical leanings highly processual.[18] In contrast, the archaeology of conflict is not site or event specific. Its remit is broad, looking at societies in conflict – not just combatants on a battlefield – and examining the materiality of conflict on a broader anthropological canvas.

In contrast to battles and wars prior to the 20th century, Carman and Carman have characterised modern warfare as

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[16] Scott, Fox, Connor, and Harmon 1989**:** 5.
[17] Scott, Fox, Connor, and Harmon 1989**:** 5.
[18] Carman 2013: 45-46.

disconcertingly extended from the surface of our globe into other realms: into the air; under the sea; into the most inhospitable regions of the world… and even into outer space. It has also gone beyond the physical into more conceptual regions: into the relations of government to people; into the realm of science and technology; and, …into the so-called 'infosphere' and… cyberspace. The battles of our age can be said to have no limits or boundaries: they frequently cannot be seen or measured, nor physically controlled. Unlike the warfare of previous ages, they do not occupy a particular location but are at once nowhere and everywhere.[19]

Modern conflict, as Schofield points out, can be military or civilian. It can include small-scale ethnic disputes or larger civil conflagrations. Conflict can be 'hot' or cold' and spread across the globe. Its complexity and size can include individual battlefields, the landscapes in which battles are situated and the 'landscape of experience', including not just the land, but also the sea and air, and into space.[20] This sense of scale and multidimensionality, to Saunders for instance, means that the archaeology of modern conflict is, by its very nature,

an anthropologically-informed multidisciplinary endeavour, concerned with the social, cultural, psychological, and technological as well as military complexities of recent conflicts, and their powerful and unpredictable legacies… This multitude of issues makes modern conflict sites, in effect, highly sensitised multilayered landscapes that require a robust, interdisciplinary approach, far beyond the ability of traditional, single event-oriented, battlefield archaeology to deliver.[21]

And he goes even further to pointedly differentiate battlefield archaeology from modern conflict archaeology.

It is that the names 'Modern Conflict Archaeology' and 'Battlefield Archaeology' are neither coterminous nor interchangeable. They embody quite different approaches and agendas, both to the empirical data, and to the presence or absence of an

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[19] Carman and Carman 2006: 31.
[20] Schofield 2005: 19-20.
[21] Saunders 2012: x.

acknowledged theoretical sophistication concerning the nature and meaning of objects and landscapes, and their relationships to people in the past and the present.[22]

Modern, industrialised conflict is a 'force which has shaped, and continues to shape the modern world',[23] and the study of its materiality through archaeology is firmly embedded in what has come to be known as the 'archaeology of the contemporary past'. This oxymoron is generally taken to mean that the very way in which archaeologists undertake and structure their studies, even when applied to the contemporary world, makes familiar quotidian objects – that are so much at the core of almost all archaeological enquiries – unfamiliar and even alien, and thereby like objects from a more distant past. This idea of alienation and distancing ourselves from the materiality of the present through its archaeological study is at the core of Buchli and Lucas' definition of the archaeology of the contemporary past. Though they also raise the notion that such an archaeology 'constitutes the unconstituted' in that the common and everyday, the taken-for-granted, is brought to the fore and given a presence – a voice.[24] In line with this is the concept of 'rendering the familiar unfamiliar',[25] but this might actually be a poor turn of phrase. Archaeologists, in fact, become *more* familiar (in the broadest of senses) with the objects of their study. They familiarize themselves with artefacts, buildings and landscapes in a way that is utterly sensual as well as intellectual. By direct physical study, they get to know every crack, chip or indent in an artefact. They become intimate with its form and make-up. Archaeologists crawl around buildings to examine the way in which they have been constructed, leaving almost no interstices unchecked. In terms of landscapes, they will walk over ground again and again to understand its features and lie of the land. By doing so, and to quote from Ingold, they take on a 'dwelling perspective'.[26] This means that they come to understand their object of study by 'immediate experience' and 'the understandings that people derive from their lived, everyday involvement in the world'. In fact, by 'dwelling' with the object of study, it 'becomes a part of us, just as we are [or become] a part of it',[27] and this undoubtedly takes place in the here and now of the archaeologist. This chimes with Harrison's call for 'a shift away from the

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[22] Saunders 2012: xiii.
[23] Saunders 2012: xiv.
[24] Buchli and Lucas, 2001.
[25] Graves-Brown 2000: 6.
[26] Ingold 2010.
[27] Ingold 2010.

idea of an "archaeology of the contemporary past", towards an "archaeology of the present"… suggest[ing] that we think about the present as a surface – a physical strata that contains not only the present, but all its physical and imagined pasts combined'. By doing so, and by using the metaphor of the landscape that is all around us, and continually changing through human and natural actions, then the 'past, present and future are combined and still in the process of *becoming*'.[28] Harrison goes on to propose that archaeologists

> abandon the idea of the 'contemporary past' to focus instead on an archaeology *of* and *in* the present; to shift archaeology away from the study of the ruin, the derelict and the abandoned to become a discipline which is concerned with both the 'living' and the 'dead'. Indeed, our failure to do this hitherto has led to an obsession with the novelty of the application of archaeology to the present itself, producing a field of research which has appeared at times both superficial and piecemeal in nature. …what we need more than anything else is a series of detailed, long term, longitudinal studies which demonstrate the actual contribution archaeology can make to understanding the present, rather than a series of justifications for it.[29]

The archaeology of modern conflict can perhaps answer Harrison's call with, for example, Saunders' account of First World War archaeology, *Killing Time* (written for both the layman and specialist), being a case in point. As Saunders presents it, the archaeology of the Great War is, in effect, the excavating of memories: memories of an entire century that started in 1914 and continues to this day. He takes a profoundly holistic approach to studying the Great War, conjoining archaeology and anthropology through landscape and material culture study, and through embracing issues of memory, commemoration, national and trans-national heritage, tourism, private artefact collection (with its potential for looting), and the still volatile nature of former battlescapes due to unexploded ordnance.[30] This is very much an archaeology in and of the present, and equally, an archaeology that will continue to imprint itself on the future. As a pivotal event in human history, and especially remembered by the nations that took part, it is an archaeology in the process of becoming – and always on the cusp of becoming something new for the future as long as memory does not fail it.

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[28] Harrison 2011: 153-154.
[29] Harrison 2011: 160.
[30] Saunders 2010. See also, Saunders 2002.

Working in the far west of Ethiopia, Gonzáles-Ruibal has shown how archaeology can reflect on the failure of modern 'reason', which has gone 'berserk'. In Ethiopia, modernity has scarred the land and littered it with the refuse of intensive, modern war, and through the impressing of a Soviet inspired 'utopia' on top of a traditional African nation with agricultural collectivisation and forced re-location of communities. Here there is an archaeology of recent contestation manifested through wasted war material and abandoned industrial ruins – disposed amidst an ancient landscape and made more poignant by the memories of people who experienced the conflict, and changes, that occurred during the country's 17 years of civil war that ended in 1991.[31] This too is an archaeology in and of the present, and it, like the archaeology of all modern conflicts, is also an archaeology of the 'super modern'. Here, modernity is seen as something in excess.[32] It is extra modern, exaggerated and exacerbated, baroque even.[33] And since 1914, as Gonzáles-Ruibal points out, it has been 'characterised by increasing means of devastation, both of humans and things, and as a result of this, by a proliferation of [new] archaeological sites (battlefields, industrial ruins, concentration camps)'. In fact, an archaeology of supermodernity can be unconcealing – disclosing and making bare 'the traumatic nature of the recent past' and even our own, possible implication in events that can still be raw. It should manifest 'what cannot be said',[34] and the very nature of archaeology is undeniably suited to such a task.

Another way in which archaeology can make sense of the past within the present can be found in the application of forensic archaeology to modern conflict; in particular, in the examination of mass graves from recent wars and scenes of crimes against humanity. The work of Layla Renshaw, on Spanish Civil War mass grave exhumations, is an exemplar of forensic archaeology carried out in a social context. Through the examination of mass graves, Renshaw linked a traumatic past with the present through the materialisation of the dead and their associated objects by exhumation. Working closely with local communities she and her colleagues, were able to facilitate and explore the transformations that those communities underwent, through their encounters with their own dead from the Spanish Civil War, creating

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[31] Gonzáles-Ruibal 2006.
[32] Augé 1995.
[33] Gonzáles-Ruibal 2008.
[34] Gonzáles-Ruibal 2008.

'new individual and collective identities in the present'.[35] Such an approach and outcome is very much in keeping with Harrison's view of contemporary archaeology being in and of the present.

However, there is a further use of forensics relevant to the present, and it is one that has been employed by the architect Eyal Weizman in the context of the Arab-Israeli conflict, and which he articulates as 'Forensic Architecture'. As advocated by Weizman and his colleagues, forensic architecture is mobilised to study sites of violence and human rights violations both in the field and remotely. By its very nature it is archaeological, even though his work has been described as a kind of 'spatial cryptography' and only 'quasi-archaeological'.[36] Nevertheless, Weisman's specific use of the word 'forensics' truly resonates with the practice of archaeology of both the distant and recent pasts, and of the present. Weizman goes back to basics. He reminds us that 'forensics' is derived from the Latin *forensis*, and therefore has its root in the 'forum'. In particular, it deals with the rhetorical skill of presenting an argument to a legal, professional, or political assembly, or the like, and as such it is concerned with speech: not only human speech, but also that of things that require a 'translator' or 'interpreter'. He cites the rhetoricion's role as that which 'the Greeks and Romans called *prosopopoeia* – a mode of speaking on behalf of inanimate objects'. Adding from the orator Quintilian, that *prosopopoeia* gives '"a voice to things to which nature has not given a voice"', it can also '"evoke the dead"' and give '"voices to cities and states"'. To Weizman, therefore, what he calls 'the thick surfaces of Forensic Architecture' is made up of three related parts: the thing or things at issue, an 'interpreter', and a forum – the place of argument and presentation.[37]

Though talking and writing as an architect, and being concerned with the concrete issues of Palestine and Israel today, what Weizman says is virtually a reflection of an

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[35] Renshaw 2011: 20.

[36] 'Forensic architecture typically refers to the practice of building-surveyors who assess building damage and structural integrity in legal contexts, often providing expert testimony in court. However, extracted from the specialized context of property and insurance disputes, the term could designate a general strategy for architectural research and enquiry, expanding the scope of what architecture can achieve in the world today… The "architecture" in forensic architecture would thus designate, not the product of building design, but rather an expanded field of spatial investigation, imaging and representation, while the word "forensic" should be understood as the very condition that enables architectural research to perform politically, that is, to enter a complex political or juridical calculus' (*Forensic Architecture Project* 2011-2015).

[37] Weizman 2012: 8-9, citing Quintilain's *Institutes of Oratory*, bk. 9, ch. 2.

archaeology of the present, and because of the context of his work, of contemporary conflict. Even he, after all, has referred to his work as 'a kind of "archaeology" of present conditions as they could be read, or misread', and as 'a kind of archaeology of spaces', especially with reference to the use of imagery, mapping and remote sensing[38] – well used tools of modern archaeology. His application of 'forensics', like an archaeology of the present, and of modern conflict, does not give precedence to any specific type of knowledge,[39] but instead, recognises that there is an entangled richness of data, experience and phenomena to draw upon, so as to make sense of the complexity of modern contestation.

Archaeologies of Occupation, Colonialism and Imperialism

One of Weizman's pivotal concerns with the ongoing Palestinian-Israeli conflict, is the way in which Israel has colonised Palestinian territory through the use of architecture, that is, through the creation of an Israeli built environment parcelling up the Palestinian West Bank and alienating, and disenfranchising, its Palestinian inhabitants. This is expressed in his book, *Hollow Land: Israel's Architecture of Occupation.[40]* This work is an exploration of the materiality of the Israeli occupation of Palestinian lands. Though not described as such, it is an archaeology of modern conflict in and of the present, and additionally, it falls under the rubric of what Gilly Carr has coined as the 'Archaeology of Occupation'.

To Carr, based on her ongoing work in the Channel Islands (occupied by Nazi Germany from 1940 to 1945) occupation archaeology should be a distinct sub-discipline within archaeology since it deals with human experience in a specific context – that of occupation in times of war, and by extension, even after hostilities may have ended. It examines the material culture of the occupiers and the occupied at all levels of resolution, from individual objects to whole landscapes. It examines, with an archaeological sensibility, the manifestations of the unequal power relationship that exists when a territory is occupied, and how the people of an occupied country react as either opponents, collaborators, or as bystanders – be they active, neutral or with a sense of impotence. Trauma from an occupation along with its memory can extend

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[38] Schapira and Hung 2012.
[39] Saunders 2012: x.
[40] Weizman 2007.

into the present, and arguably into the future through many generations, and those yet to be born, and this has a bearing on commemorations and heritage awareness.[41] This resonates with the situation in Western Sahara where the greatest manifestation of the country's occupation is the Moroccan partition with its earthen berms, and where specific loci are sites of memory due, for instance, to Moroccan attacks on fleeing refugees, or as battlescapes. The occupation of most of Western Sahara has forged the Saharawi identity and this is reinforced by national commemorative events, even including an art festival, in the Polisario controlled, liberated zone.

Carr goes on to point out that an archaeology of occupation is relevant to any period and place on the globe where expansive empires have conquered and occupied territories. She cites Roman Britain as a case in point, along with the contemporary occupations of Iraq and Afghanistan. 'Such a perspective would, undoubtedly, enable us to study the archaeological record [of occupation] from a different perspective, or to watch it in its very act of creation'.[42] Her latter point applies to this research since the Western Sahara conflict is still unresolved, and only kept in check by a United Nations ceasefire. Equally, Carman has pointed out that any 'archaeology of modern conflict has inevitably also to engage with the ongoing nature of conflict',[43] and this is undeniably the case in Western Sahara.

Inextricably linked to Carr's conception of an archaeology of occupation is the archaeological study of imperialism and colonialism. In particular, from the period that Hobsbawm called the 'Age of Empire' (1875 to 1914),[44] through to the withdrawal from empire by the European nations in the 1960s, and the new post World War II 'empires' made up of the United States and Soviet Russian spheres of influence, and now, the re-shuffling of post Cold War hegemonies. Surprisingly, in the post world war era, a newly 'liberated' Morocco, freed from France's African Empire in 1956, embarked on its own imperial venture. With a vision of a 'Greater Morocco', it claimed sovereignty over much of western Algeria and Mali, and the whole of Mauritania and the then Spanish Sahara. But with Mauritania and Mali gaining independence in 1960, and with Algeria following on in 1962, Morocco could only

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[41] Carr 2009 and Carr 2010.
[42] Carr 2010: 172.
[43] Carman 2013: 78.
[44] Hobsbaum 2010: 56.

covet the remaining Spanish Sahara. Then in 1976, the Kingdom came to realise its 'imperial' destiny, when in agreement with Spain and Mauritania, it colonised the northern two thirds of Western Sahara, and subsequently absorbed the southern third when Mauritania withdrew from the war with SADR/Polisario. With the whole of Western Sahara technically incorporated into the Kingdom of Morocco, it has turned Western Sahara into the last colony in Africa.

Another African country that colonised a neighbouring territory in the modern era was Egypt, which expanded into the whole of what is now Sudan, and South Sudan, between 1820 and 1874.[45] But the Egyptians also extended their influence into Northern Uganda, and even into western Ethiopia, with the construction of defended military stations from the 1860s onwards, only to be abandoned by the 1890s.[46] The archaeological fieldwork carried out at some of these stations in the 1960s and resumed in the 2000s, caused Posnansky to propose, in 2006, 'Imperial Archaeology' as a 'distinct sub-field' within Historical African Archaeology. Such an archaeology would represent 'the contact between two or more peoples, cultures, economies, societies and technologies', implying 'a power relationship, an imposed new culture, a violent impact rather than the gradual development of relationships between juxtaposed populations', and characterised by a lack of equality and partnerships, and by domination and control.[47] These themes and their examination through material culture and landscape, also characterise the 'archaeology of the colonized' as described by Given.[48]

Given points out a number of factors that mark out the experience of those who are colonised. With relevance to Western Sahara, these include the specific notions of alienation and resistance. With the former, Saharawis were moved and resettled and 'alienated from their own landscape, …their daily patterns of life and their memories of meaningful places',[49] while with the latter – resistance – they have fought off the Moroccans and Mauritanians and continue to occupy around one fifth of their country. They have built up their own nation with its own functioning government, armed

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[45] Adams 1977: 614-625 and Lane and Johnson 2009.
[46] Posnansky 2008 and Gonzáles-Ruibal 2011.
[47] Posnansky 2006.
[48] Given 2004.
[49] Given 2004: 163.

forces and infrastructure, and they are re-appropriating their land in the liberated zone, even though they are a nation in exile in Algeria.

Art at an Interface with Archaeology

It is not an aim of this dissertation to fully explore the relationship of art to archaeology and archaeology to art. This is an expanding theme in contemporary archaeology, which is opening up new and valuable vistas in the ways in which we relate to, and understand the materiality of the past and the contemporary world that is all around us. While quoting the title of Paul Gauguin's allegorical, Polynesian inspired painting entitled: *Where do we come from? What are we? Where are we going to?* – Colin Renfrew has succinctly put it that archaeologists and artists, though in their own distinct ways, 'seek to investigate the "human condition" – to engage with and comment upon what it is to be human'.[50] In so doing, they both perform, interpret, narrate and characterise the materiality of the things that are the objects of their work; and 'inevitably artistic intervention becomes archaeology. Once these new places and things are created, their creation is in the past, and thus archaeological'.[51] It is this aspect of art as archaeology that is focused on in this research, and in particular, art as archaeology within the context of an unresolved conflict.

The types of contemporary art that has become archaeology, and are a part of this research (examined in Chapter 7), can broadly be categorized as war art (including trench art), protest art, and solidarity art. They are mainly interventions that have been undertaken out of doors, and as such include murals, sculptures and land art. The examples cited have not been carried out by people who were involved in the hostilities of 1975 to 1991, but instead, they were created by foreign artists in a sense of solidarity with the Saharawi people, and Saharawi artists memorialising the conflict and the plight of their nation: all during art festival activities from 2007 to 2010 in the liberated Zone of Western Sahara, at the small settlement of Tifariti. They have been carried out as an act of defiance – contributing to, and creating an archaeology of opposition[52] – in a belief that art matters, and that it can have a tangible impact on the observer. This can either be in Western Sahara or in exhibitions abroad, thereby

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[50] Renfrew 2003: 10-11.
[51] Schofield 2006: 5.
[52] Cadw 2009: 16.

making the world aware of the plight of the Saharawi people, and fostering support for their cause. Many of the artworks have been created with recycled materials, or utilised buildings either still in use or in ruins due to Moroccan bombing. In a way, as April Krause would put it, they are 'aestheticising' a post-conflict place. The artworks are 'anti-authoritarian.., site-specific, visual marks embedded within the built fabric of a post-conflict site'[53] – Tifariti.

To the artists – and as it would be put by Alfred Gell – their artworks have been created as 'agents' that can mediate social change.[54] They are each, intimately connected with their creators as 'components of their identities as human persons, just as much [for example] as their fingerprints'.[55] By being created within the context of a humanitarian, pro-Saharawi art festival, the artists and their works are a collective, or family, that is self-generating with its own momentum.[56]

> They marry, so to speak, and beget offspring which bear the stamp of their antecedents. Artworks are manifestations of 'culture' as a collective phenomenon, they are, like people, enculturated beings.[57]

The notion that an artwork is like a person, and as such, a social agent, and also in a genealogical relationship (able to 'beget offspring'), relates to Gell's concept of 'distributed personhood'. The artists are a group of people making up something akin to a sub-culture sharing their concerns for the Saharawi cause, and imbuing their artwork with their sentiments, making them extensions of themselves. Each artist and each artwork does not stand alone, but as parts of an aggregate.[58] In material terms, this 'aggregate', especially of artworks literally on the ground, makes up a stratum of archaeology in and of the present, poignantly distributed amidst the ruins of colonial, and contemporary Tifariti.

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[53] Krause 2011.
[54] Gell 1998: 6-7.
[55] Gell 1998: 21.
[56] Though the art festival – ARTifariti – is no longer held in Tifariti, it has, since 2011, continued to be held in the Saharawi refugee camps in Algeria.
[57] Gell 1998: 153.
[58] Rampley 2005.

Issues and Questions Driving this Research

Colonialism, Conflict, and Exclusion

As the title of this dissertation indicates, there are three intertwined strands to this research. They are the issues of *Colonialism, Conflict,* and *Exclusion*. It is my aim to explore these, drawing upon the concepts and themes within the rubrics already described, and consequently, to be presented in terms of landscape archaeology (utilising the strategic tools described in Chapter 2). As explained above, the conflict in Western Sahara has, to date, been mainly dealt with in terms of contemporary history, social history, and international relations, but as with most conflicts, especially modern ones, there are longstanding, material manifestations on the ground, which is the meat of landscape archaeology.

Issues of colonialism in the western Sahara go back to the latter 19th century with France expanding into what is now Mauritania, and with Spain occupying the Western Saharan coast at Villa Cisneros from 1884 onwards. And although this European expansion is a backdrop to this study, the main colonial issue to be dealt with is the colonising of Western Sahara by Morocco in the last quarter of the 20th century. In terms of landscape archaeology this will be initially approached through a characterisation of the very medium by which the Morocans have been able to occupy Western Sahara, and that is through a study of the Moroccan wall – the berm, or better – the berms. How its construction in waves, from the northwest of the territory, represents how the military fortunes of both Morocco and the SADR/Polisario changed, and how, as Morocco's latest and continuing manifestation of its appropriation of the Saharawi patrimony, it has physically isolated the Saharawi people from most of their homeland.

Alongside a characterisation of the Moroccan berms, and how they have become imprinted on the face of the desert, this research will explore the issue of conflict through a more detailed landscape study of the fought over terrain of a specific locus in the liberated zone. This is the settlement and immediate region of Tifariti where there is archaeological evidence for the Spanish administration and militarisation of the area in the 1960s, followed by the fortification of the area by Morocco during their

occupation of 1977-1979 in which they were besieged by Polisario. The topography around Tifariti is undulating and very rocky and it turned out to be ideal for the creation of defensive sangars and dugouts, lookout posts, bivouacs and artillery gun emplacements. The terrain was an integral part of Tifariti's defence and it is reflected in the way in which Polisario forces invested the settlement.

A landscape study of the berms, as noted above, is by its very nature a study in exclusion. In fact San Martin and Allan[59] have described Western Sahara as the largest prison on the planet, confining Saharawis into zones within and outside the berms. But in the case of the Saharawis in the Free Zone, and in the camps in Algeria, this study will look in some way at how these people have reacted to their exclusion, with specific reference to the Tifariti area.

Tifariti has symbolic importance to the Saharawi people. National assemblies are held there, it is seen as a future capital for the liberated territories, and it provides amenities to the Bedouin re-settling the surrounding area. It is the headquarters of the Tifariti military region of the SADR, and it is a base for foreign visitors to the liberated zone. The settlement has also been the focus of the ARTifariti arts festival, which has been running since 2007, but was only held in Tifariti up to 2010. Since that time, the festival has been held in the Saharawi refugee camps in Algeria. In terms of archaeology, foreign and Saharawi artists have created new artefacts in the landscape as land art, sculptures have been created out of cast off materials and the remains of exploded ordnance, and buildings, ruinous or otherwise, have been appropriated and painted as artworks. These artworks are new features inscribed on the land, just like the berms and the prehistoric remains that can be found in abundance, mainly east, west and north of Tifariti. In fact, ARTifariti has been one way of subverting the Saharawi people's exclusion from their land. Through the work of Saharawi artists and the solidarity of foreign artists, they have imprinted the very land with their own meaningful markers – 'memorialised interventions',[60] and these efforts have, and are seen as giving succour to the Saharawi people on what has turned out to be a slow, and still unfulfilled road to self-determination and international recognition.

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[59] San Martin and Allan 2007.
[60] Krause 2011.

Research Questions

This research came about as a direct result of my involvement in the Western Sahara Project directed by Drs Joanne Clarke and Nick Brooks of the University of East Anglia. I became involved in the project in 2007 and my primary role was to survey a prehistoric funerary landscape along the Wadi Tifariti, around 14 kilometres north of Tifariti. What struck me on a daily basis, though, especially while driving to the survey area, was the ubiquitousness of the remains of the 1975 to 1991 war between the SADR/Polisario and Morocco. Positioned along numerous rocky ridges were the dug outs and sangars of Moroccan positions, while in the survey area in which we worked, there was a group of defensive dug outs including the remains of stone and mud brick structures in the Wadi Tifariti, and occasional instances of unexploded ordnance (UXOs), and scatters of shrapnel. There were also the numerous remains of Moroccan defensive positions in and around Tifariti itself, and amidst these, Action on Armed Violence (AOAV, then known as Land Mine Action – LMA) field operatives were surveying and clearing UXOs, working from their base in the settlement. Coupled with the ruined remains of the Spanish colonial presence in Tifariti itself, and with the advent of the ARTifariti art festival near the end of the same year, it became evident that Western Sahara was a unique country in which to explore the archaeological complexity and materiality of a late 20th century conflict, and this was impressed upon me more so when I saw the Moroccan berms through the virtual globe of Google Earth. This opened up the vista of an archaeological presence of conflict both on the ground, and through satellite imagery on the Internet, which could be explored through the multi-disciplinary approaches of the archaeology of modern conflict, and as an archaeology in and of the present.

Google Earth was undeniably a catalyst in inspiring me to explore the conflict landscape of Western Sahara. And with my seeing ARTifariti interventions on the ground when I returned to Western Sahara in 2008, it was obvious to me that the archaeological study of the conflict, as a landscape phenomenon, could only add to our understanding of it. Thereby adding a concrete, and palpable reality to the study of the conflict that has been missing from all the standard works on the contemporary Western Sahara. To this end this research hovers around two very simple, yet profound, research questions. These are:

- How has the landscape of Western Sahara been transformed by the 1975-1991 war, as manifested by the material remains of conflict?

- And, how are the Saharawi people manifesting the re-appropriation of their land, in particular, at the settlement of Tifariti, which has a special resonance for them?

Collage

I describe the 'tools' for carrying out this research in Chapter 2, where this dissertation is elaborated on further as being multidisciplinary, multi-vocal and multi-dimensional, and employing and generating a multiplicity of materials. Because of this multi-faceted nature, answers to the above two questions will be presented as woven within the overall narrative of this research. This being the case, it would probably be best to describe the end result of this work as something akin to a 'collage'. In keeping with the view that an archaeology of the present, or the contemporary past, 'has a major role to play in foregrounding those aspects of contemporary life at the margins that are constantly being overwritten by dominant narratives',[61] then 'collage', as described by Rowe and Koetter, is an apt descriptor of the work of this project.

> Collage [is] often a method of paying attention to the left-overs of the world, of preserving their integrity and equipping them with dignity, of compounding matter of factness and cerebrality, as a convention and a breach of convention, [it] necessarily operates unexpectedly.[62]

As an example, the anthropologist Hadas Yaron clearly embraced the notion of 'collage' while investigating a contemporary contested landscape in Israel. She recognised that in the multiple materials generated by her research there were 'gaps and tensions' exposed 'between the narrated and the inanimate, the past and the present, and between different narrators or voices which compose different accounts', and by placing such a diversity of voices and materials next to one another, she created a collage. In this context, a collage is a partial and alternative reflection of the world. It 'emphasises the agency of the researcher and later the writer in the formation

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[61] Harrison and Schofield 2010: 11.
[62] Rowe and Koetter 1978: 142.

of the text which is composed and, mirroring the researcher/author's own choices and inner conflicts, is autobiographical'.[63] In my view, this reflects the make up of what will be presented here as the end result of this research. Recognising it as a collage is an honest acceptance of the limitations (and serendipitousness) of archaeological fieldwork and data collection, and the acknowledgement of mediation on the part of the researcher. Nevertheless, by placing together multifaceted histories (narratives), perspectives and tools, along with archaeological field (and remote) data, an archaeological 'collage' will be composed, expressly rooted in the present and the contemporary past, and taking advantage of the distinctly forensic qualities of archaeology to do so.

Structure of Dissertation

There are seven further chapters to this dissertation. Chapter 2 develops further some of the themes and key concepts introduced here within the context of the strategic methodologies employed in this research. It explains and elaborates on 'the right tools for the job', which, after traditional bibliographic research, fall into three broad categories. These are: visual and geographic sources, oral testimony/history, and archaeological field survey. Chapter 3 moves on to describing Western Sahara: its topography, geography and its people. It lays the groundwork for the subsequent chapters by describing the Spanish colonial 'project' in the territory, and by going part of the way to characterising its materiality in the open spaces of Western Sahara. The chapter also outlines the events leading up to the war of 1975-1991, and the annexation of the territory by Morocco and Mauritania, and the conduct of the war. It ends with an overview of Morocco's grand tactic of exclusion through the construction of 'the berms', along with a comparative review of a number of other barrier fortifications from the very late 19th century up to the present.

The materiality of the berms is dealt with in Chapters 4 and 5. Chapter 4 presents an archaeology of the barriers, and by its very nature, is landscape archaeology at a national, or macro scale. The chapter depends heavily on Google Earth imagery and other internet resources (see Chapter 2), while Chapter 5 draws upon oral testimony

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[63] Yaron 2006: 10.

(both recorded during fieldwork, and from published and internet sources) to describe the phenomenology of the berms – but perhaps best described as 'confrontations' with the barriers – and also incorporating Polisario perceptions and tactics towards Morocco's 'Great Wall'. Archaeology moves from the macro scale to the meso scale in Chapter 6. Here, the landscape archaeology of the immediate Tifariti area is examined. Starting with an overview that begins in the mid-Holocene, through to the coming of Islam, and on still, to the invasion of the region by punitive French colonial forces, and the eventual transformation of Tifariti into a Spanish Foreign Legion post and a locus with amenities for the local Bedouin. Tifariti became militarised between 1977 and 1979, encircled by rings of dugouts and sangars, constructed by the occupying Moroccan army into a large defensive 'box'. The garrison was in a nearly perpetual state of siege, and the analysis of this conflict landscape is at the heart of Chapter 6. In all, Chapters 4, 5 and 6 aim to make sense of the transformations that modern industrialised war have wrought upon the landscape of Western Sahara.

Chapter 7 deals very much with the archaeology of 'the now' in Tifariti. In relative terms, it can be described as landscape archaeology at a micro scale. It looks at issues of landscape re-appropriation and conflict memorialisation through public artworks – artworks created on the land in and around Tifariti during the ARTifariti festivals that were held in the settlement from 2007 to 2010 – though it also makes international comparisons. It deals with the founding of the festival and the experiential aspects of the mainly foreign artists, working in the Western Sahara landscape as an expression of solidarity towards the Saharawi struggle for self-determination. The chapter highlights selected artworks and their artists, and contextualises them as integral to a new stratum of contemporary archaeology at Tifariti. The chapter caps the archaeology of Tifariti described in Chapter 6. A discussion of conclusions is presented in Chapter 8, which aims to make sense of the collage like narrative that is at the heart of this dissertation. It reviews the context of the research and the central themes of colonialism, conflict and exclusion. The chapter ends by examining the archaeological consequences of this research, and it gives directions for future work.

Summary

My aim in this research is to explore, and bring into focus, the materiality of the
Western Sahara War of 1975-1991 and its aftermath. This aspect of the conflict has
been barely touched upon by most commentators, analysts, and historians dealing with
Western Sahara, yet the very works of war – in particular, the Moroccan berms –
though monumental in nature and written about often, are barely understood. The
same applies to battlescapes, and the ways in which the Saharawi people are trying to
re-appropriate their national territory since the United Nations brokered ceasefire of
1991.

The conceptual springboard that drives this dissertation is based on the idea that the
archaeological study of modern conflict is multi-dimensional and multi-disciplinary,
and this, in turn, is situated within the notion that the archaeological past and present
can exist, and be visible, side-by-side in the landscape. They make up a palimpsest.
That the best way to study such an archaeology, especially in the context of modern
conflict, is to draw together the practical and forensic skills of traditional archaeology,
and especially landscape fieldwork (be it on the ground or through remote sensing),
with historical accounts and oral testimony (either traditionally compiled or derived
from publications and the internet), thereby connecting the past with the here and now
– creating an archaeology in and of the present. This is crucial, in Western Sahara,
since the territory is still contested and the effects of the Moroccan occupation of the
country is continuously felt by Saharawis on a daily basis, either by living in exile in
refugee camps in Algeria, and/or living in the Polisario controlled 'liberated' zone, or
living in the Moroccan occupied zone. This makes the archaeology of conflict in the
territory an archaeology with a running narrative, and one that is continually evolving.
As a result, the materiality of the conflict continues to 'become' something new for
every generation of Saharawis.

But the practical, forensic qualities that are a hallmark of good archaeological enquiry,
consist of more than just meticulous record making. As pointed out within the concept
of forensic architecture, they have to do with the very way in which the study of
conflict is carried out. That is, that there is an issue, or object of study; it is to be

interpreted and given voice; and this takes place and is presented within the public sphere. That is what good archaeology does. It gives presence and voice to the materiality under study, with no preference to any specific type of data or knowledge. It is the purpose of this dissertation, and this approach is very much in keeping with the aims of the archaeology of modern conflict, and an archaeology in and of the present.

The issues of colonialism (and imperialism) and occupation, by a foreign power – in this case Morocco – are crucial to understanding this research. The power imbalance that exists has been expressed materially at a national geographic scale: by the very partitioning of Western Sahara through the construction of the Moroccan territorial berms. Consisting of almost 4000 kilometres of barriers (most of which are still fortified), their study as a landscape phenomenon, especially through the employment of Google Earth, as in this research, is undoubtedly unique. As far as I am aware, no other similar study has been undertaken anywhere else on the globe, so I believe that it is the first of its kind. Through my description and analysis of the berms, I will show how one nation has literally appropriated and corralled another. Nevertheless, the resultant exclusion of the bulk of the Saharawi people from approximately eighty percent of their national territory has created a new, post-ceasefire relationship between the Saharawi people with the remainder of the country still under their control. In material and geographic terms this is best shown by a landscape study of the little known settlement of Tifariti. Here, and again, this study emphasises the concept of palimpsest, and archaeology as being multidimensional, and in and of the present. To this end I will present an archaeological study, and narrative, of the landscape surrounding, and including Tifariti, that will illustrate the composition of its palimpsest as an archaeological continuum up to the present day. This will also include artworks created out of doors as part of the ARTifariti festivals held in the settlement between from 2007 to 2010. Within the context of this study, these make up the top-most stratum of archaeology in the settlement.

In the chapters that follow, I will present the archaeology of Western Sahara's contested landscape as an archaeology in and of the present, and as Harrison would put it, as a *real* stratum that combines its physical and imagined pasts with the present, and is concerned with both the living and the dead. I also put this research forward as

a study that answers Harrison's call, that archaeology dealing with the recent past and present should not be piecemeal but detailed, cover the long term, and be longitudinal in scope.

CHAPTER 2

METHODOLOGY AND RESOURCES

Introduction

The aim of this chapter is to discuss the strategic methodology and resources employed in this dissertation, and to explain the reasoning behind their choice. This research applies a multiplicity of methods reflecting the essence of modern conflict archaeology and the subject's multidisciplinary and interdisciplinary nature. Saunders has described the archaeology of conflict, and in particular conflict landscapes as multi-vocal and multi-dimensional.[64] This view has roots that go back to W. G. Hoskins,[65] in the context of British landscape history, whose

> main thesis was that the landscape was there to be 'read'. If one examined it closely one could 'read' or detect evidence for earlier landscapes that had subsequently been replaced or adapted. This approach has been likened to a palimpsest, faint traces of original writing visible in parchment that has been reused. Sometimes, the landscape, like manuscript palimpsests, can reveal multiple episodes of use and reuse. Hoskins stressed the importance of combining evidence produced by an archaeological examination of the landscape itself with a study of historical records, such as maps, parish registers, deeds and so forth.[66]

Hoskins' emphasis on the combining of different types of evidence to get a total, holistic picture of a landscape's history, is a strength that is found in contemporary historical archaeology. It is especially so with an archaeology of the present, including the archaeology of modern conflict; though the different classes of evidence for the recent past, undoubtedly, go far beyond anything Hoskins might have considered. An archaeology of the recent and contemporary past can draw upon an immense and varied range of resources unavailable to researchers of the more distant past. Besides

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[64] Saunders 2001: 37.
[65] Hoskins 1977.
[66] Pryor 2010: 15.

traditional resources such as artefacts, and written and visual accounts – in all of their variety – we are also all personally linked to, and part and parcel of the recent past and present. We move with it and it moves with us in a personal and intimate way. The present becomes the past on a daily basis while we inexorably move into the future. We interact immediately with its materiality and we have access to the voices of others, both close to us through direct contact in some instances, and further a field, or around the globe, through a variety of ways and media, and of course, through the matrix of the World Wide Web, all contributing to an archaeology in and of the present. This is also the case for an archaeology of modern conflict in the late 20th and early 21st centuries, which, by being multi-faceted, draws on the insights, resources, techniques and knowledge of disciplines other than archaeology. They include anthropology and culture studies, cultural geography, military history, art history, museum and heritage studies, and tourism, plus the sub-disciplines that feed into these fields. This diversity gives a strength to modern conflict archaeology 'which, rather than privileging one or other kinds of knowledge, seeks instead to draw on each as appropriate in order to respond to the complex challenges of investigating conflict in the modern world'.[67] As Schofield points out, archaeology is not a 'thing', it is 'a way of looking at the past'.[68] It is a way of looking at the little things, the mundane things, the familiar and overly familiar, the taken for granted, and those things that are so humble that we do not even see them,[69] and in the words of Arundhati Roy, talking about her novel *The God of Small Things*:

> the God of Small Things is a book where you connect the very smallest things to the very biggest: whether it's the dent that a baby spider makes on the surface of water or the quality of the moonlight on a river or how history and politics intrude into your life, your house, your bedroom.[70]

Roy's statement is relevant to the archaeology of all periods, and her sense of intimacy and scale in recognising the connectedness of the 'small things' that make up human experience with the bigger things of natural phenomena, history and politics resonates with an archaeology of the contemporary, and of modern conflict.

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[67] Saunders 2012: x.
[68] Schofield, 2005: 28.
[69] Attfield 2000, Graves-Brown 2000, and Buchli, and Lucas 2001.
[70] Barsamian 2001.

Therefore, those distinct methodologies from the contemporary archaeologist's tool kit that are best suited to understanding the disposition of smaller things on a greater landscape – that is both physical and conceptual (and even 'virtual') – are to be employed in this research, and their application is discussed below.

'The right tools for the job'

While describing the practice of archaeology, David Hurst Thomas has succinctly written: 'Archaeological objects vary. So do archaeological contexts. Deciphering meaning from such objects in context is the business of archaeology'.[71] This simple distillation of archaeology's goal is ever more challenging in the context of recent and contemporary conflict, where

> militarised landscapes and the metallic artefact assemblages of recent conflict… [are] windows into a world of extraordinary complexity and contradictions. Tradition clashes with modernity. Rival ethnicities and nationalisms collide. Memory and remembrance are politically contested.[72]

As pointed out by Klausmeier *et al.*, these complex issues take archaeologists beyond 'simple field recording, noting presence/absence and architectural detail'. They require 'more reflexive, more integrated and more thoughtful approaches'.[73] It is these kinds of approaches that are examined below, and hopefully are, 'the right tools for the job'.

The tools and methodologies used in this research are quite varied. Besides the expected bibliographic searches of standard research, they range from traditional archaeological landscape survey to the analysis of satellite imagery (Google Earth), and from the application of geographical information systems to the Internet fostered phenomenon of 'volunteered geographic information'. The Internet has been explored for topic specific (general and personal) websites and further user generated content, including historical imagery, contemporary imagery and relevant art. Oral history

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[71] Thomas, 1989: 15.
[72] Current Archaeology 2009: 40.
[73] Klausmeier, Purbrick and Schofield 2006: 5.

fieldwork has been carried out, and YouTube videos have been included as audio-visual documents.

The 'materiality of conflict' is at the heart of this research, and attempts to present and understand it have dictated the composition of the 'tool kit' utilised. After traditional bibliographic research, including published books, journals and newspapers, dissertations, technical and specialist papers, and online publications, there are three generalised categories of tools and resources employed in this project. They are:

- Visual and geographic sources
- Oral history/testimony
- Archaeological field survey

The order of these three categories is not hierarchical, they all fold into each other. They do, however, represent different distances (both real and conceptual) at which the Western Sahara conflict has been examined. Visual and geographic sources are the most distant, relying on satellite imagery (in particular, Google Earth), geographic information systems, and user generated Internet imagery – photographs. In contrast, the carrying out of oral historical research is a close contact undertaking – it requires person-to-person interaction. 'Oral history' is multi-faceted, it can refer to a spoken memoir or describe a historical research methodology. It provides a distinctive 'source base which can be integrated into approaches to history such as social, political, cultural, economic, medical, legal or military history',[74] and of course, the archaeology of the recent past. In this project, it also includes websites and blogs, YouTube videos (and similar) and published interviews and personal accounts. Archaeological field survey is also 'close contact', but the interactive human element is minimal. It has mainly been carried out to familiarise oneself with the data derived from satellite imagery, though it also highlights the relationship between the archaeologist in the field and the landscape under study.

Fieldwork was carried out in Algeria and Western Sahara in 2011 between October 11th and November 5th. The aim was three fold:

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[74] Peniston-Bird 2009: 105.

- To carry out an archaeological examination of the Moroccan field defences in and around Tifariti with the aim of ground truthing them in relation to Google Earth satellite imagery. Also, to record the Spanish Foreign Legion fort in the centre of Tifariti, and to record the still standing artworks produced by artists taking part in the annual ARTifariti festivals since 2007.

- To interview artists taking part in the 2011 ARTifariti festival, specifically, while they were working in Tifariti.[75]

- And to interview individual Saharawis about the war with Morocco and their personal experiences, and to get an intimation of their feelings about their country.

Visual and Geographic Sources

Visual sources and tools can mediate the materiality of conflict very effectively. The visual tools used in this research include open source geographic information systems and Google Earth (and free third party applications) along with user generated visual Internet content, both historical and contemporary. It has been an aim of this project to see how productive open source and Internet resources can be in pursuing research of this kind.

Using Google Earth

Remote sensing in archaeology, that is, the study of past materialities from a distance, and through non-direct human intervention, has been a part of archaeology since the earliest pioneers of aerial archaeology in the early 20th century.[76] However, with the proliferation of satellites in orbit around the earth, archaeologists have been able to access satellite imagery that can record very great expanses of the earth's surface in relatively fine detail. Satellite imagery can also provide data in non-visible light spectra, allowing features to be seen, and analysed, which are not visible to the naked eye. But in terms of satellite imagery captured within the visible light spectrum, that

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[75] It turned out, that at very short notice, the organisers of ARTifariti 2011 decided not to go to Tifariti due to limited finances. Instead, they stayed and worked in the refugee camps in Tindouf. Because of this I was not able to talk with artists while working in, and experiencing the landscape of Tifariti. As a result, I had to seek out other sources of information and personal recollections of artists from earlier ARTifariti festivals. This is explained below in the section on oral history and testimony etc.
[76] Parcak, S.H. 2009.

is, the kind of imagery that is captured in a simple photograph, and is visible to the naked eye, archaeologists now have a free tool in the 'virtual globe' of Google Earth, released onto the Internet in 2005.

Google Earth satellite imagery is all around us. It is used on a daily basis in television news coverage, and it is used in education at all levels, at the very least, for visualisation and presentation.[77] In fact, Google Earth has probably been used its most in visualisation and presentation, from, for example, presenting and displaying archaeological sites in the Egyptian Delta[78] to the mapping and presentation of the Nazi Holocaust, and more recent genocides – extremely violent events in the history of mankind.[79] It has shown to be of real use in the health and other sciences,[80] and it has been recommended as a productive, though basic, mapping tool that can be employed by NGOs in humanitarian crises and natural disasters.[81]

Though, accepting Google Earth as a mapping and visualisation tool, archaeologists have not held back from voicing their concerns over the perceived drawbacks of the application, mainly being, as Myers has summarised: issues of data ownership and permanence, the use of file formats specific to the application, the variable coverage of high resolution imagery, and the ethical issues of the potential use of Google Earth by antiquities hunters. He also raises the point that people recorded on Google Earth's highest resolution imagery have no say in their being viewed, especially in such a freely available application. Additionally, he raises the spectre that it is panopticon-like and that it has the potential to do 'violence' to those being viewed.[82] However, this potentiality surely exists with all types of remotely acquired imagery. Nevertheless, and as Parcak clearly acknowledges, the best imagery available on Google Earth can qualitatively match similar aerial photography, and all of the application's benefits outweigh its disadvantages.[83]

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[77] Myers, A. 2010b: 7.
[78] Spencer and Spencer 2009: 42.
[79] See the United States Holocaust Memorial Museum website at http://www.ushmm.org/ accessed 16 April 2012.
[80] Stensgaard *et al* 2009.
[81] Crossley 2008 and Morris 2009.
[82] Myers 2010b: 10.
[83] Parcak 2009: 47.

Stensgaard *et al.* reviewed the use of Google Earth within the scientific community between 2005 and 2008, and they discovered a positive response to the application. They searched peer-reviewed literature and found, in 2008 alone, seventy publications actually using Google Earth for scientific purposes. The disciplines included, geology, palaeontology, environmental management, conservation, and medicine. Though its most extensive use was in the environmental sciences, with its use in the health sciences and in public health projects increasing. The application had also been used retrospectively for earlier research to be disseminated to new and wider audiences.[84]

In contrast, Myers, writing in 2010, noted that the use of Google Earth in the social sciences – beyond visualisation, presentation and teaching – had been relatively slow in coming, and he only described three archaeological research projects, carried out since 2008, which used the application analytically.[85] These were; Thomas and Zipfel,[86] and Thomas *et al.*[87] in Afghanistan; Contreras and Brodie,[88] examining the looting of archaeological sites in Jordan; and Myers' own work investigating the development of Camp Delta at Guantanamo Bay, Cuba.[89] However, Contreras also examined the looting of archaeological sites in Peru,[90] while Yves Gauthier has been examining and mapping prehistoric Saharan sites and monuments with Google Earth since at least 2006. More recently, Kennedy has used Google Earth to map prehistoric monuments in inaccessible areas of Saudi Arabia.[91]

Yves Gauthier has been investigating prehistoric sites in the Sahara since, at least, 1989.[92] Since 2006, with the introduction of high-resolution imagery on Google Earth, he has been systematically plotting swathes of visible prehistoric remains across the Sahara. He has used these to augment his earlier fieldwork, to prepare and get the lie of the land before commencing new fieldwork, to contextualise his findings, and to try

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[84] Stensgaard *et al,* 2009: 129-131.
[85] Myers 2010b: 8-9.
[86] Thomas and Zipfel 2008.
[87] Thomas *et al* 2008.
[88] Contreras and Brodie 2010.
[89] Myers 2010a.
[90] Contreras 2010.
[91] Kennedy and Bishop 2011.
[92] Gauthier and Gauthier 1991.

to understand overall site distributional trends across large portions of the Sahara. He also uses Google Earth to illustrate and inform his findings.[93]

With Gauthier writing almost exclusively in French (and by not highlighting his use of Google Earth in the titles of his published articles), Thomas *et al.* remarked that, as of 2008, 'hardly any archaeological research using Google Earth has been published, partly because most archaeologists are able to conduct fieldwork, rather than being solely restricted to desk-based studies'.[94] This latter point was made in the context of his own ASAGE (Archaeological Sites of Afghanistan in Google Earth) project, where Thomas decided to utilise the high resolution imagery available on Google Earth to 'collate new information about the archaeological remains of southern Afghanistan, where fieldwork opportunities… [were] limited'[95] due to the ongoing conflict in the country since the United States led invasion of 2001.

As of 2008, Thomas and his colleagues were able to identify 250 (that is, nineteen per cent) of the then known archaeological sites in Afghanistan in the seven per cent of the country (around 46,000 square kilometres) covered by high resolution Google Earth imagery. Of these, 217 lacked even the simplest of plans. They also focused on 45 medieval sites of which only eight had plans. This being the case, ASAGE took a threefold approach to utilizing Google Earth as a research tool. First, descriptions and plans of known sites were checked, and where necessary, enhanced. Second, detailed 'sketch' plans were generated of known, but un-mapped, sites, and third, Google Earth's high-resolution imagery was interrogated so as to locate and plot unknown archaeological sites.

Their approach was very systematic, virtually carrying out the equivalent of a land based survey, working over transects of north to south strips of high-resolution imagery, and covering a variety of environmental zones. By visually scanning the strips in five survey areas, Thomas was able to identify 451 potential archaeological sites, which were cross-checked and catalogued. Further, more detailed planning of

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[93] The following references illustrate, very well, the way in which Gauthier has made Google Earth an integral part of his research: Gauthier and Gauthier 2007, Gauthier and Gauthier 2008a, Gauthier and Gauthier 2008b, Gauthier and Gauthier 2008c, Gauthier 2009a and Gauthier 2009b.
[94] Thomas *et al* 2008: 22.
[95] Thomas and Zipfel 2008.

sites was also carried out, and at Bust, for instance, they were able to enhance and expand a 1978 plan with the addition of intra and extramural features including, houses, possible caravanserais, enclosures, mausolea and further details of the fortifications. The dimensional accuracy of Google Earth was also checked by measuring features with known dimensions, such as tennis courts and football pitches. This was done on six continents, and the dimensional variation was usually within one to two percent of the expected measurable value.[96]

The looting of archaeological sites is a market driven, international problem, and the analysis of looting through commercially acquired satellite imagery can be hampered by prohibitive costs. With this in mind, Contreras and Brodie decided to investigate whether it was 'possible to use exclusively free [Google Earth] or low-cost imagery to identify and interrogate evidence of looting and site destruction', and to enquire how information gathered through remote sensing could be 'combined with other types of data to generate quantitative studies of archaeological site looting.' They chose Jordan as a case study, since there was a substantial history of looting in the country, and since pedestrian survey had failed to systematically record or quantify any of it.[97] Also, a significant inventory of Jordan's archaeology exists, and the country is well covered by sub-metre pixel imagery on Google Earth.[98]

By inputting the distribution of known archaeological sites, and by visually inspecting the relevant Google Earth imagery, and taking into consideration references of known looting from archaeological surveys and publications, Contreras and Brodie were able to identify 25 looted sites (reduced to 22 after ground truthing). The areas of looting, shown by extensive pitting were then compared with the known, overall areas of the sites, and in the case of ancient cemeteries (of which there were eighteen), estimated densities of graves or tombs was factored in. Such a methodology allowed Contreras and Brodie to quantify the destruction through looting at the sites investigated, and in effect, created a base line from which past and future looting could be compared. They clearly showed that, free, publicly available satellite imagery could be employed in

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[96] Thomas *et al* 2008: 23-25 and Thomas and Zipfel 2008.
[97] Contreras and Brodie 2010: 102.
[98] Contreras and Brodie 2010: 104-105.

site analysis, and in this case, the analysis of archaeological robbing.[99] However, Contreras has also pointed out, by carrying out a similar analysis of looting in Peru, also with Google Earth, that the extent of looting in cemeteries could provide a minimum estimate of cemetery size (since it can be presumed that looters will not dig where their efforts would not yield profitable results) and this could inform archaeological fieldwork, by providing a rudimentary index of areas of ancient occupation.[100]

Writing in 2009, David Kennedy was alerted by Abdullah Al-Saeed, an amateur archaeologist, to the extensive presence of prehistoric remains visible on Google Earth in Saudi Arabia.[101] He subsequently explored some of the 'windows' of high-resolution imagery available on the application, and realised that a virtual survey of even a small part of the country could add, quite considerably, to all the land based surveys that had previously been carried out in the country. With the assistance of M.C. Bishop he decided to explore a window of high-resolution imagery east of Jeddah with an aim to work out issues of feature and site categorization, and the limitations and strengths of Google Earth for archaeological prospection and interpretation.[102]

The evaluation area was a north to south strip of high resolution imagery measuring 17 kilometres by 72.8 kilometres, with an area of approximately, 1240 square kilometres. With a pre-knowledge of monument types, Kennedy visually inspected the imagery and marked site and feature locations in Google Earth. These were looked over a second time by Bishop and confirmed, and/or expanded upon. Any additional sites were added to the dataset, and a total of 1977 sites were recorded in all.[103] This is a very impressive number, and undoubtedly, it does not represent the full distribution, and quantity, of monument types present in the landscape. To Kennedy, Google Earth proved its worth in the identification of, and prospecting for, archaeological sites when dealing with large, inaccessible landscapes.

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[99] Contreras and Brodie 2010: 105-110 & 112.
[100] Contreras 2010: 552-553.
[101] Kennedy and Al-Saeed 2009.
[102] Kennedy and Bishop 2011.
[103] Kennedy and Bishop 2011.

As Thomas *et al* have shown, it is more than possible to use Google Earth to survey, record, and analyse, archaeological sites in inaccessible and contested regions – in their case, the war zone of contemporary Afghanistan. While Adrian Myers has used Google Earth to explore the American detention complex of Camp Delta at the United States Naval Base of Guantanamo Bay, Cuba. Since this too is an area of high inaccessibility, Myers has, in effect, strayed into the realms of 'satellite imagery activism'[104] and he has used Google Earth as a 'reverse panopticon' where 'the taken-for-granted neutral power of satellite imagery, aerial photography and mapping is deployed against the very forces that were instrumental in its original deployment'.[105]

From the start, and like Contreras and Brodie, Myers wanted to use Google Earth imagery and publicly available spatial data to learn, in a systematic and methodological way, as much as possible about Camp Delta. He collected dated Google Earth imagery, using the 'historical time slider' utility in the application, along with other imagery, including media photographs of the camp as well as documentary sources. And like the other Google Earth based projects described above, the collected data was loaded into a GIS for detailed analysis and mapping. His 'Camp Delta Project' has been able to record the expansion of the prison between 2003 and 2004, and between 2004 and 2008 when sub-camps were constructed. Constructional changes have also been recorded – from temporary barrack-style buildings to multi-level concrete structures.[106]

The Camp Delta Project shows that 'Google Earth has shifted the relationship between archaeologists and remotely sensed data in exciting, significant and sometimes troubling ways.'[107] This free application can obviously turn the archaeology of the contemporary into a critical, political and humanitarian intervention, with 'the potential to contradict, what is officially stated and displayed about places like Camp Delta in other sources.'[108] Such a use of Google Earth can also be situated within the contemporary phenomenon of 'neogeography'.[109] According to Turner, neogeography

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[104] Baker and Williamson 2006. Myers' work can also be placed within the realm of 'citizen empowerment' through 'counter surveillance', see Monahan, Phillips and Wood 2010.
[105] Perkins and Dodge 2009.
[106] Myers 2010a: 457-461.
[107] Myers 2010a: 456.
[108] Myers 2010a: 463-64.
[109] Kennedy and Bishop 2011.

is a new type of geography and cartography that is accessible to many people who are using new techniques and tools outside of what is now considered traditional GIS. It 'is about people using and creating their own maps, on their own terms and by combining elements of an existing toolset. Neogeography is about sharing location information with friends and visitors, helping shape context, and conveying understanding through knowledge of place', and much of this is realised using virtual globes and mapping, and geographically referencing ('geo-tagging') photography and text.[110] Goodchild sees this growing trend as something akin to 'traditional citizen science', reviving the 'role of the amateur in geographic observation'. And this 'volunteered geographic information (VGI)' is, undoubtedly, part of a growing internet phenomenon of 'user generated content'.[111]

The projects just described all indicate that Google Earth is a viable tool for remote imagery interpretation. Google Earth does not include the additional data that is included in commercially available satellite imagery. But where the imagery has high, sub-metre pixel resolution, it can equal in quality some traditional, vertical aerial photography. Besides Google Earth's easy to use interface, there are some additional programmes that can be used in conjunction with the platform, and the following examples have had utility in this research. One is 'Another Earth'.[112] This application allows the user to view Google Earth in two adjacent windows, and within both, the historical time slider facility can be used so that imagery of different dates can be seen side by side. This is very useful when comparing landscape changes. The tilting, three dimensional facility in Google Earth can also be used in one window, while in the other, the vertical view can be kept, or a three dimensional view can be looked at from a different angle, allowing comparisons from different viewpoints to be made. There is another application, 'Hey What's That',[113] which incorporates SRTM[114] digital elevation data with Google Maps to produce landscape panoramas and profiles, and highly relevant to this research, viewsheds, called 'visibility cloaks' in the application.

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[110] Turner 2006: 2-3.
[111] Goodchild 2007: 211-221.
[112] Available at http://anotherearth.org/, accessed 25 April 2012.
[113] Available at http://www.heywhatsthat.com/, accessed 25 April 2012.
[114] SRTM stands for Shuttle Radar Topography Mission, being digital topographic data collected by NASA, by the Space Shuttle *Endeavour* in February 2000. Further information is available at http://www2.jpl.nasa.gov/srtm/ accessed 25 April 2014.

These can be displayed and saved in Google Earth, and/or as image files. Subsequently, they can be imported in one form or another into a GIS, and used in further analyses.

By using these add-ons to Google Earth (and Google Maps), and by doing so in tandem with an open source GIS, a formidable suite of geographic analysis tools can be created at no cost. And as already emphasised, incorporating free geospatial software is one of the aims of this research. In fact, this project could not have been conceived without Google Earth, since the cost of commercial satellite imagery of comparable resolution would have been economically prohibitive.

Online Visual Archives

As Myers has shown with his analysis of the American detention centre at Guantanamo Bay, publicly available geospatial information can be harnessed to make meaningful enquiries about highly contested spaces. This application can be academic or anti-hegemonic as a form of citizen empowerment. The tools are easy to use, and when virtual globes are combined with other sources of online and user generated content, such as virtual photo archives, then very interesting enquiries can be carried out. The arts magazine, *Cabinet*, recently ran an article with the title, 'D.I.Y. Eye in the Sky', and the title says it all. Here, the author, Andrew Toland, wanted to take photographs from publicly available internet archives and see 'just how far beyond the images' he could go (also with the use of Google Earth and Google Maps).[115]

First, Toland accessed Flickr, the online photo and video hosting website and searched for 'Beirut skyline'. After finding one distinctive image of Beirut in Lebanon, he was able to access the producer's Flickr photostream to find other similar images of the city. They, also, all provided him with their exposure dates and cameras used. He compared photos taken from different angles, and in his example, he marked out distinctive buildings common to two photos. He tried finding images of the same Beirut locations in Google Earth by searching the application's embedded user generated imagery, but there were too many images to cross check. Instead, he went back to the original photos and found the hint of an address on a very tall building,

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[115] Toland 2012.

and by querying Google Maps, he was able to find its location in the city. This then allowed him to discern the alignments of the two photographs he was working with and to record their fields of view in plan, and in Google Earth, he was able to acquire the viewpoint from where the photos were taken. Also, by marking the position of the sun in one photograph, he was able to estimate its azimuth and by using the longitude and latitude coordinates of the viewpoint, the date the photos were taken, and by taking account of Beirut local time, he was able to figure out the time of day that the photos were taken. By comparing Google Maps with Google Earth, and by using the search facilities in the former, and the Google search engine, and by additionally searching Wikimapia when inconsistencies occurred, he was able to acquire the address of the building from which the photos were taken. The location was a hotel, which Toland was able to confirm by a simple email request.

By interrogating other photographs uploaded by the same photographer, Toland was able to cross reference them and discern who his employer was, and by so doing he was able to do further internet searches which gave him more personal information. Toland was also able to double check the date and time that the photos were taken since they could be downloaded with their metadata attached. This revealed a time stamp that matched the time of exposure already calculated by Toland. But the recorded time was two hours earlier, the time in London, not Beirut. The photographer was British, on a business trip in the city, and he obviously did not adjust the time settings in his camera.

This example, which could be described as a form of cyber, or digital excavation,[116] along with the archaeological examples already cited, illustrates all too clearly the potentialities of free Internet resources. Toland's example clearly shows that there are substantial ethical issues to be addressed, but the principle still stands that the Internet is a viable source of geospatial and visual information that can be systematically interrogated.

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[116] Harrison 2009.

Using Visual Imagery

The Western Sahara conflict has a definite Internet presence, and since the conflict has continued into the twenty-first century, parties with an interest in it have been adding materials to the World Wide Web. Amongst these are photographic images – historical and contemporary – from official sources, journalist photographers, artists and other types of Internet users. They have been an invaluable visual resource in this research, and their online origins and the way in which they have been incorporated into this work is described herein. For example, a sizable portion of Chapter 3 is devoted to a narrative of the Spanish presence in Western Sahara, and in particular, to the creation of a Spanish colonial space and military presence. That 'space' had, as would be expected, a real material expression in the form of military outposts and forts – along with French colonial posts in the neighbouring French colonies – encircling and enclosing Western Sahara. To appreciate the materiality of these desert posts, and to express their concretedness, it has been appropriate to employ historical imagery, and because of ease and accessibility, imagery specifically sourced from the Internet. This approach has also been applied to the decades following the end of Spanish rule in the territory, where imagery is also available.

It is not the intention here to give a thorough review of the use of imagery in historical research. Suffice it to say, historical photographic imagery appears to be rarely used in archaeology, even in an archaeology of the contemporary and recent past, though a recent exception to this is the University of Manchester archaeological project at Whitworth Park in Manchester. In this project, 19th and early 20th century postcards are seen as 'agents' that can provide insights into the materiality of the park in the past, as well as provide or hint at social meanings and identities associated with it.[117] Also, Matthew Leonard, a postgraduate student from Bristol, has studied imagery in the form of sketches produced by a family relative who served in France, and the Levant, during the First World War. These made up a secret, visual diary (soldiers were forbidden to keep diaries): 'a piece of visual material culture in the form of a personal history of the war', and reflecting the 'varied physical settings in which the conflict occurred, and… the structure of… everyday life' for the soldiers at the front.

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[117] Jones 2012.

Without text, the diary is 'an embodiment of the notion that a picture is worth a thousand words'.[118]

A very well received overview of critical visual methodologies is presented in what has become a standard text on the subject, by Gillian Rose,[119] and in it she guides the reader over a series of interpretive methods applicable to imagery, including compositional interpretation, content analysis, semiology, psychoanalysis, discourse analysis, audience studies, and the social life of visual objects. However, none marries directly with what can be deemed as an archaeological approach, meaning an interpretive method that provides insights into, and primary data on, the materiality of human existence – our relationship with material objects of all types, *visible* in any given photographic image. This can be implicit in the methods described by Rose, with much of the interpretive guidance directed at understanding imagery *per se* and our relationships with images and imagery, as opposed to eliciting information on material culture and our relationship with materiality (though this can be a by-product of the methods described).

> In sum, the researcher must approach the photograph as a social artefact, to understand the process of interaction between the producer of the image, the subject of the image, and the viewer. [In] …a reflexive, critical, study of photographs that contextualizes [the] images...[120]

The most analytical use of imagery within archaeology is with satellite and aerial photography, and the employment of the latter in modern conflict archaeology is admirably elaborated upon in *Images of Conflict*, edited by Stichelbaut *et al.*[121] When an archaeologist interprets an aerial photograph (or a satellite image), he/she is not immediately concerned with the producer of the image, nor the initial and subsequent viewers of the image and their interactions with it, nor the image as artefact with its own history (or biography). The archaeologist is interested in primary data that can shed light on the palimpsest that is the land and/or townscape viewed from above. Stratigraphy is not so important too, instead, the past and present are both visible and

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[118] Leonard 2012: 54, 55 & 69.
[119] Rose 2001.
[120] Scherer 1992: 32.
[121] Stichelbaut *et al* 2009.

on the same surface, and this is the object of data acquisition and subsequent analysis.[122] The same basic approach can be applied to terrestrial photographs, and at least one anthropologist has done so, examining historical photographs with a critical eye for the 'material'.

In 1981, the anthropologist Margaret Blackman published *Window on the Past: the Photographic Ethnohistory of the Northern and Kaigani Haida*,[123] wherein she examined the changes in the material culture of the Haida Native Americans of the Pacific coast of Canada and southern Alaska from the last quarter of the 19th century into the early 20th century. By interrogating collections of historical photographs she was able to chart changes in settlement layouts, and architectural styles, including the effects of missionary activity (through acculturation) and the impact of that on traditional settlement patterning. She also examined the relationships of material culture items within and around buildings and the village-scapes that she was studying. This was informed by fieldwork and interviews, archival research, and published ethnographic and historical accounts, but central to her thesis was that photographs could be the medium through which an ethnohistory could be written.[124]

Quoting Sontag, that a 'photograph is a thin slice of space as well as time',[125] Blackman went on to compare the ethnohistorical study of photographs to archaeological sampling:

> The photographs... can be regarded as sharing much in common with archaeological specimens. This similarity can be seen first of all in the fact that the photographs of the Haida are only a sample from the past of a population of photographs, much as archaeological specimens are only a sample from a past population of artefacts. The photographs constitute a sample because they represent neither all of the historic photos taken of Northern and Kaigani Haida people and villages, nor do they present in their entirety a total picture of Haida culture during the time period under study. The shortcoming of the photographic sample, its incompleteness, is the same shortcoming inherent in the archaeological record of a culture. Archaeologist and

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[122] For a standard text book on aerial archaeology and the interpretation of aerial photos see Wilson [1982] 2000.
[123] Blackman 1981. See also Blackman 1992.
[124] Blackman 1981: 2.
[125] Sontag 1973: 22 cited in Blackman 1981: 48.

photo ethnohistorian share some of the same methodological problems. Both are attempting to reconstruct the dynamics of past cultures, but these cultures must be deduced from study of only some of the parts.[126]

She then highlights how her 'archaeological' type of ethnohistory has, as its kernel, material culture studies:

contained within the photographs are images of artefacts, material culture which can be described both temporally and spatially. As with the organization of archaeological data along space-time co-ordinates, one can examine and order the photographic material to see how Haida villages and their components differ from area to area and how village features change through time. The content of the photographs of Haida culture… is primarily artifactual as opposed to behavioural. The photographs comprise almost exclusively images of houses and totem poles, panoramas of villages, and a few shots of house interiors. Because of the artifactual orientation of the photographs, as in the reconstruction of archaeological cultures, the behavioural sphere of the culture must be derived largely from analysis of the material culture.[127]

Blackman's use of historical photographs resonates with the approach to imagery applied in this research, though of course, the scale of photo enquiry is not the same. Visual imagery, and in particular, user generated internet imagery, is only a small part of this project, but as a part of the narrative presented, it adds to an understanding of the material reality of the Western Sahara conflict.

Online Imagery and Archives – the Spanish occupation of Western Sahara

User generated Internet content has its pitfalls. It is not checked or reviewed (except in limited circumstances) and in the case of geographically referenced imagery, it might even describe the wrong place. It is a lottery as to whether or not the material is useful, or of good quality. Some of the individual items recorded and posted on the Internet might be insignificant, and sometimes only partially of value, but the overall sum of such data is probably greater than the individual parts. By reflexively interrogating this partial data, such user generated content can only add to an examination of the contested and militarised landscape of Western Sahara.

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[126] Blackman 1981: 48.
[127] Blackman 1981: 49.

Some websites exist to memorialise people's experiences. These can be individuals or groups, and they can include texts and/or group or personal blogs, group forums and virtual archives. There are three such websites that have been a good source of historical imagery relevant to this research, and they have been set up by veterans of the Spanish military who served in Western Sahara up to the winter of 1975-76. The first site is *La Mili en el Sáhara*,[128] a website created in 2003 with the stated aim of wanting to stimulate and reawaken the experiences of those people who lived, worked, and served in (and were conscripted into) the Spanish military in Western Sahara during the colonial period, and to rediscover the places they lived in and the people they met, in that 'wonderful land'. The website is very much a celebration of veterans' times in Western Sahara, and by invoking a passage on its home page from the prologue in Wilfred Thesiger's *Arabian Sands*, which also quotes T.E. Lawrence, it expresses the romantic idea that once a person experiences the desert, that person will always long to return to it.

> Lawrence wrote in *Seven Pillars of Wisdom*, 'Bedouin ways were hard, even for those brought up in them and for strangers terrible: a death in life.' No man can live this life and emerge unchanged. He will carry, however faint, the imprint of the desert, the brand which marks the nomad: and he will have within him the yearning to return, weak or insistent according to his nature.[129]

This website includes articles, book lists, audio and video recordings, a forum for members, and photo albums. The albums[130] allow individuals to post their own photographs of their times in Western Sahara up to 1976, and of their more recent trips, exploring the sites at which they served while in the Spanish military. It is common, also, for veterans to post scanned images of their military documentation and citations. Most of the photographs are snapshots, usually showing individuals in specific locations, and/or with friends, including Sahawari military comrades and civilians. The photographs are often posed, and their aim seems to have been to record young men having a 'good time' in the company of other, like-minded young men.

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[128] *La Mili en el Sáhara* (2003-2013).
[129] Thesiger [1959] 1994: 17.
[130] The majority of the photographs have attributions to their producers (or submitters), but there are also early photographs with no attributions.

However, there are also photographs of soldiers carrying out daily chores, in training, and on manoeuvres. There are photographs of troops on parade, troops with military equipment, and images of the main Spanish settlements, including townscapes and historic buildings, street scenes and aerial shots. Some of the soldiers photographed scenic vistas, while others just recorded their places of work and the posts they were stationed at. The site is very active, and it is being continually updated with new material.

Another website memorialising the experiences of Spanish veterans in Western Sahara is *Hermandad de Veteranos de Tropas Nómadas del Sáhara*.[131] This site is specifically for veterans of Spain's camel corps: the *Tropas Nómadas*. Although its overall aims appear to be the same as those of *La Mili en el Sáhara*, there is something which could be described as more officious about the website. It seems to be very much a veteran's association in that, for instance, its members appear to be associated with the mainstream veterans culture in Spain, and members of the 'fraternity' take part in public military parades on national holidays in Spain. Such activities can be found on the website's home page. The site includes articles about member's experiences in Western Sahara, the history of the *Tropas Nómadas* (including the *Regulares*[132]), and Spain's military presence in the colony. There is a member's forum, a downloadable magazine, and photo albums.[133] The albums are different from those in *La Mili en el Sáhara*, since they do not include many images of common soldiers living their daily lives in the colony. The emphasis is on more historical and topographic imagery. However, there are also photo collections dealing with the flags of units, unit formations, individual forts and posts, some military hardware, maps, flora and fauna, local people, colonial stamps, and even sites of water wells. In all, there are fewer photographs than are available at *La Mili en el Sáhara*, and they have not been updated since 2010.

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[131] *Hermandad de Veteranos de Tropas Nómadas del Sáhara* (2011).

[132] The *Regulares* were an elite unit of the Spanish Army in northern Morocco, made up of indigenous Moroccan soldiers commanded by Spanish officers (Alvarez 2001: 219-220).

[133] Although there is meta data attached to each photograph, the creators or posters are not usually noted.

The third website with historical imagery relevant to this research is *Tercio 'D. Juan de Austria' 3° de La Legion*.[134] This site is primarily aimed at memorialising the 3rd Regiment of the Spanish Foreign Legion. The site is very martial indeed, and on its home page, there is a cameo of the founder of the Legion, Milan Astray: an ultra conservative and controversial character within his own lifetime. The site definitely aims at commemorating the Legion, and besides including items on the history and campaigns of the unit (including its deployments today), it posts the 'Creed of the Legion', and its martial songs, including the official hymn of the *Tercio* (the Legion), and the song, 'The Betrothed of Death'.[135] Nonetheless, the website photo galleries are very pertinent to this research.[136] They emphasise the history of the Legion from its foundation during the Riff War and into the Spanish Civil War, then up to the present day, including its disposition in Western Sahara. As with photo albums on the *Hermandad de Veteranos de Tropas Nómadas del Sáhara* website, most of the images show units and men in action, posts and bases, and scenes of men in battle. There are very few snapshots of individual soldiers with their comrades. There is a forum on the site, but it is little used, though there is much activity with articles about the contemporary Spanish military scene.

Online Imagery – from the Spanish occupation to the present day

Besides websites set up by veterans of Spain's military presence in Western Sahara, there are other types of websites that aim to document the story of Western Sahara. One in particular is www.lasonet.com/sahara/, a website entitled on its home page as (when translated from Spanish) 'Let's help the Saharawi People!'. The site includes very basic facts about Western Sahara; a video about the Western Sahara conflict; photographs of stamps, both Spanish colonial and of the Saharawi Republic; Spanish military and non military badges, stickers, and posters; some Saharawi poetry; a link to Western Sahara in Google Maps; a listing of the countries that recognise the Saharawi Republic; and even photographs of some Spanish period car number plates. Most importantly, however, the site includes 300 web pages of historical and

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[134] Available at http://www.amigosdeltercertercio.com/ accessed 12 September 2012.
[135] For the texts and lyrics of these see Álvarez 2001: 237-244.
[136] Many of the photographs have captions, but the names of the image originators are apparently never noted.

contemporary photographs[137] including images of the Spanish colonial period (some of which are duplicated on the websites already noted), the areas occupied by Morocco and Mauritania, the Polisario controlled 'free zone', and the refugee camps in Tindouf (including the Saharawi diaspora). The site also includes some low level aerial photography of the Moroccan berms and its forts.

The mix of historical image types on www.lasonet.com/sahara/ is very much the same as on *La Mili en el Sáhara*, and there is a celebratory air about the photography. But the site also includes scenes of Saharawi protests at the time of the handover of the colony to Morocco and Mauritania, and images of anti-Moroccan protests today. Also photographs of Saharawis physically abused and tortured when in detention by Morocco, which can be disturbing.

Another source of imagery that bridges the Spanish colonial period in Western Sahara with the contemporary is *Panoramio*, linked with Google Earth. As the Panoramio website says, it

> is a community-powered site for exploring places through photography… Panoramio is different from other photo sharing sites because the photos illustrate places. As you browse Panoramio, notice that there aren't many photos of friends and family posing in front of places, or photos of interesting surfaces – Panoramio's all about seeing the world.[138]

As a website with user generated visual content, people can upload their own photographs, both recent and old, and they can also upload historical photographs. In Western Sahara, for instance, the Google Earth Panoramio layer includes historical photographs of the main towns, and photos taken by people visiting the country now and in the recent past. However, most of the historical imagery appears to have been culled from other websites, such as the ones already described. Nevertheless, Panoramio provides the added dimension of contemporary photography, and in the deeper desert of Western Sahara it even provides relatively recent terrestrial imagery

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[137] Available at http://www.lasonet.com/sahara/fotos.htm accessed 2 October 2013. Many of the photographs have their producers and/or submitters noted, and there are captions in many instances.
[138] See http://www.panoramio.com/help accessed 2 April 2014.

of the Moroccan berms. This can only contribute to an understanding of the physicality of place within colonial and contemporary Western Sahara.

There are other online sources of imagery that are drawn upon in this research, mainly reflecting the contemporary materiality of Western Sahara, and as expressions of different people's experiences with the country. There are also sites with virtual archives dealing with other conflicts, in particular, the Vietnam War, which are drawn upon for relevant comparative material. But all of these will be noted as and when they are referred to in the text.

Oral History: oral testimony and interviews, blogs and videos

Oral history, or personal testimony, has much to contribute in this research. Oral history is a 'people's history' giving voice to those individuals, actors or participants, whose lives have been intimate with, or have been affected by historical events (from the mundane to the momentous), and whose life stories are usually not to be found in traditional historical documentation. Where oral histories are introduced in this research they tend to the autobiographical, allowing the interviewees to put their own experiences and interpretations of the Western Sahara conflict onto the historical record. But the concept of a people's history in this project, in effect a social history from the perspective of non-hegemonic individuals or small groups also includes web logs (blogs), personal websites and internet user generated videos. Blogs and user generated videos can be as intimate as diaries, published or otherwise, (or as verbal accounts given in an interview) and they are the voices of people who would remain hidden if accounts of Western Sahara only depended on published sources. When married with visual records and archaeological enquiry, a rich, multi-dimensional narrative can be created.

Oral history is also '"recovery history", recovering the voices of those who have been hidden, such as the working classes or women'.[139] It can 'constitute the unconsituted': an aim of contemporary archaeology,[140] and as such, it can illuminate the '*lifeworld* –

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[139] Peniston-Bird 2009: 106.
[140] Buchli and Lucas 2001.

the taken-for-granted pattern and context of everyday living through which the person conducts his or her day-to-day life'.[141] Such histories are undoubtedly subjective, but

> the unique and precious element which oral sources force upon the historian and which no other sources possess in equal measure is the speaker's subjectivity. If the approach to research is broad and articulated enough, a cross section of the subjectivity of a group or class may emerge. Oral sources tell us not just what people did, but what they wanted to do, what they believed they were doing, and what they now think they did.[142]

This resonates with the anthropological approach of contemporary conflict archaeology where there are multi-vocal, parallel narratives. The military historian Richard Holmes had this impressed upon him when he was with the Princess of Wales's Royal Regiment in Iraq in 2004. About the book that he eventually published, he had this to say when writing about his experiences in the field with the regiment:

> This book taught me more than I thought I needed to know about the writing of military history. Most participants saw action through blinkers, often with little idea of what was happening even a short distance away, and when they recalled events they sometimes reassembled them in the wrong order, like an editor haphazardly reassembling film from the cutting-room floor… Even though I could telephone or email to check or question accounts, it was occasionally difficult to reconcile four versions of what happened at the same place and at the same time. If it was hard for an hour-long battle at the road junction known as Yellow 3 in Al Amarah, then it must have been correspondingly more difficult for the retreat from Moscow or the Battle of the Somme. [143]

Holmes was totally dependent on what people wanted to tell him since (as he noted) the Battalion's war diary would not be accessible for thirty years. He relied on accounts from all ranks, gathering his information from conversations and written accounts composed for him at the time, all of variable quality. In contrast, not all historians have embraced the breadth of scope possible through oral histories (and by extension today, audiovisual material and sources available on the internet). For

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[141] Seamon 1984: 130.
[142] Portelli 1998: 67.
[143] Holmes 2007: xxv-xxvi

instance, the military historian Barbara Tuchman, wrote in the 1970s (and republished in the 1980s) that the audio recording of oral histories was encouraging 'an artificial survival of trivia of appalling proportions' and that historians were 'drowning' themselves in 'unneeded information'.[144] In terms of material culture, however, the trivial is very much the stuff of archaeology, without which the subject would not even exist.[145] And in contrast to Tuchman's view, the historian Richard Baxell – and with a real pertinence to key aspects of this research – has written:

> It is undoubtedly true that oral testimonies often fall short of providing pinpoint locations, reliable chronologies, or dispassionate and objective analysis, but this is not their strength. To really gain an understanding of a soldier's day-to-day experiences in war requires looking at the world through his (or her) eyes. As Helen Graham, one of the foremost British Historians of modern Spain, has argued: 'Telling big stories through individual human lives is a powerful way of doing history'.[146]

Collecting Oral Testimony

It is not the intention to treat oral history as something separate from the other resources employed in this research, but to weave it into the overall narrative, mixed with all the other resources and methods employed. The multi-disciplinary character of modern conflict archaeology lends itself to a multiple method approach. Oral historical and personal accounts (in whatever medium) are as valid as any other data source: they are all pieces of the puzzle. They are in effect part of a triangulation net that lends focus to the research.[147]

Thirteen people were formally interviewed in Algeria and Western Sahara, or asked to give statements, between 13 October and 2 November 2011. These were all audio recorded, but additional conversations were had with some of the interviewees, and notes on these informal discussions, where appropriate, were recorded in a fieldwork day-book. Five of the 13 interviews were conducted in English, one was conducted in Spanish with an interpreter, while seven were conducted in Arabic, also through an interpreter.

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[144] Tuchman 1984: 76, cited in Sharpless 2008: 20.
[145] Because of this, Olsen *et al* 2012 gives archaeology the moniker of 'the discipline of things'.
[146] Baxell 2012: 10, and citing Helen Graham quoted in Faber and Fernández 2010.
[147] On the use and juxtaposition of multiple research methods, see Brewer and Hunter 2006.

Two of the interviewees essentially gave statements reflecting the 'official' Polisario narrative of the war. These were by senior SADR Army officers. One dealt with the course of the war in general, and tactics,[148] while the second was specifically about the hostilities around Tifariti.[149] Three interviews were of personal experiences of the conflict, and the present situation in Western Sahara, but expressed with a historical dimension. One of these was with a poet and activist who was a Polisario soldier in Tifariti in the 1980s,[150] the second was with the Mayor of Tifariti,[151] while the third was with a very high profile Saharawi journalist and activist.[152] Six further interviews were undertaken with Saharawi individuals, two of which were journalists and activists,[153] another well-known Saharawi poet,[154] an elderly veteran from the early days of the conflict,[155] and two Bedouin women presently living in the Tifariti area.[156] All of these people, save for the SADR Army officers were essentially asked to recount their 'personal stories' about their lives in Western Sahara since the start of the conflict (with very little cross questioning). Additionally, two artists from ARTifariti were interviewed in the Tindouf refugee camps. One was the founder of the art festival who explained his motivations and aspirations for it,[157] while the second was a long-standing participant in the yearly gathering, who elaborated upon his participation in ARTifariti and his personal feelings for the Saharawi people and their land.[158]

Web Logs: Blogs

It was my intention to collect oral testimony from ARTifariti artists while they were in Tifariti, interacting with the landscape and creating artworks out of doors. Unfortunately, and at short notice, the 2011 festival confined itself to the refugee camps in Tindouf due to financial restrictions. It was, therefore, incumbent on me to

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[148] Breica, Interviews 13 October and 2 November.
[149] Fadel, Interview.
[150] Awah, Interview.
[151] Deya, Interview.
[152] Larkhal, Interview.
[153] Touballi, Interview and Bachir, Interview.
[154] Salama J'Dud, Interview.
[155] Billali, Interview. In the end, however, this interview has not been referenced.
[156] Najem, Interview and Salma, Interview.
[157] Peraita, Interview.
[158] Guzman, Interview. This interview, however, has not been referenced, and instead, Guzmán n.d. has been referred to.

find other sources of information, and personal recollections, by and about the artists who took part in previous ARTifariti festivals. Besides accounts from the ARTifariti website and blog, and included in the festival's annual catalogues, some artists had personal websites about their interests and work, some were featured on websites dealing with the arts, while some had their own internet blogs. Some videos were also produced about ARTifariti by the festival organisers, and some of the participating artists produced their own videos about their involvement, and their artworks produced in Tifariti prior to 2011.

All of these Internet resources have been employed in this research, where appropriate, and blogs, personal websites, and artist produced videos are viewed as personal testimony. According to www.blogger.com a site for creating web logs, a blog is 'a personal diary. A daily pulpit. A collaborative space. A political soapbox. A breaking-news outlet. A collection of links. Your own private thoughts. Memos to the world'.[159]

The initial blog for acquiring insights into the artists taking part in ARTifariti – and the event itself – is the ARTifariti blogspot.[160] There is also an ARTifariti website (re-launched in 2012).[161] The blog has up-to-date information about all of the ARTifariti events around the globe, as well as in Western Sahara and the Tindouf refugee camps**.** There are links to other online media and websites, and the annual ARTifariti catalogues describing each year's festivals can be easily accessed. There are also links to Flickr[162] for a full collection of photographs chronicling the ARTifariti festivals and other events, and there are links to YouTube videos: mainly produced by ARTifariti.

Federico Guzman is an important blogger for the ARTifariti phenomenon. He is an artist who has been involved with the festival since 2008 and he has two blogs, one in English and one in Spanish.[163] They chronicle his thoughts on, and experiences of, Western Sahara, and his and other ARTifariti artist's artwork is displayed. The Saharawi artist Mohamed Moulud Yeslam has a blog called *Arte Por La Paz* (Art for

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[159] See www.blogger.com/tour_start.g accessed 18 December 2012.
[160] ARTifariti n.d.
[161] ARTifariti 2014.
[162] See http://www.flickr.com accessed 2 April 2014.
[163] Guzmán n.d. The Spanish language version is available at http://salammalekum.blogspot.co.uk accessed 18 December 2012.

Peace).[164] It chronicles his activities as an artist and it includes the artwork he created for ARTifariti 2010. This website was only started in October 2012, but it is distinctive in that it provides a Saharawi artistic voice alongside the blogs and videos presented by artists from outside Western Sahara. Another Spanish artist with a blog which, includes his write up on his contribution to ARTifariti in 2008, is Guillermo Roiz de la Parra.[165] Additionally, there are the web presences of other artists who have taken part in ARTifariti, but these will be referred to as and when it is appropriate.

Videos: YouTube

YouTube is a free Internet video facility that allows anyone to upload videos onto the Internet. These are mainly user generated and they can cover almost all aspects of people's lives. They can be personal diaries, video-logs, political comments (and polemics), educational and instructional materials, artistic creations, commercial videos, and people just presenting themselves as highly serious or downright silly. YouTube can also be a record of, and witness to, current events, with individuals (as well as established news producers) uploading live action events from their computers and mobile devices.

'Worldwide YouTube is becoming a major platform for viewing news. In 2011 and early 2012, the most searched term of the month on YouTube was a news related event five out of 15 months, according to the company's internal data'.[166] Over the same time period the most viewed videos on YouTube were natural disasters and political upheavals, with more than a third of all news items being citizen generated. In the United States, for instance, just under a third of all adults visit YouTube on a daily basis.[167] This being the case, it is not unusual for ARTifariti to produce and upload videos onto YouTube, or Vimeo (a similar facility), and for videos to be produced by, and about, some of the festival's artists. Also, videos describing aspects of the Western Sahara conflict have been uploaded onto the Internet, apparently by activists representing Saharawi interests, while there are also videos that are undeniably pro-Moroccan. All of these types of videos are considered legitimate sources of information about the Western Sahara conflict. Of course, the caveats that

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[164] Yeslem 2012.
[165] Roiz de la Parra 2008.
[166] Pew Research Center 2012: 3.
[167] Pew Research Center 2012: 6.

have already been noted about user generated Internet content applies to them, but in particular, those that represent the testimony of individual people are viewed as oral history, and they are treated as such in this research.

Archaeological Field Survey

Essential archaeological field recording was carried out in 2011 over a three and a half week period – as an adjunct to satellite (Google Earth) imagery analysis – within and around the settlement of Tifariti. The aim of this type of survey was to ground truth Google Earth's satellite photography, so that features visible on the imagery could be more confidently identified. Generalised descriptions and dimensions for some types of features were compiled, and a number of different types of features were photographed. Four days were specifically spent investigating military features on the ground, while a further four days were similarly spent recording the still standing artworks created during the ARTifariti festivals from 2007 to 2010. Of the latter, 19 artworks were recorded, and besides a selection described in Chapter 7, they are listed in Appendix 3. Additionally, a hand measured, and photographic, survey of the old Spanish Legion fort was carried out, see Chapter 6.

Summary

As already stated, the main tool for the recording and interpretation of the archaeology of the Moroccan berms has been Google Earth (see Chapters 4 and 6). However, using remote sensing to study landscape phenomena is not simply a methodology for recording archaeological remains, it also creates an archaeology. It, and the other resources employed in this project, actually bring into being, an archaeology of the recent conflict in Western Sahara. As with Blackman's photos of the Northern and Kaigani Haida, that which is under examination is partial – only fragments of a past reality, and in the context of this research, that being studied is mediated by a remote technology (digital satellite imagery capture) which transforms an earth bound, concrete reality into a pixellated representation on a computer screen. While living and working in the present, it is the archaeologist's senses and fore-knowledge that

also mediates the material under study, and this is translated into archaeological records and interpretations – all a creative act – recomposing and reconstituting that which was once whole, but seen 'through a glass darkly', and never being able to know the true degree of authenticity, if any at all, of the new confection. To mitigate this, this project embraces the interdisciplinary and multidimensional essence of modern conflict archaeology, employing the multiple methods and resources elaborated on above. Such a research approach was written about in 1953 by the French historian Marc Bloch, who had this to say about multidimensional research:

> The variety of historical evidence is nearly infinite… Everything that man says or writes, everything that he makes, everything he touches can and ought to teach us about him. It would be sheer fantasy to imagine that for each historical problem there is a unique type of document with a specific sort of use. On the contrary, the deeper the research, the more light of the evidence must converge from sources of many different kinds. What religious historian would be satisfied by examining a few theological tracts or hymnals? He knows full well that the painting and sculpture of sanctuary walls and the arrangement and furnishing of tombs have at least as much to tell him about dead beliefs and feelings as a thousand contemporary manuscripts.[168]

This catholic approach to research can only be enriched by the craft of archaeology,[169] especially when combined with the naturally heuristic approaches of the discipline. It is perhaps appropriate, therefore, to end this chapter with another quote, this time from Andrew Flemming who, while writing about the craft of landscape archaeology, has pointed out that it relies on 'a range of measures of confidence around truth claims, from effective certainties to probabilities and possibilities, and then conjectures and speculations'. He emphasises that it is the strength of argument that makes an archaeological account plausible.

> These arguments are exposed to the scepticism of colleagues who need no instruction about the cussedness of archaeological data or the sketchiness and fragility of representations of the past. They are also assessed against a variety of questions, such as: 'what other explanations or interpretations might there be?'… 'could this apparent

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[168] Bloch 1953: 66-67. Cited in Brewer and Hunter 2006: xv.
[169] Shanks and McGuire 1996.

pattern or relationship have come about by chance?' or 'how thin does the evidence have to be before I abandon this proposition?'[170]

In consideration of this, it is hoped that the strategic approaches and resources laid out in this chapter, and employed herein, will be shown to successfully foreground the materiality of conflict and contestation in Western Sahara. By presenting what I believe to be a qualitatively genuine account of historical events and archaeology, I hope equally, that the possible scepticism of colleagues and others, would not call for my presented narrative, and propositions, to be 'abandoned'.

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[170] Fleming 2006: 272-273.

CHAPTER 3

SHAPING A COLONIAL SPACE

Part 1

The Land, its People, Colonialism and Conflict

Geography

While situated on the Atlantic coast, at the western limit of the Sahara, Western Sahara's neighbours are Morocco to the north, Algeria to the east, and Mauritania to the south and east (see Fig. 3.1). The territory's width, east to west, varies from around 450 kilometres in the north, down to its narrowest width in the south, at around 325 kilometres. The length of the territory from north to south is around 700 kilometres, and it has an area of roughly 266,000 square kilometres.[171] Its coast is 1062 kilometres long,[172] and in many places it is characterised by steep cliffs, which make access from the sea difficult. The country has only two natural harbours, Dakhla, formerly Villa Cisneros at the inlet of Rio D'Oro, and La Guera at Cape Blanc. There is only one wadi which can be described as a seasonal watercourse – the Saguia al-Hamrah. This is a long distance, east to west wadi in the north of the country that can pool with water at El-Ayoun, where its path to the Atlantic is blocked by sand dunes. The wadi extends for some 650 kilometres from the uplands of the Zemmour massif. This rocky highland is characterised by numerous wadis, which dissect it, feeding the Saguia Al Hamra.

Most of the Zemmour massif is in the northern, Western Sahara panhandle, though part of it extends southwestwards to Guelta Zemmour. The terrain, away from the massif, to the south and east and into Mauritania is mainly flat, being relatively high-level stony desert known as *hamada.* Along the lower ground of the coastal literal, there are distinct areas of sand dunes broken up by areas of dissected rocky ground, from which areas of flat stony ground rise upwards to the east, known as *reg.* The

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[171] Mercer 1976: 23.
[172] Mercer 1976: 23.

dunes run more or less parallel with the coast and extend inland by around 15 to 30 kilometres. Further inland, Western Sahara is relatively free of large sand dune areas, with its southern and eastern borders virtually outlining the expansive sand dune areas of Mauritania. Only in the far southeast does Mauritania's Azeffal sand dune belt cross through the territory. The southern half of the country includes salient igneous ridges, inselbergs, and large plug-like outcrops called *guelbs*, which stand out like beacons in the Tiris plateau. As might be expected, there are numerous low level saltpans, known as *sabkha*, though the most notable in the region is in Mauritania at Idjil.

There are no real oases in the territory, but rainfall is relatively high inland. It is higher than in other Saharan regions at the same latitude, and in the period 1926-1950 mean annual rainfall was estimated at 30-40 mm in the Tifariti area and at more than 50 mm elsewhere nearby.[173] This produces good areas of pasture with savannah-like vegetation, especially after the occasional autumn and winter rains.

Children of the Clouds

Western Sahara is rich in archaeological remains, especially prehistoric rock art sites and extensive funerary landscapes which include a variety of built stone structures and burial monuments. Nevertheless, archaeological fieldwork in the territory has been sporadic, and not surprisingly, there were no field investigations during the years of conflict from 1975 to 1991. Most of the fieldwork undertaken, to date, has been carried out by archaeologists from Spain, with Basque and Catalan teams carrying out a good deal of it since 1991.[174] However, the University of East Anglia's Western Sahara Project **(WSP)** has been operating in the territory since 2002, though their latest field season was in 2009. The following, very brief synopsis of the prehistoric archaeology of Western Sahara is derived from the findings of the WSP in an area around 14 kilometres north of Tifariti (the TF1 study area, centred on the Wadi Tifariti) where the project carried out intensive fieldwork in 2005, 2007 and 2008.[175]

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[173] Dubief 1953: 920-921, cited in Brooks *et al* 2009: 920.
[174] Fieldwork commenced in 1995, four years after the ceasefire, with the Catalan, University of Girona, followed by the Universities of Granada, and the Basque Country. See Soler Subils 2007.
[175] Brooks *et al* 2006, Brooks *et al* 2009, and Clarke and Brooks in press.

The TF1 study area includes evidence for human occupation in the Early Holocene and the early Middle Holocene, indicated by sites with chipped (knapped) stone assemblages and pottery, and ranging in date from around 9000 years before present (bp) to 5000 bp. The last Saharan humid phase ended around 4500 bp, and with the shift towards the aridity that characterises the Sahara today, starting by or around 5200 bp (the Middle Holocene), occupation in the TF1 study area started to shift from hunter gatherers to cattle pastoralists represented by the introduction of stone funerary, and 'ritual' architecture. The WSP excavated two burial mounds (stone tumuli or cairns) indicative of this phase of occupation, and surprisingly for the excavators, their C14 dates indicated a date range spanning the 5th to 8th centuries A.D.[176] Such late dates suggest that the funerary and ritual landscape of which these features were a part might have been occupied by pastoral people for at least 4000 years, and that the landscape in which they were embedded, was the same as that encountered by the early evangelists who brought Islam to the far northwest of the Sahara in the 8th century.

The 7th century Arab invaders of the Maghreb did not penetrate the Sahara, instead, Islam was spread by Berber converts through their efforts to sustain trade with the Sudan.[177] Hugh Kennedy has described the Maghreb, for the Arab invaders of the 7th to 8th centuries, as a kind of 'wild west'. The Muslim Arab expansionists did not consolidate their Moroccan and Algerian conquests well. In no way was the indigenous Berber population supplanted by the invaders, and apparently, their conversion to Islam was only nominal.[178]

The Berbers are the pre-Arab peoples of North Africa and much of the Sahara. The term 'Berber' comes from the Greek *barabaroi*, Latinised to *barbari*, and denoting non-Greek and Latin speakers, and non-Phoenicians in Cathaginian North Africa. Berbers call themselves 'Imazighen' which means 'free men and women'.[179] The origin of the Berbers is not precisely known, and 'today, many scholars believe that the peopling of North Africa was infused with migrations from the east and south and

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[176] Brooks *et al* 2009: 930.
[177] Mercer 1976: 72.
[178] Kennedy 2007: 224.
[179] Ilahiane 2006: xxx.

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across the straits from Western Europe'.[180] Starting with the Roman occupation of North Africa, Berbers were gradually pushed into the North African hinterlands,[181] though this might not have been the case in Western Sahara since Roman influence did not penetrate far into western Morocco.[182] The Berber tribal group which occupied Western Sahara, Mauritania, and even spread into the West African Sudan and the region of the River Niger, was the Sanhaja. This 'great historic Berber family'[183] was highly mobile and able to penetrate well into the western Sahara, especially with the introduction of the camel in the first to fourth centuries A.D.[184]

By the 8th century, the Sanhaja tribes were only partial converts to Islam. The new religion was slow to take hold, but this was to change in the 11th century with the ascendancy of the Almoravids. This was an Islamic puritan movement that came about in the wastes of the far western Sahara, when a Sanhaja chief, Yahya Ibn Ibrahim, returned from a pilgrimage to Mecca in the late 1030s, and realised that his fellow Sanhaja Berbers were not truly adhering to the observances of Islam.[185] To re-evangelise his people, he 'invited a fierce and austere preacher from the Souss (in Morocco), Abdallah Ibn Yacin, to begin lecturing the Berbers on what they believed to be a "pure" form of Islam'.[186] Ibn Ibrahim even hoped that a revival of Islamic adherence would counter the then falling eminence of the Sanhaja in the region. To this end, Ibn Ibrahim and Ibn Yacin, soon called for a holy war, a *jihad*, to regain the Sanhaja's pastoral ranges across the western Sahara, and the key trading towns of Aoudaghost and Sijilmassa, thereby giving them control of the caravan routes across the Sahara (previously lost to the Ghana Empire and the Zenata Berbers).[187]

The Almoravids became masters of the western Sahara and eventually Morocco. Their power and influence, and martial prowess, allowed them to spread into Iberia and their 'empire' extended from Zaragoza in Spain to the Senegal River in Africa, and eastwards to Algiers. They could not sustain their authority, however, and in 1147

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[180] Ilahiane 2006: xxxi.
[181] Ilahiane 2006: xxx-xxxii.
[182] *Past Worlds* 1993: 170-171.
[183] Ilahiane 2006: 109.
[184] Pazzanita 2006: 383.
[185] Hodges 1983: 5-6.
[186] Pazzanita 2006: 19-20.
[187] Pazzanita 2006: 19-20.

they were eclipsed by the Almohads, in Morocco, with the fall of Marrakesh which the Almoravids founded in 1062. Muslim Spain also revolted against them and they were permanently eclipsed by 1150.[188] From the 12th century onwards, there was a continuing influx of Arabs into the Maghreb from the east. These invaders settled as far west as the Atlantic plains of Morocco, and in the 13th century, one group – the Maqil (originally from Yemen) – settled south of the Moroccan Atlas.[189] From within the Maqil, a sub section known as the Beni Hassan moved on further still, and settled well into Mauritania. This group came into conflict with the Sanhaja, but the Beni Hassan – the 'Hassaniya' Arabs – gained the ascendancy. Berbers and Arabs intermarried, their cultures mixed, and many of the former acquired the Hassaniya Arab language. This process was virtually completed in the 17th century by which time all the Berber tribes of the very far west of the Sahara adopted an Arab origin and could be considered 'Arabised'. Known to Europeans as 'Moors', these desert nomads of mixed, Berber, Arab, and black African ethnicity (the latter through miscegenation with slaves and their descendants) came to occupy a region extending from the Wadi Draa in the north, to the Senegal in the south, and to eastern Mauritania and the bend of the River Niger. Their adoption of Hassaniya Arabic was more or less complete by the 19th century.[190]

Out of this crucible came the tribes that occupied Western Sahara at the advent of the colonial period. Many of these nomad groups had pastoral ranges that extended well beyond the boundaries of the territory, and these (for the main tribal groups in the 1970s) are illustrated in Fig. 3.2. It is not the intention to present a history of the tribes here, but the following brief observations on four of the more conspicuous tribes is pertinent nonetheless.

The Reguibat Confederation

The largest of the tribes were, and still are, the Reguibat Confederation. They called themselves the 'sons', 'children' or 'people of the clouds'[191] since, like all the pastoral tribes of Western Sahara, they had to follow the clouds that brought the rains since there are no natural oases in the territory. They trace their ancestry back to their

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[188] Pazzanita 2006: 19-23.
[189] For a thorough history of the Arab invasions of the western Sahara see Norris 1986.
[190] Mercer 1976: 74-75, and Hodges 1983: 8-11.
[191] Thompson and Adloff, 1980: 309.

common ancestor, Sidi Ahmed Reguibi, who in 1503 founded the tribe.[192] It has also been noted, contrarily, that Sidi Ahmed was a 14th century saint, who 'reputedly delivered his fellow Berbers from Arab domination'.[193] Nevertheless, upon his death, the tribe split in two. The western (coastal), or *Sahel* branch, confined its ranges within what is now Western Sahara, and they only extended into Mauritania during periods of drought. In contrast, the eastern (Leguacem), or *Sharq* branch, extended over a much greater range of pasture – more or less covering much of the territory of the *Sahel* branch and extending from Goulmim in Morocco to Atar in Mauritania, and taking in the Tindouf region of Algeria and extending further into Mali, and in the extreme, even into Niger.[194] By virtue of numbers, the Reguibat are the most influential tribe in Western Sahara, and as such, they are a very substantial component of the Saharawi nationalist movement.[195]

The Tekna Confederation

The Tekna tribal group are Berber and Arab, dating back to the 12th and 13th centuries. Unlike the Reguibat, they have been both sedentary and nomadic, living by agriculture in the Wadi Draa and by pastoralism in the open Sahara, traditionally, between the Anti-Atlas Mountains and the Saguia el-Hamra. Positioned thus, many Tekna became traders and they could exploit their position straddling the caravan routes into southern Morocco. In all, they interacted well with the Spanish and French, and they were on good terms with Donald Mackenzie, founder of the British North-West African Company at Cape Juby in 1877. Fig. 3.2 shows the southern extent of the Tekna's ranges, but at the end of the colonial period, most of the tribe were to be found in Southern Morocco.[196]

The Oulad Delim and the Oulad Bou Sba

The Oulad Delim, like the Oulad Bou Sba – two bellicose tribes – claim Arab Maqil origins.[197] The Oulad Delim ('Oulad' means 'children of') have been described by Mercer as having a 'history of rapine', due, they claim, to the poor environment in which they ranged, causing them to take up raiding and extortion as a justified

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[192] Mercer 1976: 132.
[193] Thompson and Adloff, 1980: 309.
[194] Thompson and Adloff, 1980: 309.
[195] Pazzanita 2006: 363-367.
[196] Pazzanita 2006: 406-409.
[197] Thompson and Adloff, 1980: 321.

livelihood.[198] Even in the 16th century they were described as being 'Poor Robbers...
and Strangers to Gallantry'.[199] They were a hostile and arrogant tribe, which came to
dominate their neighbours, and with their ranges in the south of Western Sahara, they
had no reservations about attacking both the Spanish and the French in the region.[200]
However, the direction of such belligerence was to change when the Spanish
consolidated their colony, and many Oulad Delim took up soldiery with the colonial
army and police. Apparently, amongst the Polisario fighters, they (up to 1980 at least)
made up the second most important tribal element after the Reguibat.[201]

The Oulad Bou Sba ranged over central Tiris and into Mauritania (see Fig. 3.2),
though they must have also covered the same pastures as the Oulad Delim, since they
were encountered by the American sea captain James Riley, and his crew, who were
shipwrecked in 1815 and landed at Cape Barbas – around 175 kilometres north of
Cape Blanc. The Oulad Bou Sba had a terrible reputation with mariners at the time,
especially if they were unfortunate enough to get shipwrecked south of Rio D'Oro.[202]
As judged by the ill treatment they meted out to Riley and his compatriots they
obviously lived up to their hostile and bellicose nature, treating the sailors as slaves
and trading them for meagre profit. In fact, the sale of Riley and some of his crew to a
Moroccan caravaneer, who expected to be paid a ransom for the sailors in Mogador
(present day Essaouira, in Morocco), eventually secured the Americans' release.[203]
But perhaps such hostility towards Christians who landed in Western Sahara by sea
should not be seen as out of place. Repercussions of the Spanish *reconguista* 'sent
impulses into the desert' in the 15th century and after,[204] and trading in humans was
well established in the region well before the arrival of Europeans.[205] Additionally,
Portuguese, and then Spanish slavers, raided the Atlantic Saharan coast in the 15th and
early 16th centuries, resulting in the creation of short-lived European coastal outposts,

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[198] Mercer 1976: 131.
[199] Marmol y Carvajal 1573, cited in Mercer 1976: 93 & 131.
[200] Pazzanita 2006: 319-322.
[201] Thompson and Adloff, 1980: 317.
[202] King 2004: 125-126 & 328.
[203] Riley [1817] 1859. The caravaneer was one Sidi Hamet, and he and Riley developed a very close
bond. After Riley was freed, Sidi Hamet went on to look for other members of Riley's crew in the
Atlantic Sahara, and in the process of saving one, he was killed by brigands. King 2004: 307-308.
[204] Mercer 1976: 78.
[205] Blanchard 2005.

and recurrent violence between the Iberians and the indigenous tribes.[206] The Spanish finally left the region in 1524 when they abandoned their trading post at Santa Cruz de Mar Pequeña – occupied since 1476 and believed to be located around 70 kilometres northeast of Cape Juby. Their interests in Africa waned while their ambitions in the Americas increased, and they did not return to the Atlantic Sahara until the late 19th century.[207]

Factories, Forts and Barbed Wire

The present day extent of Western Sahara was demarcated by agreement between France and Spain in 1912, after a series of negotiations and treaties.[208] Spain re-entered the Atlantic Sahara during the 'Scramble for Africa' when, in keeping with the spirit of the time in Europe, Spain desired an 'area of interest in Africa'. This was encouraged by a renewed interest in the African coast opposite the Canary Islands, which was increasing from the 1870s onwards (initially at the instigation of the Sociedad Geográfica de Madrid), and there was a firm belief that Britain and France would carve up Africa between them. By sending an expedition to the Sahara coast in 1884, led by a lieutenant Emillio Bonelli, and partly funded by the Compañía Hispano-Africana and the Compañía Transatlántica,[209] Spain claimed the coastal territory, that would eventually extend from the Wadi Draa in the north to Cape Blanc in the south, by establishing the trading post of Villa Cisneros at the inlet known as Rio de Oro (see Figs. 3.1 and 3.3). Although the settlement and factory was established by negotiation with the local Bedouin, it quickly came under attack by the Oulad Delim (whereby a number of Spaniards were fatally wounded) causing its inhabitants to flee to the Canary Islands.[210] Thus began the contest over the territory of Western Sahara in the modern era, and the creation of a Spanish colonial space on the far western fringe of the Sahara.

It would be an understatement to say, as Pazzanita has, that the Saharawi tribes 'did not take kindly to European intrusion on their land'. With the re-establishment of a

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[206] Mercer 1976.
[207] Pazzanita 2006: xxiv & 385-386.
[208] Rezette 1975: 64-67.
[209] San Martin 2010: 20-22.
[210] Hodges 1983: 43.

Spanish presence at Villa Cisneros by Bonelli, with only twenty soldiers, the factory came under attack in 1887, 1890, 1892 and 1894, and these only came to an end in 1895 when a trading concession was agreed with Sheikh Ma el-Ainin, the then charismatic leader of tribal opposition to colonial expansion in the western Sahara (see below).[211] It was during this period that the Spanish started a process that resulted in the militarisation of the landscape of Western Sahara; initially, by turning the factory of Villa Cisneros into a fort, and by reinforcing their presence through the progressive monumentalising of the structure. At this time, the Spanish had very little interest in the deep desert of Western Sahara. Their concerns were mainly commercial, being pre-occupied with off shore fishing and limited trade with the tribes. The attacks between 1887 and 1895 led Bonelli and his contemporaries to realise that the hinterland was a potential minefield that a small Spanish garrison could never deal with, therefore it was best to leave the Bedouin tribes in peace, not to interfere in their internal affairs, and behave as diplomatically as possible towards them.[212]

Three pre 1910 images, two photographs[213] and one illustration captioned as being a view of the fort and factory as of 1893,[214] clearly show the early fort as a simple, stone built, rectilinear compound with blockhouses at diagonally opposite corners. The corner blockhouses were two-storeys in height and of substantial proportions. The one at the northern corner (Fig. 3.4), adjacent to the entry to the compound had gun loops at ground level with battlements along the roof. The second storeys of both structures had shuttered windows. The compound wall apparently reached no higher than the floor of the second storey. The corner blockhouses were rendered, though the compound wall was not, and there was a portion of an upper floor, or gangway, above the arched entrance. One of the photos shows that, internally, single storey courtyard buildings were being constructed along the compound walls, and in the mean time were being used for storage. Mercer noted that this early 'trading fort' had two entrances, one door leading eastwards to the bay, while the other, the northern entry,

[211] Pazzanita 2006: 89-90.
[212] San Martin 2010: 27.
[213] Two undated photographs of the interior and exterior of the Villa Cisneros Fort are available at: www.sahara-mili.net/images/fuerte/bens19.jpg and www.sahara-mili.net/images/fuerte/bens20.jpg both accessed 11 April 2011
[214] An undated illustration with the caption: 'El fortin y la factoria de Rio de Oro segun un grabado del ano 1893' is available at: www.hermandadtropasnomadas.com/fotos/displayimage.php?album=lastup&cat=6&pos=133 accessed 25 April 2011

was referred to as the 'Moors' Gate', which had an eight centimetre Krupps field gun pointing towards it from within the compound. He also described one of the blockhouse-type structures as a 'trading building', with the other noted simply as a 'defensive tower', with a complement of twenty-five soldiers (this latter structure was probably the northern corner blockhouse).[215]

A postcard (Fig. 3.5), post-marked 1910, proclaimed that the factory was definitely now a military fort, being captioned: 'Rio de Oro: Exterior del Fuerte militar'. This was presumably during the administration of Francisco Bens Argandoña (1904-1925), a veteran of the Spanish-American War who realised upon taking on the governorship, that much had to be done if the territory was to be more than just a flag and a warehouse planted on hostile soil. So the postcard shows that besides Bens' reputation for good relations with the Saharawi tribes, and his empathy towards them,[216] he obviously embarked on a project improving the fort, making it fit for a garrison (though when he arrived he only had 31 infantrymen), and turning it into the largest construction in the region save for Ma el-Ainin's city of Smara[217] built between 1898 and 1902, and about 550 kilometres to the northeast.

The postcard shows definite building phases. The enceinte of the fort was enlarged and the ground level buildings were heightened by an additional storey, thereby raising the external walls in most places. These also had broadly spaced crenellations. According to Lodwick, the rooftop firing parapets were up to shoulder height, and only a 'powerful battering ram' could break down the main door.[218] The postcard also shows that only some of the masonry had been rendered, and where it was not, construction details can be easily seen, such as the dressed window jambs and quoins at the new building's corners. There are Bedouin tents in the foreground, and these low-lying, portable structures designed to deflect the winds of the desert, and to be malleable in form so as to adjust to the changing needs of their inhabitants, contrast sharply with the monolithic form of the fort. Although, at this time, the Spanish had a very 'hands off' approach to administering Western Sahara, this postcard illustrates that there is a difference between the coloniser and the colonised. There is

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[215] Mercer 1976: 106.
[216] San Martin 2010: 29-30.
[217] Pazzanita 2006: 392-393.
[218] Lodwick. 1956: 187.

undoubtedly a 'them and us', an 'other' that is outside the 'pale' of the fort. Brice describes this succinctly with reference to an illustration of Fort Laramie in the American West in 1849, also showing Native Americans and their tipis outside the walls of the fort:

> In common with all peoples confronted with different cultures the Indian tribes find themselves drawn towards the trading opportunities offered by the fort, even though it also acts as a cavalry base and staging post for military and commercial operations which will eventually destroy their way of life. Meanwhile, the pioneers, fearing the primitive peoples outside have surrounded themselves with blank-faced walls, their corners protected with square blockhouses.[219]

The existence of forts such as Laramie and Villa Cisneros, unbidden and imposed onto the landscape by outsiders, an 'other' to the indigenous peoples, would undoubtedly turn the land into a contested landscape, manifested by the transfiguring of the land through further colonial building works, and the eventual stratagems of outright conflict by all involved. Nevertheless, Bens pursued a 'sugar lump' approach towards the Saharawis. He was obviously very positive in his feelings towards the Bedouin, and although he wanted to consolidate Spain's position along the littoral of the territory, he, like Bonelli before him and the Spanish authorities, did not want to occupy the hinterland, nor pursue an aggressive policy of colonisation as the French were conducting in Morocco, Mauritania and Algeria. In fact, he made a point of distinguishing Madrid's policies from those of France with respect to territorial expansion.

He managed, after a number of attempts (initially thwarted by Madrid) to occupy Cape Juby (Tarfaya) in 1916, setting up a fort and garrison there, and establishing a fishing base and factory at La Guera in 1920.[220] But the policies of France in consolidating its Protectorate over Morocco and in its expansion throughout Mauritania during this period, created inevitable conflict with the Saharawi tribes who, in real terms, occupied an area far larger than the territory of Western Sahara, inhabiting the desert regions south of the Wadi Draa and extending south of Cape

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[219] Brice 1984: caption, fig. 2.
[220] Hodges 1983: 49-52.

Blanc and deep into Mauritania. As nomads dependent on their herds, always seeking out the best pasture, and with no permanent settlements and mainly seasonal water sources, the idea of a territory controlled either by France, Spain, or even the Sultan of Morocco was anathema.[221]

With the Spanish on the coast, and with the French expanding northwards into Mauritania, Ma el-Ainin, an almost Mahdi-like individual, who managed to consolidate some of the western Saharan tribes in opposition to the French, founded the town and religious centre of Smara in 1898, near the Saguia el-Hamra.[222] Construction of the main part of the city was completed by 1902, and it is so very striking that while Europeans were encroaching around the perimeter of what is now Western Sahara, a regional *marabout* had the vision and wherewithal, albeit with the support of the Moroccan Sultan, to impress upon the desert a brand new, indigenous city, in effect, running counter to the advances of France and Spain, and contributing to the contest for Western Sahara. But from Smara's location, it is obvious that Ma el-Ainin was also planning something that was to represent more than a direct confrontation with the Europeans. Smara is around 180 kilometres from the sea, and it straddles the longstanding caravan corridors from Goulmim in southern Morocco to the Senegal basin.[223] Such a location, with the presence of water in the Sagia el-Hamra, suitable for limited agriculture, would have made Smara a magnet and an entrepot for the Saharawi tribes.

After a military defeat at the hands of the French in 1909, Ma el-Ainin left Smara (he died in 1910), and the city was eventually seized and partially destroyed by a French occupying force in 1913, even though it was virtually uninhabited at the time.[224] This did not end hostilities, however, and the territory was not considered 'pacified' until 1934.

From a European's perspective, as has already been noted, the Saharawi tribes had a longstanding antagonism towards foreigners. The early nineteenth century accounts of

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[221] Pazzanita 2006: 56-57.
[222] Pazzanita 2006: 251-254 & 392-393.
[223] For an excellent study of the Goulmim to Senegal caravan trade see Lydon 2009.
[224] Berthome 1996: 140-149, and Pazzanita 2006: 393.

Adams,[225] Cochelet,[226] Paddock,[227] Riley[228] and Robbins[229] give vivid descriptions of the plight of shipwrecked sailors on the Atlantic Sahara coast, though obviously belonging to the genre of 'white slave' literature with all of its inbuilt biases and pre-conceptions. Nevertheless, Riley's account has been described as the first ethnographic description of the Saharawi people,[230] while Mackenzie's account of his travels in 1883[231] gives a description of the tribes around Cape Juby as being approachable, unantagonistic and eager to trade.

With the Spanish confined to the coast, leaving the hinterland unoccupied, the Saharawis, quite justifiably saw the French, with their aggressive policies in the region, as interlopers and a threat to their way of life, and through the impetus of Ma el-Ainin and his sons, Western Sahara soon became a base for Saharawi raids against them. The raid, or *ghazi,* was for all intents and purposes the basic offensive tool of the Bedouin tribes in the Sahara, and the Middle East. T.E. Lawrence harnessed it in the Arab Revolt of 1916-1918, and immortalised it in his *Seven Pillars of Wisdom.*[232]

Pazzanita makes the point that raiding 'militarised' traditional Saharawi society.[233] Although the roots of the *ghazi* had more to do with pastoral ecology and economy, the acquisition of livestock along with booty, and in the expression of dominance within regional groups or tribes of Bedouin,[234] the degree of planning required to undertake such raids, and the martial skills acquired and developed in their execution prepared the Saharawi tribes to confidently oppose the advancing French, and to a lesser extent Spanish, in the western Sahara. In fact, Briggs has pointed out that the very presence of colonial camel corps troops caused some Saharawi tribes-people, at the time of his writing (in the 1950s), to view them as 'raiders' and respond accordingly.[235]

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[225] Adams [1816] 1817.
[226] Cochelet 1822.
[227] Paddock 1818.
[228] Riley [1817] 1859.
[229] Robbins 1817.
[230] Mercer 1976: 102.
[231] Mackenzie 1911.
[232] Lawrence [1926] 1974.
[233] Pazzanita 2006: 165.
[234] Sweet 1965.
[235] Briggs 1960.

Raids against European outposts and forces could take place over great distances. In 1927 an audacious raid was launched from Cape Juby to attack the French at Port Etienne (Nouadhibou), more than 1000 kilometres to the south (though Port Etienne was also attacked earlier in 1924[236]). The raiders reached their destination but the camel corps based in Atar intercepted them 'and slaughtered them to a man'.[237] This took place more or less when Antoine de Saint-Exupery took up his tenure as chief of the *Aero Postale* station at Cape Juby, but he too described another instance when a *ghazi* was being planned for an attack into Mauritania. Saint-Exupery recounts how camels were being 'led to the wells [around Cape Juby] for three days', how there were 'powwows', and he continued that there was a 'fever running through the camp: it was as if men had been rigging an invisible ship… the air was filled with the wind that would take her out of port'. All of this preparation was for an attack (that would take two months) on a French camel corps column out of Atar, led by one, Captain Bonnafous, described as an almost 'legendary figure' amongst the tribes, who could outflank them by raiding within the Spanish territory, and driving off their camels.[238]

Camel corps (*Mehariste*) officers such as Bonnafous adapted the *ghazi* to French military ends, and archaeological evidence supporting this might exist in Zug in southern Western Sahara close to the border with Mauritania. Here, in a great expanse of open desert, mainly punctuated by inselbergs and *guelbs*, a small fort (Fig. 3.6) was constructed on a low-lying rocky outcrop – literally daubed onto the landscape. It was summarily recorded in 2005 by Mark Milburn and Nick Brooks, while carrying out surveys for the WSP in the area. The local Saharawis knew of the structure as a 'French fort', and Milburn made subsequent enquiries of the *Musée des Troupes de la Marine* (in Fréjus, France), and indeed, in around 1911, accounts of French incursions into Spanish territory did suggest some kind of military presence in the Zug area. Also, by 2007, at least two of the 2005 team members went back to the fortlet and found a French army button.[239] The remains of the fort consist of an irregular polygon covering an estimated area of around 22 metres by 30 metres. The denuded walls are

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[236] Naval Intelligence Division 1944: 333.
[237] Cate 1970: 133.
[238] Saint-Exupery [1939] 1966: 86-87.
[239] Milburn 2008.

of drystone rubble construction, and they include the remains of internal buildings along with three bastion-like structures.[240]

With the situation intensifying between the French and Saharawi tribes in the first quarter of the twentieth century there was an undoubted knock on effect at the Spanish garrisons along the coast, and this altered the way in which the landscape was inscribed. Looking back at the 1910 postcard described above, it is clear that there is no physical barrier between the fort and the tents in the foreground, but that was to change with the employment of barbed wire.

Barbed wire was invented in the 1870s in the United States. It was a cheap, low technology success story, allowing the American West to be parcelled up so that the land could be appropriated by cattle ranchers and farmers. The very act of enclosing the land with a simple wire deterrant that could hurt the flesh of any living creature that tried to force its way through it – by its numerous barbs – made the wire a prime tool for not just controlling animals, but people. Entire landscapes could now be enclosed with an offensive wire inscribing authority over previously accessible and open spaces.[241] Its use in war and in the controlling of populations was initialy made most evident in the Cuban insurgencies just prior to the Spanish-American War of 1898. As a precursor to the 20th century use of barbed wire, the Spanish military divided Cuba into zones attempting to exclude Cuban freedom fighters from specific parts of the island. These barriers consisted of barbed wire fencing, ditches and banks, and forts and blockhouses, and they stretched across the island from coast to coast. They also, along some of them, incorporated a railway.[242] This was the advent of 20th century 'total war', even with the inclusion of concentration camps. Here, as elsewhere, swathes of landscapes were inscribed with linear implements of hostile control, eventually culminating in the 20th century with the Iron Curtain, the Israeli-Palestinian barrier wall, and the Moroccan berms in Western Sahara.

The British in South Africa, during the Boer War (1899-1902), took the combination of barbed wire, blockhouses, railways, and concentration camps to a new offensive

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[240] Photographs of the fort were taken by Nick Brookes during the WSP survey of 2005.
[241] Netz 2004.
[242] *New York Times* 1896.

level. In order to combat the Boer commandos, they criss-crossed the veldt with a system of blockhouses and barbed wire fencing that rivalled any enclosing of the prairie by American farmers and ranchers. And in the same way that an American rancher would 'drive' his cattle, the British military, under Kitchener, drove the Boer insurgents from one enclosed part of the veldt, into another, and another, until they were either killed, surrendered, or had nowhere else to go and were captured.[243] So with this in mind, and with the belligerance of both the French and Saharawis, it is not surprising that at some time within the first quarter of the 20th century, the Spanish employed barbed wire in their coastal enclaves.

An undated photograph shows a Spanish blockhouse at Rio de Oro surrounded by barbed wire entanglements.[244] This was one of four such blockhouses constructed by Francisco Bens in 1914 in a line across the narrowest part of the Dakhla peninsula immediately north of Villa Cisneros (see Fig. 3.3). High resolution Google earth imagery shows that three of these blockhouses are still standing and they were recently recorded by the Spanish archaeologist, Luis Blanco Vázquez.[245] Save for the barbed wire, the blockhouse in the photograph is relatively picturesque. It is obviously square and there are turrets at its diagonal corners. The building is two-storeys high, and with decorated crenelations along its rooftop parapet. It is rendered and pale in colour, but with a dark dado at ground level. The upper floor has ordinary windows, but the ground floor has firing embrasures and the turrets have horizontal firing slits. The photograph cannot tell us if barbed wire entanglements stretched from blockhouse to blockhouse, since Francisco Bens hoped to construct an extensive barrier across the peninsular. However, in whatever form he envisaged it, it was never realised.[246]

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[243] Grant 1910: 568-576.
[244] Available at:
www.hermandadtropasnomadas.com/fotos/displayimage.php?album=lastup&cat=6&pos=395 accessed 25 April 2011.
[245] Blanco Vázquez 2012. In the middle 1950s, John Lodwick mistakenly wrote that there were six blockhouses equidistantly spaced at around 300 yards from each other across the peninsular (Lodwick 1956: 197). However, in the 1960s, the British Hydrographic Department noted only four, white blockhouses equidistantly spaced across the peninsula (Hydrographic Department 1967: 248). This latter observation conforms with the satellite evidence of Google Earth and Blanco Vázquez's findings.
[246] Lodwick 1956: 197.

Two photographs, one terrestrial,[247] and one aerial (Fig. 3.7), show the Villa Cisneros fort surrounded by barbed wire. The photographs also include bi-planes and hangars, thereby dating them to sometime after World War One. This was when France's *Aero Postale* service was inaugurated, flying over Western Sahara to Dakar, and the Spanish air force initiated its *Escuadrilla Sahariana*.[248] The photographs also show the fort much as it looked up to its demolition in 2004.[249] The additions that were constructed by 1910 were now all rendered, and an additional blockhouse-like tower was added to the front façade at the eastern corner of the fort. Interestingly, this new tower had decorative corner turrets. Along the rear wall, a small bunker-like extension was added at the building's western corner, and this had a horizontal firing slit.

In contrast to the earlier pre 1910 postcard image, these photographs show no Bedouin tents or people, the local Saharawi were now kept a greater distance away from the fort, girdled in its protective barbed wire entanglements. There is now an even greater distance between the coloniser and the colonised, and it is clearly inscribed on the ground. The situation was similar at Cape Juby, where a perimeter of barbed wire, two kilometres in length surrounded the fort, and the garrison was described in a contemporary account as being dejected and godforsaken, and since there was also a gaol at Cape Juby, the soldiers were considered as being hardly indistinguishable from the inmates.[250]

The technology of enclosure as represented in barbed wire is the first step in literally marking out the land of Western Sahara and creating oppositional, and militarised spaces. Luckily for the Saharawi tribes, the Spanish were never overly aggressive in appropriating their land, and at this time they clung to the coast. It would take further machinations by France into the 1930s, and a conflict in the late 1950s, to really cause the Spanish to impress upon the land their colonial project.

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[247] Undated photograph captioned: 'Villa Cisneros – Fuerte', available at: www.sahara-mili.net/images/fuerte/anon1930.jpg accessed 11 April 2011.
[248] Cate 1970: 133.
[249] ICOMOS n.d.
[250] Cate, 1970: 134.

Tracing out a Pacified Region

By the time that France and Spain felt that the region was 'pacified', in 1934, a brutal war had been fought in the Rif region of northern Morocco, subduing the uprising of Abd el Krim,[251] and the *bilad es siba* (or the 'dissident territory') south of the Atlas Mountains, and north of the Wadi Draa, had been brought under French control.[252] The Spanish had secured its three coastal positions at Cape Juby, Villa Cisneros and La Guera, while along the desert frontier between Western Sahara and Mauritania the French had a garrison in Tindouf, Algeria, and forts at Ain Ben Tilli, Agmar, Bir Moghrein (Fort Trinquet),[253] Idjil (Fort Gouraud),[254] Attar and Port Etienne, all hugging the border outline (see Fig. 3.8). Most of these forts were linked by the *Piste Imperiale No 1*, which extended all the way to Dakar in Senegal.[255] Designated as such, this route unequivocally exemplified the colonial spirit of France, writ large on the desert sands.

Berthome[256] has published a plan of the French fort at Attar as it appeared in the period 1907-13, and it illustrates clearly how the French envisaged space in their military outposts in the Sahara at this time. The fort was roughly diamond shaped in plan, and aligned longitudinally more or less north to south. It was probably a mud brick structure[257] with bastions at its northern and southern ends, and with an entrance on its northeast facing side. The curtain walls had rooms up against their internal sides, which included company detail rooms, officer's quarters, storerooms, an infirmary, a gaol, and a powder store. A *zariba*, of thorn or brushwood, five metres thick surrounded the fort, following a trace not that different from that of the fort, save for a rectangular extension to the southeast where a camp for colonial troops was located. This illustrates, in the very layout of the fort, the difference between the colonial troops and the French, in that the latter, soldiers and officers, were quartered within the walls, while the African troops, separated from the Europeans, were camped outside and only protected by the *zariba*. Also, outside the fort, but within the

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[251] For a very good study of the 1920-1927 war in the Rif region of Morocco, see Balfour 2002.
[252] Thompson and Adloff 1980: 186 & 219.
[253] Trout 1969: 348.
[254] Windrow 2011: 604.
[255] Beslay 1993: 30.
[256] Berthome 1996: 96.
[257] Judging from a poorly reproduced photograph in Berthome 1996: 97.

zeriba, there were kitchen facilities, a well and latrines. To the southwest, just outside the *zeriba,* were depot areas for camels and goats.

Forts such as this, along with the Spanish positions on the coast, served as a containing mechanism surrounding much of the heartlands of the 'refractory tribes',[258] creating a geography of enclosure, and delineating a militarised landscape. But this was not an extensive enclosure of barbed wire, blockhouses and fortified ditches as in Cuba and South Africa. Instead it was a ring of strong points impressed onto the land and dependent on the ability of locally recruited mobile troops to patrol the hinterland, as the Spanish started to do in 1926 with the creation of their own camel corps, the *Tropas Nomadas.*[259] Meanwhile, the French, based in their Mauritanian forts could interdict *ghazis,* and invade Spanish territory, either with their *Mehariste* troops *(Groupes Nomades)* or with tribal factions in league with them.[260] In fact, the eventual 'pacification' of the region was seen by many Saharawi Bedouin, the very people who were 'pacified', as a way of being protected from the French. San Martin[261] illustrates this with an account given by an old Saharawi of an encounter with a Spanish column in 1935:

> I was in Hagunia in the year 1935 when Captain Capaz faced for the first time a group of 40 Saharawi… Before, I had heard about the Spanish, but I had never seen one. Capaz told us: 'ask what you want'. We… established four conditions: The Islamic Shaaria to be the law in the territory, not to force anyone to abandon arms and to give a licence to keep those arms we have now, that the slaves will continue under the command of their owners and that the owners could decide what to do with them in their own way… and not to give to Spain any recently pregnant camel nor any castrated camel for transport. We demanded these conditions…to be sure that they would not do the same as the French… The Spanish fulfilled their promise.[262]

In a way, an equilibrium was reached in the western Sahara in the 1930s, with the Spanish and French both acknowledging their territorial limits and responsibilities.

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[258] The terms 'refractory' and 'dissident' tribes have been used by early 20th century writers to describe the tribes of the western Sahara that opposed the colonial expansion of France, and to a lesser degree, Spain. Examples include: Saint-Exupery [1939] 1966, and Vieuchange [1932] 1987.
[259] Pazzanita 2006: 417.
[260] Bonte 1993: 73.
[261] San Martin 2010: 32-33.
[262] Garcia 2001: 83, cited in San Martin 2010: 33.

After decades of fighting, the tribes had to accept the dominance of the better armed, and organised Europeans, and in the end, they found themselves welcoming what became a durable peace.[263] The Spanish finally occupied Smara in 1934, where they created their first desert post. They secured the coastal routes, and by 1938 they founded El-Ayoun, the future capital of the territory.[264] They also occupied Guelta Zemmour, Bir Gandus, Tichla and Zug by 1946 (see Fig. 3.9).[265] San Martin has described Western Sahara at this time as mainly one large military garrison, and as a 'playground' for Spain's African army that was 'forged' in the Rif War. Though this became even more salient after Morocco became independent in 1956.[266] In fact, an informant told Lodwick in 1955 that to the Spanish military, Western Sahara was very much 'their territory'. The army felt that they built up, and held on to the colony with little assistance from Madrid, even 'against every kind of foreign intervention and intrigue'.[267]

Photographs, mostly dated from 1971, exist of the small desert fort that the Spanish established at Tichla (located about 200 kilometres from the sea, and around 30 kilometres north of the border with Mauritania) in their efforts to extend their colonial space into the interior in the decade or so after 1934. They give us a glimpse into what a Spanish, deep desert outpost was like. From the collection available on the La Mili en el Sáhara website[268] we can clearly see a simple, yet martial, colonial edifice implanted onto the desert landscape, something akin to a Beau Geste fort, and the images clearly illustrate the built, military environment which the Spanish constructed for themselves in the deeper desert. An aerial image, which is one of the few photos not dated in the set, shows the small square fort, quite forlorn, and like the earlier fort at Zug, literally daubed onto the great expanse of the desert. It is probably the earliest view of the fort since it does not include any of the external structures shown in the other photos, almost all of which are dated to 1971. It (Fig. 3.10) also shows the fort cocooned in a broad ring of barbed wire, clearly marking it out as an implant in

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[263] Caro Baroja 1966: 69, cited in San Martin 2010: 33.
[264] San Martin 2010: 32-33.
[265] Hodges 1983: 69.
[266] San Martin 2010: 41.
[267] Lodwick 1956: 136.
[268] See the photographs available at http://www.sahara-mili.net/lugar/albumLugarMarcos.htm accessed 9 April 2011.

territory perceived as hostile (and perhaps indicating that the date of this image is closer to the 1940s than to 1971).

One close-up elevation of the entrance to the fort suggests that its construction was of stone rubble, with a coarsely applied mud render.[269] A plan of the fort, with no scale, and given a date of 1971,[270] along with other photos of the exterior of the fort, confirm that it was virtually square with its entrance on its northern side and with towers at its northeast and southwest corners. The towers had balconies around them and decorative arabesque-style double windows.[271] Most of the photos also make clear that there were broadly spaced crenels along the upper parapet. This resonates with similar detailing along the parapeted roofline added to the Villa Cisneros fort that can be seen in the postcard dated 1910, and in the subsequent, later photographs. The interior of the fort at Tichla (according to the 1971 plan, but also recorded in a composite panorama[272]) included separate quarters for troops and non-commissioned officers, accommodation for the commandant, an office, weather station, radio room, kitchen and canteen, a dispensary and store rooms, while externally, there were generator buildings and a sizable encampment of local Bedouin. And notably, by 1971, there was no longer any barbed wire surrounding the fort, separating the colonised from the colonisers.

Judging from these images, outposts like Tichla were no longer lone forts in the desert well before the 1970s, but instead, the hub of a colonial presence servicing a locale or region. That is, servicing the military as well as the local Saharawis. This happened in a presumably larger way at Villa Cisneros, where a low level aerial photograph, dated to 1930,[273] showing details of the fort's interior, also shows that the barbed wire around the fort had been removed, and apparently, local people can be seen to roam

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[269] See Chapter 6, Fig. 6.23.
[270] Plan of fort at Tichla, entitled 'Plano de la Base', Juan Piqueras, dated 1971 and available at http://www.sahara-mili.net/images/mapas/planotc.jpg, accessed on 9 April 2011.
[271] Photographs, each entitled 'Base de Tichla', Juan Piqueras, dated 1971 and available at http://www.sahara-mili.net/images/jptc/jptc022.jpg, http://www.sahara-mili.net/images/jptc/jptc023.jpg, http://www.sahara-mili.net/images/jptc/jptc001.jpg, and an undated colour photograph available at http://www.sahara-mili.net/images/mani/mitc001.jpg. All accessed 9 April 2011
[272] Photograph entitled 'Base deTichla – Panoramica interior', Juan Piqueras, dated 1971 and available at http://www.sahara-mili.net/images/jptc/jptc028.jpg, accessed 9 April 2011.
[273] Aerial photograph of the fort at Villa Cisneros, dated to 1930, available at http://www.lasonet.com/sahara/sh-74.htm, accessed 12 April 2011.

freely were the entanglements once were. By removing their barbed wire, and allowing the civil population access to the heart of the settlement, in this case the fort, the Spanish must have felt secure in their appropriation of the territory. It may very well have looked as if the creation of a Spanish colonial space was succeeding. But this was to change.

The Making of a Spanish Sahara

The Maghreb was a tumultuous region in the middle and late 1950s. There was a brutal war for independence in Algeria (1954-1962) while both Tunisia and Morocco gained their independence in 1956. From 1953, various guerrilla groups existed in Morocco, mainly from the Rif and Middle Atlas regions. These coalesced into the 'Army of Liberation' in 1955, and at that time, southern Moroccans and Saharawis started to join the group. Also, many Moroccans who were auxiliaries in the French army joined the group in 1956 when Morocco gained its independence. With their officers gone, they brought with them arms raided from their former French armouries. As a result, the new, independent government of Morocco did not have full control over large areas in both the north and south of the country. These were controlled by insurgents bent on removing France and Spain from the whole of the western Sahara. To gain control of these regions the King of Morocco tried to lure many of the insurgents into his new Moroccan army, the Forces Armees Royal (FAR). But even though, about 10,000 members of the Army of Liberation agreed to lay down their arms, thousands more remained virtually in control of the south of the country, south of Agadir. The King distrusted the Army of Liberation, but his new army did not have the capabilities to confront it. So undeterred, the Army of Liberation went into action, attacking French Algeria in June of 1956, and then setting their sites on Sidi-Ifni.[274]

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[274] Pazzanita 2006: 32-33.

War in the Western Sahara

The Army of Liberation attacked the Spanish Enclave of Sidi Ifni in 1957,[275] beginning the Ifni-Sahara War, known to Spanish Historians as the 'Forgotten War'.[276] The war soon spread deeply throughout Spanish Sahara, and parts of neighbouring Mauritania and Algeria. By re-instituting the tactics of the *ghazi*, the Army of Liberation, now known by the Spanish as the Saharawi Liberation Army, virtually roamed unchallenged across the territory. They successfully pushed the Spanish back to El-Ayoun and their pre 1934 positions.[277] To counter this, the French and Spanish joined forces and launched 'Operation Ouragon'.[278] By deploying 5,000 French and 9,000 Spanish troops and 70 French and 60 Spanish military aircraft,[279] the insurgents were defeated in 1958, a year that became known as the 'year of the peace of the graveyards'.[280] Western Sahara was now securely back under Spanish control.

Morocco played a double game during the conflict. At first it distrusted the Army of Liberation, then its newly formed FAR gave the rebels logistical support during the early months of the conflict. In opposition to this, Morocco then allowed Agadir to be used as the airbase from which French and Spanish aircraft could fly sorties, successfully attacking the rebels. In consequence, the Tarfaya strip was ceded to Morocco, by Spain, 'as a reward for its collaboration in the last phases of the war'.[281] Spain's Saharan colony was now given the geographic delineation it has today, as Western Sahara, and '…from the decade of the 1960s onwards… it make[s] sense to name this region Spanish Sahara, and only then… the colonial frontiers start[ed] to be real, for the Saharawis as well as the Spanish'.[282] In fact, this second pacification of the territory created a new colonial impetus previously unmatched, and in the deeper desert areas it created a new militarised space imprinted on the land.

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[275] Sidi Ifni (Ifni) was a Spanish enclave approximately 200 kilometres due north of Western Sahara, and about 2,500 sq kilometres in area. This coastal territory was occupied by Spain in 1934 and ceded back to Morocco in 1969. Mercer 1979: 121 and Zunes and Mundy 2010: 100-101.
[276] San Martin 2010: 69.
[277] San Martin 2010: 69-70.
[278] Pazzanita 2006: xxviii & 31.
[279] Pazzanita 2006: 35-36.
[280] San Martin 2010: 70.
[281] San Martin 2010: 71.
[282] Gimeno 2005: 36, cited in San Martin 2010: 73.

With Spain giving up northern Morocco in 1956, its African Army, with its mainstay, the Spanish Foreign Legion, was posted to Ifni and Western Sahara. It has even been implied that Franco was keen to hold on to these territories, 'partly out of a desire to find a new mission for the Foreign Legion in Africa'.[283] There were already large military establishments attached to the main towns of El-Ayoun, Villa Cisneros, and Smara, but by 1961, with the potential for further conflict with a resurgent Army of Liberation, the Spanish military had established a presence throughout the territory.[284] Amongst these was a new type of small desert outpost, such as the fort at Tifariti, which was indicative of the type. There were at least seven of these forts throughout the territory, and apparently, they were all identical. Many were positioned in the north, presumably, in case of further conflict with Morocco (the Spanish still occupied Sidi Ifni which Morocco disputed), and there were tensions between Algeria and Morocco which could have spread into Western Sahara, and resulted in the 'War of the Sands' in 1963.[285]

The outpost, or fort, at Tifariti (Fig. 3.11) was constructed by the Spanish Foreign Legion in 1964.[286] It would probably be fair to say that Tifariti was more of a place than a settlement in the 1960s. It was shown on Spanish and French maps, and judging from these, it was on obvious routeways, and it had a water source (see Chapter 6). It may even have served as a stopover point for one of the innumerable routes that must have passed through the area serving the Goulmim-Senegal caravan trade (the Wadi Tifariti heads northwards, towards the Saguia el-Hamra). The location of Tifariti is at the junction of flat stony desert to the south, and low level, igneous hills to the north, and that is more or less where the fort was constructed. Tifariti is approximately 17 kilometres from the southern border of Western Sahara's northern panhandle. It is around 130 kilometres southeast of Smara, 150 kilometres northeast of the French Fort at Bir Morgrein in Mauritania, and 100 kilometres west of the French fort at Ain Ben Tilli. The closest Spanish outpost was Hausa, around 115 kilometres to the north-northwest (see Fig. 3.12).

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[283] Pazzanita 2006: 401.
[284] Mercer 1976: 226.
[285] Farsoun and Paul 1976: 13-16.
[286] Personal communication from Bachir Achmed Bhaua (facilitator for the Western Sahara Project) who witnessed the fort under construction.

The fort at Tifariti is only partly preserved. It was hit by a Moroccan air strike in mid August 1991 (see Chapter 6), just before the proclamation of the present UN brokered ceasefire. The attack destroyed approximately one third of the structure. It was apparently built to a standard plan, and it is identical to the Spanish forts at Echdeiria, Hausa and Mahbes in the north of Western Sahara, and Aargub, Guelta Zemmour and Bir Enzaren in the centre of the territory (see Fig. 3.12). It is presumed that all of these posts were established sometime soon after the end of the 'Forgotten War'. A good selection of photographs exist, illustrating the structure and layout of these small desert forts.[287] They were all rectangular in plan with rectangular blockhouses at their corners and a central courtyard and a defendable right-angled entrance. The cast concrete walls were slightly battered with narrow embrasure-like windows, while internally there were obvious attempts at domesticating what was essentially a military space.

As has already been noted in the case of the earlier fort at Tichla – and judging from the photographic coverage of these desert posts – these newer forts were all an integral part of locally emplaced hubs of colonial presence distributed in the more remote parts of Western Sahara. Surrounding them were ancillary buildings and other compounds, and encampments of local Bedouin, as shown in a photograph of the fort at Mahbes taken in 1974.[288] What is striking about all of these outposts, and it is made clear in the photograph of Mahbes, is the fact that these forts are constructed in such a way that they look solid and embedded. With their corner towers and slit windows, they are iconic redoubts in the centre of isolated military and tribal settlements. Though, for a full description of the fort at Tifariti, in its setting, see Chapter 6.

From Spanish Sahara to Moroccan Sahara

So far, the Spanish colonial space of Western Sahara has been seen to have been created by the dual actions of France and Spain. Initially, by the creation of Spanish forts and factories – militarised places along the coast – at Villa Cisneros, Cape Juby and La Guera. While the French, in their turn, encircled the territory with forts and

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[287] These are available at http://www.sahara-mili.net/lugar/albumLugarMarcos.htm and http://www.hermandadtropasnomadas.com/fotos/thumbnails.php?album=16 accesed 9 April 2011.
[288] See Chapter 6, Fig. 6.40.

garrisons along the Piste Imperiale through Mauritania, which served a similar function to the limes of the Roman Empire. With the acknowledged pacification of the region in 1934, the Spanish began to occupy the interior by securing the future colonial capital at El-Ayoun, and by occupying the iconic capital of colonial resistance in the region, Smara, the city of Sheikh Ma el Ainin. Nevertheless, the Spanish were restrained in their punctuation of the territory with military posts, especially since the tribes accepted the peace imposed upon them mainly by the tenacity of French arms. But after the 'Forgotten War' of 1957-58, the situation changed, and Western Sahara was turned into an extensive garrison for Spain's African Army.

The historical events that altered the situation of Western Sahara during and after the 1960s – culminating in the rise of the Polisario Front – and which paved the way for the annexation of the territory by Morocco and Mauritania, and the 1975-1991 war,[289] are best described by the mainly geo-political works referred to in Chapter 1. It is not my intention to cover the same ground here, but instead, to summarise the events that led up to the partitioning of Western Sahara, which started in 1980, and created a territory-wide militarised landscape that is dealt with, in terms of its materiality, in Chapters 4, 5 and 6.

In June 1956, the leader of the nationalist Istiqlal Party in Morocco declared that a Morocco independent of France, would only be complete if it included the whole of Mauritania with Spanish Sahara, and much of Western Algeria and Mali (this 'Greater Morocco' is shown in Fig. 3.13). As noted in Chapter 1, Morocco has seen its natural territorial limits as including the lands taken by the Almoravids in the 11th and 12th centuries, and denied to them by the partitioning of the western quarter of the Sahara by France and Spain. By the end of 1957, this irredentist vision became firmly rooted in the political establishment of Morocco.[290] But with the independence of Algeria in 1962, and the independence of Mauritania and Mali two years earlier, Morocco could only channel its claims, for a 'Greater Morocco', in the direction of Western (Spanish) Sahara.

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[289] Pazzanita 2006: 248-251.
[290] Hodges 1983: 85-86.

In 1965, the Government of Francisco Franco in Madrid, was being pressured by the United Nations to de-colonise Sidi Ifni and Western Sahara. Spain accepted the United Nation's call but wanted the process to be delayed because of the underdeveloped nature of the territory. Nevertheless, the United Nations called for a referendum on Saharawi independence at the end of 1966.[291] The presence of phosphate deposits at Bou-Craa was announced in 1962,[292] and perhaps because of this, Spain stalled on the issue of independence for the territory. Nevertheless, in 1967, Spain set up the Asamblea General del Sahara (or Djemaa) of Western Sahara. This was an assembly of Saharawi notables, which it was aimed would lay the foundations for eventual autonomy for the territory under a pro-Spanish Saharawi leadership.[293] At the same time, Harakat Tahrir Saquia el-Hamra wa Oued ed-Dahab (the Movement for the Liberation of Saquia el-Hamra and Oued ed-Dahab) was founded, agitating for independence from Spain. Its activities were peaceful, but in 1970, at a protest in the Zemla neighbourhood of El-Ayoun, Spanish Foreign Legionnaires fired on the protestors, killing some and arresting many others. The founder of the organisation, Mohammed Sidi Ibrahim Bassiri, was immediately arrested, and soon after 'disappeared'. As a result of this 'Massacre of Zemla', Harakat Tarhrir was duly extinguished.[294]

At Tan-Tan, in southern Morocco, anti-Spanish demonstrations took place in 1972 and the United Nations adopted, for the first time, a resolution upholding the right of independence for the Saharawi people. In the following year, 1973, phosphate exports began from Bou-Craa, and the Polisario Front was founded, led by El-Ouali Mustapha Sayed.[295] Polisario also formed the Saharawi Popular Liberation Army (SPLA) at the same time,[296] and on May 20th, only ten days after its founding, Polisario/SPLA committed its first military action against Spanish colonial troops at El-Khanga. In 1974, internal autonomy plans were announced by Spain for Western Sahara. Morocco tried to dissuade Spain from following this route and the King, Hassan, announced in August that he could not accept a referendum in the territory if the vote included the possibility of independence. Nevertheless, Spain immediately announced

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[291] Pazzanita 2006: xxviii-xxix.
[292] Mercer 1976: 185.
[293] Pazzanita 2006: 96-97.
[294] Pazzanita 2006: 186-187.
[295] Pazzanita 2006: xxix.
[296] Pazzanita 2006: 379-382.

that it would hold a referendum within the first half of 1975, but by January 1975 they postponed it. The following May, a United Nations Visiting Mission found that the majority of people in Western Sahara wanted independence, and by September, Spain and Polisario came to a tentative agreement on independence for the territory, if economic concessions were granted to Madrid. In October, the Saharawi sheikhs declared their backing of the Polisario Front, and four days later, on October 16th, the International Court of Justice at the Hague, ruled that territorial claims on Western Sahara by both Morocco and Mauritania were unfounded, and that the Western Sahara people had a primal right to self-determination. Ignoring this, King Hassan already had plans in place for annexing Western Sahara in cooperation with Mauritania. He announced his so-called 'Green March' on October 17th and it commenced on November 6th. This was a supposedly civilian demonstration, which marched into the far northwest of the territory, but it was preceded by a Moroccan military invasion into the north-most limits of the territory. By November 14th, the Madrid Agreement was signed between Spain, Morocco and Mauritania, partitioning and handing over the colony to Morocco and Mauritania by the end of February 1976 (see Fig. 3.14). Generalissimo Franco, who had been seriously ill for some time, died on November 20th, and a provisional tripartite administration was set up on November 25th by the signatories of the Madrid Agreement. Two days later Moroccan troops entered Smara, and on the following day, more than 50 percent of the Djemaa, in Guelta Zemmour, proclaimed their support for Polisario, and created a Provisional Saharawi National Council.[297]

From November 1975 onwards, there was a steady exodus of Saharawi refugees leaving the centres of population for the interior of the territory. Moroccan troops entered El-Ayoun in December, and Dakhla in January 1976.[298] The soldiers did not arrive in a spirit of fraternity, instead they viewed most Saharawi as collaborators of the 'terrorists' – Polisario.[299] Many Saharawi men flocked to join Polisario to militarily oppose the invasion of the country. In fact, Polisario was bulwarked by former Saharawi colonial troops who became the backbone of their forces. But the refugees mainly consisted of women, children and older men, and they continued to

[297] Pazzanita 2006: xxix-xxxi & 220-221.
[298] Pazzanita 2006: xxxi.
[299] García 2001: 159, cited in San Martin 2010: 108.

move into the *badiya*, into centres such as Guelta Zemmour, Amgala, Oum-Dreiga, Bir Lahlu, Mahbes[300] and Tifariti,[301] all organised by Polisario. The refugees found themselves under aerial attack (which included napalm) by Moroccan forces and their safety became a priority for Polisario. With the goodwill of neighbouring Algeria, Polisario was able to set up refugee camps outside Tindouf, Algeria (around 53 kilometres east of the Western Sahara frontier), and there, the Saharawi people became a nation in exile.

Part 2

'Wall upon wall are between us' [302]

Spain's African Army finally left Western Sahara in January 1976,[303] while Morocco occupied the northern two thirds of the territory, and Mauritania occupied the southern third. This was not a deterrent to Polisario who proclaimed the existence of the Saharan Arab Democratic Republic (SADR) in February 1976[304] and vigorously took up arms against the occupying armies. By reviving the tactics of the *ghazi*, they forced Mauritania out of the conflict in 1979, and they pushed the Moroccan forces up into the northwest corner of the territory, into what was called, the 'useful triangle' (see Fig. 3.14). To counter this, and to regain their almost lost colony, Morocco embarked on the creation of a series of great earthen fortifications, which would literally sculpt the desert in a hitherto unseen way. Between 1980 and 1987, the brute force of simple earthmoving machines[305] carved out a new, Moroccan colonial space in Western Sahara.

These earthen fortifications, called 'berms' in contemporary military jargon, have put a new slant on the concept of mankind inscribing itself on the surface of the earth. Here, the power of a territorial authority, in this case Morocco – a colonizing power,

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[300] Laschi 2009: 136, and San Martin 2010: 108.
[301] Awah, Interview, Deya, Interview, and Fadel, Interview.
[302] From the poem 'A Wall' by Robert Browning.
[303] Hodges 1983: 230.
[304] Pazzanita 2006: xxxi & 374-378.
[305] Zunes and Mundy 2010: 21.

with the assistance of modern technology, bulldozers and the like, was able to appropriate a land and corral it. The Spanish built forts and outposts to punctuate their authority across their colony. These were at unconnected points distributed across the territory, all potentially vulnerable by their isolation from each other. But in the 1980s, Morocco re-shaped the very earth to lay claim to Western Sahara. Much as in the great trench systems of World War I, 'digging', in the guise of bulldozing, made a comeback, and Morocco embarked on building, that is excavating and earth moving, a series of six earth and stone defensive walls which extended in waves from the northwest corner of the territory, partitioning Western Sahara with the aim of denying the fighters of the Polisario access to around four fifths of the country (see Fig. 3.15).

The use of continuous, fortified barriers to deny territory to an enemy was not a new idea. The greatest example from antiquity is the Great Wall of China, and in Britain, there are the Roman examples of Hadrian's Wall and the Antonine Wall, the latter, an earthen barrier not that different from the Moroccan berms. As already noted, 19th century industrial technology allowed barrier defences to be devised quickly and with ease, as shown by the use of barbed wire in anti-insurgency measures in Cuba, and in South Africa. But the First World War took the use of barbed wire and excavated defences to a new level of complexity and land coverage.

When writing about pre 19th century field fortifications and siege works, and in particular, Renaissance period sieges against artillery fortresses, Paul Hirst has noted:

> The besiegers… had to behave as if they were besieged and to erect fortifications that were often as elaborate, if temporary, as those they confronted. Sieges thus involved an immense amount of digging. They created ephemeral structures that are fascinating in their own right but that have been ignored by architectural historians.[306]

Hirst goes on to describe them as 'disposable architecture', and as 'inventive' as some 1960s 'radical' architecture. These 'spider's web[s] of earthworks', though temporary, were as elaborate and 'costly in human effort' as the very fortresses that were under

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[306] Hirst 2005: 199.

attack.[307] These offensive, though also defensive, siege works evolved into the trench systems of World War I, which

> were simply versions of the saps and parallels of the old siegeworks. Over time they became more and more elaborate, and concrete bunkers began to appear as the core of the strongpoints. Essentially, a sixteenth-century technology was adapted to the demands of industrialised warfare.[308]

When coupled with barbed wire, the continuous trenches of the Western Front became a 'river of steel', and as such, they came to be viewed as a 'permanent feature of the landscape' of the war. The 475 mile long wire and excavated obstacles, extending from Switzerland to the English Channel, became the perfect solution to the problem of 'preventing human motion' across space,[309] and culminated with the idea that a place to be defended was no longer a specific locus, like a town, a fortress or a city, but a 'national territory'.[310] This attitude of mind set in motion a great spurt of military engineering across the European continent in the post war period, and resulted in the construction of massive, defensive networks and barriers. All aimed, in what turned out to be a futile effort, to prevent another continent wide European war.

World War Walls

The most impressive of these new national defences was the Maginot Line – devised by France to prevent a potential German attack. It consisted of underground concrete fortresses, and extensive support facilities, all linked by tunnels. There were also numerous bunkers, anti-tank barriers, and barbed wire with landmines. But the Maginot Line proper was only 125 miles long, mainly covering the border with Germany, though there was also the 'Little Maginot Line', facing Italy.[311] Because France fell to Germany early on in World War II, the Line is often evoked as a symbol of that defeat. But in actuality, it was a success, and where the Germans attacked it, it did not succumb. Linear defences could work. France fell because of the openness of

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[307] Hirst 2005: 199.
[308] Hirst 2005: 205.
[309] Netz 2004: 109.
[310] Hirst 2005: 205-206.
[311] Sterling 2009: 206-7. For a good description of the Maginot Line, see Kaufmann and Jurga, 1999.

its border with Belgium and the inability of its army to counter the unanticipated route of the German offensive.[312]

Germany also constructed extensive, linear defences along its eastern and western frontiers between the World Wars. There was the West Wall (or Siegfried Line), and the East Wall. These consisted of anti-tank barriers, bunkers and heavily reinforced underground fortifications. In all, the West Wall was relatively lighter than the East Wall, but it had a great depth of formidable obstacles, such as anti-tank 'dragons teeth', and these eventually came into their own by obstructing the Allies' advance into Germany in 1944.[313]

Sensing a threat from Germany in the 1930s, the Czechoslovak government constructed its own 'Maginot Line'. There were underground forts and bunkers inspired by French examples, but the degree of fortification was variable. Nevertheless, they were made almost continuous by anti-infantry barriers (barbed wire), and anti-tank obstacles. Though incomplete, they extended along the German, Austrian and Hungarian borders, but they never fired a shot in anger, and Czechoslavakia was occupied by Germany in early 1939.[314]

In the 1920s and 30s, Finland constructed a system of linear fortifications along the Karelian Isthmus in an attempt to thwart Soviet aggression. Known as the Mannerheim line, it ran roughly east to west and was approximately 130 kilometres in length. It mainly consisted of bunkers – of stone, wood or concrete – and trenches were a key element. There were also anti-tank obstacles. The system was not continuous, and its defensiveness depended on the abilities of the soldiers manning it. At the end of the Winter War with the Soviet Union in 1940, the Finns commenced construction on the Salpa Line, this time along their eastern border with the Soviets from the Gulf of Finland to the Barents Sea. The line consisted of entrenchments, and bunkers of various types, some armed with tank turrets. There were also anti-tank obstacles and mine fields. The Salpa Line was stronger than the Mannerheim Line but

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[312] Sterling 2009: 242.
[313] Kaufmann and Jurga 1999: 59-98.
[314] Kaufmann and Jurga 1999: 239-261.

it was never completed. Both lines also relied on natural obstacles such as forests, lakes and rocky terrain.[315]

These linear defensive systems were all based on the premise that they would have to deter a modern industrial aggressor. The presumption was that the offensive technology developed during, and after, the First World War, would be hurled at them in terms of unlimited and total war – with mass troop movements, long range heavy artillery, tanks, and aerial bombardment. All in a potential war, not that dissimilar to the world conflict described by H.G. Wells in his alternative, futuristic history, *The Shape of Things to Come*.[316] In effect, these defences were designed for 'big wars'. This appellation is not made to trivialise the awesome destruction of modern industrial warfare, but the term is used here to highlight the difference between our understanding of unlimited war and small, or 'little wars'.

'Little War' Walls

The term petite guerre, or 'little war', came into use in the eighteenth century. It was coined to describe the irregular ways of fighting encountered by traditional European armies in North America and Central and Eastern Europe. The tactics of North American colonials and Native Americans in the late 17th century confounded traditional militarists, as did the behaviour of Eastern European irregulars from the Hungarian-Turkish marches and the Polish plains. Such 'partisans' were perceived more as 'spectres than soldiers', especially in their abilities to cover great distances, to strike and run, and to terrorize populations.[317] The Arab *ghazi* fits very well with this. Today, for example, we call the fighters of little wars 'guerrillas' (from the Spanish for 'little war'), 'partisans' and even 'terrorists', and little wars have become 'insurgencies', 'irregular warfare' and 'special operations'. In turn, little wars in the 20th century in colonial North Africa and Indochina, and even the Arabian peninsular, not to mention the Arab-Israeli conflict, have spawned further developments in the application of linear barrier defences, and some of these are briefly described below.

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[315] Kaufmann and Jurga 1999: 329-348.
[316] Wells 1933.
[317] Grenier 2005: 93.

Libya

Before World War Two, Italy finally crushed all resistance to its occupation of Libya in the Italian-Sanusi War of 1923-31. Besides undertaking a war of attrition that exhausted all tribal opposition, especially in Cyrenaica, the Italians, in 1930, built a barbed wire barrier nine metres wide by 1.5 meters high and extending for 320 kilometres along the border with Egypt, from the Mediterranean to the Great Sand Sea that straddles the Libyan-Egyptian border. Its aim, and it was successful in doing so, was to cut the rebels off from sanctuaries and sources of supplies in Egypt.[318] Such an anti-insurgency barrier would not have been out of place in Spanish Cuba, nor in South Africa, just a few decades earlier. While ten years later, in World War Two, Alan Moorhead described the barrier as 'Mussolini's famous fence' and saw it impotently silted up with sand at its southern end, allowing vehicles to drive over it,[319] or in other places, nosed through by British tanks.[320]

Indochina and Algeria

A bitter war for independence erupted in Algeria in 1954, and lasted until 1962 when Algeria finally won its independence from France. With both Morocco and Tunisia already attaining their own independence in 1956, both countries were obvious safe havens for insurgents of the Algerian National Liberation Front, and its National Liberation Army. After France's defeat in Indochina in 1954, its military were 'baffled by how poorly armed insurgents could defeat a modern army', and believed 'that all insurgencies were part of a global Communist strategy to subvert the West'. They concluded, that to stop the flow of fighters and arms, mainly from Tunisia, from bolstering the Algerian insurgency, they had to secure the country's borders by devising frontier barriers.

Although the earlier French experience in the ill-fated Indochina war of 1946-54 was nationally demoralising, they managed to successfully construct a string of fortifications to secure the Tonkin Delta region in northern Vietnam from the communist Viet Minh. This was the de Lattre Line,[321] a string of 2,200 bunkers and

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[318] Berry 1987.
[319] Moorhead 1943: 51.
[320] Moorhead 1965: 8-9. The barrier still exists, and most of it can be easily seen on Google Earth.
[321] Porch 2010: 85-86.

other fortifications. Some could be linked by trenches to become forts, and all were surrounded by minefields, barbed wire, and even moats in some instances.[322]

This barrier concept was applied to Algeria's borders, though, most famously, along the border with Tunisia. Here, the Morice Line was constructed (1957-1958) from the Mediterranean to the Sahara. It was essentially an electrified fence of 5,000 volts, eight feet high, incorporating a barbed wire apron, and with minefields on both sides. Electronic sensors and radar could detect breaks in, and people approaching, the barrier, and such surveillance could then direct the fire of howitzer batteries while rapid reaction forces would be put into the field. The barrier proved highly successful, killing thousands of insurgents within seven months after its completion.[323]

Vietnam

The success of the Morice Line was highly attractive to the American military in the Vietnam War, and a similar barrier was commenced in 1967 to the south of the Demilitarised Zone, between North and South Vietnam. Christened the McNamara Line and modelled on the Morice Line, this 'high tech', anti-personnel barrier was planned to incorporate minefields with cleared ground and barbed wire obstacles, sensors, and observation towers, and all supported by manned strong points and fire support bases in the rear. But the barrier was never completed, especially when its electronic sensors were re-deployed in the extensive defence of Khe Sanh, and the Vietcong's strength south of the barrier had already become too great. Nevertheless, the sensor technology proved extremely successful at Khe Sanh, and it showed how adaptable it could be, working well in 360 degree applications as well as in linear, barrier deployments, as along the Morice Line.[324]

Oman – Dhofar

Oman had been ruled as a feudal state from 1932 until 1970, when Qaboos bin Said, engineered a near bloodless coup against his father, the Sultan. In the forty or so years prior to 1970, animosities developed in the country and these evolved into a Marxist rebellion against the Oman government and so-called 'Western imperialism' in Oman

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[322] Fall [1961] 1972: 175-176.
[323] Bairstow 2006: 28-30.
[324] Brush 1994.

and the Arabian Gulf.[325] The insurgents had supply bases in neighbouring South Yemen, and as in Algeria, it was incumbent to prevent rebel traffic across the border. To this end, the British military supporting Sultan Qaboos, built a series of fortified barriers from the coast up into the mountainous Dhofari hinterland east of the border with South Yemen. In the end, four barriers were constructed, made up of barbed wire entanglements, booby traps, minefields, fixed patrol bases and artillery positions. They were so successful that clean-up operations between the barriers and the South Yemen border were easily executed, and the campaign was declared as successfully ended by December 1975.[326]

Suez – Sinai: Return of the Big War Wall

The lightning Six Day War of 1967 between Israel and its Arab neighbours radically altered the geo-politics of the Levant by turning Israel into an unrivalled military power in the region. Israel also expanded into the 'West Bank' of Jordan, the Golan Heights (Syria), and the whole of Sinai (Egypt). The war was fought conventionally, more in keeping with the concept of a 'big' war. The opponents were highly mechanized and they all had artillery and modern air forces.

After the war, the newly occupied territories gave Israel a geographic spread of three times its pre-war area, and provided it with 'new boundaries… thought to form the strategic enclosure that would buttress the defence of the state'. In line with this, there were 'frenzied and varied attempts at studying and domesticating these territories from within and efforts to fortify their edges against counter-attack from the outside'.[327] Israel was intent on fortifying its new, enlarged borders – it was only a question of how.

Through its own tactical inertia in the Six day War, the Israeli army fought its way to, and occupied the east bank of the Suez Canal, a formidable barrier in itself to any further military advances from Egypt. Although the decision was not unanimous, the Israeli premier wanted to keep the canal and even close it to shipping, with the aim of forcing the Egyptians to sign a peace treaty favourable to Israel. It was also proposed

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[325] Beckett 2010: 176-178.
[326] Beckett 2010: 188-190.
[327] Weizman 2007: 57.

that the east bank of the canal be fortified with a series of strongholds that could withstand continual artillery fire. These evolved, during the War of Attrition with Egypt (1968-71), into an immense barrier system[328] – the Bar Lev Line – which became operational in 1969.

At the base of the barrier was the entirety of the Suez Canal, stretching approximately 200 kilometres from the Mediterranean to the Gulf of Suez, and described as 'one of the best anti-tank ditches in the world'.[329] Above it, Israeli military engineers mustered that earth-moving stalwart – the bulldozer – to carve out and fashion a new, linear, monumental landscape above the east bank of the waterway. This was a great earthen rampart, up to 25 metres high, that rose form the water's edge at an angle of 45 to 65 degrees,[330] peppered with landmines and fronted with barbed wire.[331] Such a singular moulding of the face of the earth for military purposes had probably not been undertaken since the digging of the great trench systems of the First World War, and it would not be surpassed until the construction of the Moroccan berms in Western Sahara. Behind this barrier, and incorporated within it were forts, called Maozim (Hebrew for 'castle keep'). Thirty-one were planned, but only seventeen were constructed.[332] Their sizes averaged out at 200 metres by 350 metres.[333] They were surrounded by barbed wire entanglements and land mines, and internally, they had accommodation blocks, medical facilities, ammunition stores, observation posts, command bunkers, mortar and anti-aircraft positions. Their traces were delineated by sandbagged entrenchments which could be covered, and these included weapons firing pits and machine gun bunkers.[334] The forts were supposed to be spaced every ten kilometres or so, with their garrisons being able to observe about half that distance during the day, thereby covering all of the ground between them. But night time was a problem, since the supplied electronic sensors proved unreliable.[335]

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[328] Weizman 2007: 59-60.
[329] Gawrych 1996: 16.
[330] Gawrych 1996: 16.
[331] Dunstan 2008: 19.
[332] Dunstan, 2008: 17 & 27 (map).
[333] Gawrych 1996: 16.
[334] Dunstan 2008: 16-17 & 22-23 (ill.).
[335] Sterling 2009: 281.

In 1969, Arial Sharon (Chief of the Israeli Southern Command) reinforced the line with an additional network of inland strong points, Taozim (to be differentiated from Maozim), around 12 kilometres east of the canal, and disposed on tactically important hills. Each semi-independent stronghold was able to support its neighbours, and they were supplemented by mobile troops, tank battalions, and the Israeli air force. The plan also included the creation of an expanded network of link roads. Again, the bulldozer was put into action, and the desert was carved up into a militarised space. 'The western Sinai Desert was fashioned by Sharon into a future battlefield, and the desert seemed to Sharon to be perfect for this; it contained military installations, bases, roads and minefields, with no civilians to disturb the war game'.[336]

The Bar Lev line appeared indestructible during the War of Attrition when it came under nearly daily Egyptian bombardment, and no positions were evacuated or irreparably damaged. The line only fell during the October War of 1973 by the failure of the Israelis to keep it maintained and properly manned, and by the ingenuity of the Egyptian military. The Egyptians successfully crossed the canal in an amphibious assault. They broke their way through the great earthen bank of the line by carving out gaps with high pressure water hoses, fed from the canal by high capacity pumps. These eroded the 20 metre high sand banks into slurry, in gaps that were then neatly bulldozed clear, allowing the Egyptians to successfully attack and over run all of the Maozim. The Egyptians won the battle for the Bar Lev line, but in the end, the Israelis held on to most of Sinai. They quickly moved enough troops and armour up to the canal, and succeeded in preventing the different prongs of the Egyptian attack from consolidating their front. At the end of hostilities, the Egyptians occupied most of the east bank of the canal, while the Israelis succeeded in crossing it and occupying a small part of 'Africa' in Egypt.[337]

Summary

This chapter has presented a brief introduction to the land and people of Western Sahara. It has also explored some of the ways in which colonial spaces – both Spanish

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[336] Weizman 2007: 64-68.
[337] For succinct descriptions of the Egyptian attack on the Bar Lev Line see Dunstan 2008: 46-55, and Weizman 2007: 71-77

and Moroccan – have been shaped in Western Sahara, and it has given examples of the ways in which spaces of colonialism and occupation elsewhere, particularly in the context of conflict, have been carved out and shaped by the will of nations, armies and individuals. The transfiguring of the earth can start quite simply in the digging up of natural materials, for example mud, from which bricks can be made, or in the piling up of stones, both of which can be used to create walls. With brute strength, earthworks can be raised and trenches dug, but with the advent of earth moving machines, whole landscapes could be altered relatively quickly. From the building of desert outposts in the Sahara to the construction of the monumental Bar Lev Line, land has been appropriated, contested and fought over. And in Western Sahara, there exists the largest example of a fortified military barrier created in modern history – in fact, probably the largest appropriation of land by bulldozer to date. By the very way in which Morocco sought to regain territory lost to the Polisario up to 1980, through the very sculpting of the earth to create a series of earth and stone walls, they partitioned the very territory they appropriated. They constructed 'the berm' and created a matrix of exclusion.

Frantz Fanon has pertinently written that, 'the colonial world is a world divided into compartments'.[338] In the desert landscape of Western Sahara this is exemplified by the 'Moroccan wall' – 'the berm' – though more appropriately: 'the berms'. Morocco's weakness in the face of Polisario fighters, especially after 1979, forced them to adopt this extreme, defensive posture. They withdrew all of their garrisons and outposts up into the northwest of the territory – taking in the Bou-Craa phosphate works, Smara, and the capital El-Ayoun – into what became known as the 'useful triangle'.[339] Chapter 4 outlines the sequence of construction of Morocco's berms – six in total, and all constructed between 1980 and 1987. Its aim is to describe the materiality, and shear monumentality of the walls, and their imprint on the desert landscape.

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[338] Fanon [1961] 1968: 37.
[339] Hacene-Djaballah 1985: 105.

CHAPTER 4

TOWARDS AN ARCHAEOLOGY OF THE BERMS

Part 1

I had heard any number of stories about the wall, its size, its character and aspect, but none of them prepared me for this cryptic blemish on the body of the desert. I had imagined a structure that would be visible from a long way off; the bases situated… along its length would surely dominate the landscape. The whole thing would rise out of the desert, effortless and magisterial. But... it required hard work with the binoculars and guidance from the local Polisario commander to pick out the defence at all. In the event, it was a thin band of pallor standing out from the rest of the terrain, which was darker by a shade. At the crest of a hill where the defence rose with the contours of the land, there was a base, a wide circle of ground, paler still.[340]

Jeremy Harding

Studying the Moroccan Berms

The history of military defensive barriers in the 20th century, as outlined in Chapter 3, clearly shows that Morocco's adoption of a barrier defence was not a new one. But its novelty has been in its size and monumentality. In six sweeping movements, the Moroccans created, as already quoted from Hirst, a 'spider's web of earthworks', measuring approximately 4000 kilometres across virtually 80 percent of the territory of Western Sahara. By mimicking the success of the Morice Line – incorporating electronic surveillance – and by replacing barbed wire fencing with single and multiple earthen banks, and incorporating extensive fields of landmines, the Moroccans have set out to defend what they perceive as a large part of their national territory, and to prevent the movement of people across space; to exclude one group of people – Saharawi nationalists – from the settled areas of Moroccan occupied Western Sahara. To this end, the berms have become an indelible, transfiguring inscription on

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[340] Harding 1993: 124-125.

the land, crossing great expanses of open desert, following the contours of mountains, and cutting off wadi systems which would have been used as routeways, and as pasturage, for millennia.

Morocco built its series of defensive barriers between August 1980 and April 1987. Antecedents already existed defending El-Ayoun, Smara, Dakhla, Boujdour and the phosphate works at Bou-Craa,[341] but the success of Polisario in forcing Morocco to withdraw from most of the territory, save the useful triangle (see Fig. 3.14), caused them to develop the system even further, and to use the barriers as a means of clawing back territory. According to a Polisario spokesman, Morocco conceived the idea of building a barrier system from the Israelis,[342] though advice on its construction allegedly came from France and the United States as well.[343]

Throughout this matrix of earth and stone embankments, which can be up to 4 metres in height,[344] there are almost 2000 military installations. These include mural forts, rear defence forts, fire support artillery bases, observation posts, mustering positions, and garrison camps in the rear. There are anti-vehicular ditches, cordons of barbed wire and mine fields. At least 120,000 Moroccan soldiers have manned the defences.[345] All mustered to keep at bay an estimated Saharawi force of 6000 Polisario fighters[346] whose main tactic has been the long range *ghazi*, though in the second half of the twentieth century, a highly motorized one. In the light of this, and when considering the massive efforts taken by the Moroccans to defend their occupied territory, by using a 'big war' solution against 'little war' tactics, their efforts have been highly disproportionate – like trying to swat a fly with a very large hammer.

Charting and Describing the Berms

The aim in this chapter is to come to an understanding of how, as military defences and monuments, the barriers have left their mark on, and have partitioned, the Western

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[341] Pazzanita, 2006: 91. Zunes and Mundy also note the construction of defences around Dakhla between 1982-1984, see their Map, p.7.
[342] Muhammed Fadel, *Interview*.
[343] Habua Breica, *Interview*.
[344] Pazzanita 2006: 91-93.
[345] Pazzanita 2006: 91-93.
[346] Cordesman 2002: 90.

Saharan landscape, and concomitantly (continuing in Chapter 5) how people have confronted them, both militarily and otherwise. It must be kept in mind that the landscape of the barriers is still actively militarized – the barriers are still in use. Even so, the berms have a material presence that can still be studied by a relatively straightforward archaeological approach. But before I describe this, I will give an overview of what is presently known about the berms through published maps and written accounts. The purpose being to illustrate, as noted in Chapter 1, that the renderings of the berms in the accounts of virtually all commentators on the Western Sahara conflict are overly generalized, incomplete and inconsistent, and that the materiality of the barriers has become obscured and marginalized. They have become a taken for granted, while analysts have homed in on the geo-politics of the conflict. As Buchli and Lucas might say, they have become 'unconstituted'.

Studying the Berms – Published Maps

A small number of cartographic representations of the Moroccan berms, and the final limit of the barrier demarcating the Moroccan occupied zone from the Polisario controlled, 'liberated', zone exist in print and on the internet. Unfortunately, since they are all generalisations, they do not represent the extent of the barriers in any way that can be considered precise. For instance, the United Nations' own map, posted on the internet, does not show the barrier extending into Mauritanian territory at the junction of the Western Saharan panhandle (Saguia Al-Hamra) and the southern two thirds of the country (Rio D'Oro) thereby dividing the Polisario controlled zone in two.[347] However, this is more correctly shown by Land Mine Action (LMA), now known as Action on Armed Violence (AOAV), on maps on their website, and in their published documentation.[348] Two of the more recently published maps showing all of the berms are also very simplified. The first, by Zunes and Mundy in 2010,[349] is probably one of the better of any generalised, published map to date. It has been compiled from a number of earlier sources, and although schematic, it clearly shows all of the phases of the different barriers' construction. It shows defences around Dakhla, and it tries to show what it considers to be the full extent of the first barrier

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[347] MINURSO 2014.
[348] AOAV 2008. Other relevant AOAV reports are available on their website at: http://aoav.org.uk/ accessed 4 April 2014.
[349] Zunes and Mundy 2010: 7.

through southern Morocco, and surrounding the useful triangle. However, it differs markedly from the mapping compiled for this research.

The second, more recently published map, also in 2010, has been presented by San Martin.[350] Like the Zunes and Mundy map it shows the barrier encroaching on Mauritanian territory, but its delineation of the first berm extends to the south of Bojdour. This is contrary to the Zunes and Mundy map, which shows the western end of the first barrier as situated north of Bojdour. Both maps show the second berm extending to the south of Bojdour, while in an earlier map of 1985, Belkacem Hacene-Djaballah[351] shows the second barrier as an enclosure extending southeastwards from the Smara to the Bou-Craa portion of the first berm. Although Hacene-Djaballah's map does not show the second barrier as encroaching into Mauritania, she shows it as hugging the border, and thereby, still dividing the Polisario controlled zone in two. A map published three years later, by Tusa,[352] shows all of the barriers relatively clearly. However, it does not show the barrier passing through Mauritania (though it hugs the border), and it mistakenly shows one of the barriers as taking in Tifariti, which has never been the case. All in all, one of the better maps of the Moroccan berms (though still very schematic) was published in 2005, by Fuente Cobo and Mariño Menéndez.[353] Like the later Zunes and Mundy map, it shows the phasing of the barriers quite clearly, but it still does not show the barriers as definitively encroaching on Mauritanian territory, nor does it include the Dakhla defences.

One thing is certain, and that is that the maps readily available for Western Sahara, showing the partitioning of the country, are essentially sketch maps, and they must be viewed as such. Only a more detailed mapping of the barrier system will allow its faithful description. Even written depictions of the berms are inadequate since they are usually short, and highly generalized. Some of these accounts are described below.

Studying the Berms – Written Accounts
When describing the Moroccan berms, almost all commentators agree that they include single, and/or multiple sand, or earth and stone embankments, that there are

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[350] San Martin 2010: xiv.
[351] Hacene-Djaballah, 1985: 177.
[352] Tusa 1988: 41.
[353] Fuente Cobo and Mariño Menéndez 2005: 105.

minefields in front of the barriers with cordons of barbed wire, that forts are disposed along the walls, that there are artillery installations, and that electronic sensors (radar and the like) are deployed. Such a summary description was provided by Wenger, in 1982, when writing about Morocco's first berm from the Zini Mountains to Bou-Craa.[354] However, it is in the details about the barriers' construction and make up where most writers dealing with the Western Sahara disagree, and present conflicting and contradictory information.

Hodges' account of 1983, though like Wenger's, added a height dimension for the berms – up to three yards – and he also pointed out the presence of Moroccan army reserves stationed behind the barriers with the potential to repel Polisario attacks.[355] The first barrier securing the useful triangle, was portrayed by Damis as 'Morocco's Great Wall'. He described it as seven feet high and fronted by a ditch, around twenty-three feet wide. Besides barbed wire, mines, and 'special' radar, he noted that the barrier's observation posts and 'fortified bases of operations' were disposed differentially according to the lie of the land. Once a sizable portion of the barrier was built, the Moroccans added further fortifications to it. Damis also described the berm as an 'anti-vehicular sand barrier' and a 'trap for vehicles', and pointed out that if Polisario succeeded in breaking through the barrier, it would inhibit their fast escape back across it. The barrier was constructed with bulldozers, protected by the Moroccan Army's mobile, 'Zallaqa' brigade.[356]

'A great wall of sand' is how Lewis described the berms in 1985. Besides the mines and regularly placed sensing devices, 'artillery units were deployed at critical locations, small forts were interspersed, and mobile columns were stationed at main centres to reinforce units located at or near the wall'.[357] According to Dean, the Moroccans referred to their defences, as a *ceinture*, a 'belt'. Besides fortified positions, mines and radar posts, there were strong points with 'mobile reaction units, and… quick access to air power based at El-Ayoun'.[358] Seddon, in 1987, specifically noted some of the architectural elements associated with the berms, in particular,

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[354] Wenger 1982: 22-26 & 30.
[355] Hodges 1983: 289.
[356] Damis, 1983: 97-98.
[357] Lewis 1985: 129-130.
[358] Dean 1986: 46.

'artillery placements and observation posts.., protective dug-outs', and 'elaborate underground quarters for the troops' manning the barrier along its entire length.[359]

Visiting the Polisario controlled zone in 1986, Harding expected to see a barrier made up of formidable, concrete forts, visible over fifty miles or so. But when he actually saw the wall, he could only make out a low-lying, pale strip of ground in the distance. The forts, which he had heard so much about, appeared only like 'a wide circle of ground, lighter in colour than the rest of the wall'.[360] However, in the region east of Smara, Harding presented a more detailed, ground level view of the wall:

> It consisted of two sand-and-rubble parapets, three to four metres high, one behind the other. These were separated by an alley where mobile artillery and armoured personnel carriers could be deployed. Every twenty miles or so was a base, between the bases a series of alarm-points, each with roughly forty men. On the other side of the wall there were larger bases with still more troops. The radar and the sophisticated surveillance equipment were said to be sited on the wall itself, with the ground sensors in front. In some sections there was a barbed wire terrace and a random scattering of land-mines.[361]

Brazier, visiting Tifariti in 1998, got close to the berm and described it literally as a one and a half metres high 'pile of rubble'. Polisario informed him that there were Moroccan bases placed at five kilometre intervals, with 80 to 90 soldiers each, and there were 'watch posts' positioned halfway between them. There were mine fields in front and behind the barriers, and Moroccan soldiers passed through the rear minefields along throughways referred to as 'bridges' by his Polisario informants.[362]

Cordesman referred to the Moroccan berms as 'Hassan's Walls'.[363] He described the barriers as two metres high, with barbed wire and mines. The Moroccan army manned 'over 300 strong points on and behind the wall', and these were supported by 'mobile desert strike units, firebases, attack helicopters and air support forces, and 20 ground

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[359] Seddon 1987: 105.
[360] Harding 1989: 21.
[361] Harding 1989: 25.
[362] Brazier 2009.
[363] *Jane's Defence Weekly* 1989: 182, cited in Cordesman 2002

surveillance radar bases and other sensors'.[364] In 2004, Forced Migration Online described the berms as having an estimated one to two million anti-tank and anti-personnel mines with 100,000 to 200,000 troops manning the barrier. They also noted 240 heavy artillery units stationed every ten kilometres or so along the barrier, and all equipped with 'sophisticated surveillance equipment'.[365]

The *Historical Dictionary of Western Sahara* described the berms as two parallel lines of embankments, around three to four metres high, and bulldozed out of the earth. They included parking areas and revetments for Moroccan armour and artillery, along with 'foxholes and trenches' for the troops, and with barbed wire and other obstacles fronting the barriers. The *Dictionary* uses the term 'blockhouse' (*postes avancés*) to describe positions manned by 600 to 800 troops, and positioned at approximate ten kilometre intervals along the wall, with further detachments of 100 to 200 troops positioned in *sonnettes* every three to four kilometres between them.[366] The numbers of soldiers noted here, as manning the individual fortifications, is markedly different from the smaller numbers quoted by both Harding and Brazier.

Laschi notes the barrier as being three metres high by two metres wide, with its main protection made up of 'circular forts' with garrisons of approximately 200 troops. On either side of these there are smaller forts with around twenty soldiers each. The minefield fronting the berm is described as extending 400 metres, while 'behind the wall, at a distance of 5-6 km, there are artillery units, a dense network of radar screens, armoured vehicles, jeeps and all the equipment necessary for the reinforcement divisions'.[367]

The latest description of Morocco's 'great wall' is by Zunes and Mundy. They state that in 1981 'Polisario reported that it had engaged Moroccan forces constructing a large "earthwork defense system." During the fight, the SPLA blew up several

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[364] Cordesman 2002: 61-62.
[365] Smith 2004.
[366] Pazzanita, 2006: 92-93. The use of term 'blockhouse' is anachronistic in relation to the Moroccan berms. In terms of defensive military structures, they have a very specific meaning, bearing no resemblance to the mural forts (or *postes avancés*, ie., advance posts or forward posts) positioned along the Moroccan barriers. The term *sonnettes* (literally meaning bells or alarms, and matching well with Hardings' description of 'alarm-points'), presumably refers to the smaller forts, or 'fortlets', positioned between the larger mural forts.
[367] Laschi 2009: 140.

"earthmoving machines" that were digging a double-walled trench'.[368] They go on to describe the wall in very generalised terms, just stating that its earth and stone embankments are three to six feet high, and that they are topped with barbed wire, and heavily mined on the Polisario side. Besides 'sophisticated electronic sensing devices', it is 'guarded by an estimated 100,000 to 150,000 Moroccan soldiers, either in frontal guard positions or in rapid-reaction bases'.[369]

The summaries presented above, represent the type of baseline data about the berms that most commentators and analysts rely upon and employ. Obviously, the authors are not interested in the material manifestations of the Western Sahara conflict, but instead, with the geo-political history and machinations of the hostile parties, their allies and supporters, so perhaps, more precise descriptions of the Moroccan walls should not be expected. Also, their accounts may only reflect the quality of their sources. Nevertheless, a thorough understanding of the materiality of the conflict is not well served by this insufficiency of detail. The partitioning of Western Sahara is a prime determinant inscribed on the land in the contested space of the territory, and the study and characterisation of the Moroccan barrier system – the berms – requires better descriptions, analyses, and improved mapping. This chapter, and the next, shall amend this, and it will do so by looking at the berms with an archaeological sensibility, as artefacts on the land. And in keeping with the tenets of an archaeology of the present, this dissertation will retrieve them from the periphery, and bring them back into focus. To draw upon Gonzáles-Ruibal, they will become 'unconcealed'.

A 'Virtual' Survey of the Berms

If one could walk up to the barrier that is now the definitive dividing line between the Moroccan controlled part of Western Sahara and the Polisario's liberated zone, and if it were a ruin – like any traditionally conceived archaeological feature – then it could be measured, surveyed, its disposition in the landscape could be assessed, and its constituent parts could be studied and recorded. All of this data could be collated and put into a GIS and interrogated in an attempt to understand its growth and distributed characteristics, its placement in the landscape, its workings as both an offensive and

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[368] *Africa Confidential*, 1 July 1981, cited in Zunes and Mundy 2010: 20.
[369] Zunes and Mundy 2010: 21.

defensive barrier, and as a manifestation of political control writ large across an entire country. But this is not the case. Land mines are distributed in front of the barrier, it is manned by military garrisons, and there are strict terms governing access to the barrier laid down by the United Nations ceasefire agreement of 1991. Also, as linear features, all of the barriers extend over a total of approximately 4,000 kilometers. An archaeology at such a macro scale requires a bird's eye view – some form of remote sensing – and aerial photography or satellite imagery is unquestionably required. By drawing upon the archaeological examples cited in Chapter 2, the berms can be 'virtually' surveyed as distinct entities, and groups of entities in the landscape. To this end Google Earth has been employed, and through its use this dissertation probably represents the first ever archaeological analysis of a complex of features – the berms – at such a countrywide scale.

Google Earth provides both high and low-resolution satellite imagery for Western Sahara. The disposition of all of the berms, and associated features, can be seen on both types of coverage, but there are many instances on the low-resolution imagery where details are poorly defined. Therefore, the imagery that can be used most effectively is the high resolution Digital Globe (and/or Geo-Eye) imagery which has sub-metre resolution per pixel, but which only covered, at the beginning of this research in 2010, an estimated 10 to 15 percent of the country (see Fig. 4.1).[370] This is not viewed as a problem, since it would be an overwhelming task to attempt to study the entirety of the berms. In fact, the limited coverage of the country by high resolution imagery acts as something akin to a clustered sampling mechanism, allowing a practicable portion of the berms to be studied, and for generalisations to be made from appropriately selected locations.

With Google Earth as a base, it is very easy to plot the disposition of all of Morocco's barriers across Western Sahara (Fig. 4.2 shows the general disposition of the different berms with Google Earth imagery as a backdrop, while Fig. 4.3 shows the berms overlaying a Spanish military map of 1960[371]). The method for charting the

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[370] Clarke and Brooks, in press.
[371] Servicio Geográfico del Ejército de España 1960. This 1:2,000,000 scale map was produced in two sheets between 1958 and 1960, based on surveys by the Spanish military between 1943 and 1949 (Rodriguez Esteban 2011).

delineations, or 'traces', of the berms is very straightforward. Google Earth has a line drawing facility, called a 'path' tool, and by selecting it a line can be drawn (digitised), and properties can be ascribed to it. Every plotted line segment was given a unique numeric (or alphanumeric) designation, and a very brief, one or two word description, usually noting whether or not a berm was single, double, or multiple embanked, and/or with additional configurations of multiple banks (see Fig. 4.4). Additional qualitative observations were also added in some instances. The traces created in Google Earth were saved as Google Earth KML files, and they were imported into the free, open source GIS, Quantum GIS (QGIS). Once imported, they were converted into 'shape' files – the commonest file format in GISs. The length of each trace could also be tabulated in the GIS, and the total length of all of the berms (excluding the defences around Dakhla and the earlier defences around Smara and Bou-Craa) came to 3822 kilometres. Of course, the barrier system is not complete. Natural features are incorporated, as for example, in the mountainous region north of Guelta Zemmour. Here the barrier consists of forts and artillery bases only, positioned amidst the hills and troughs of a naturally interdigitated terrain. The lengths of such un-walled sections, undoubtedly boosts the overall length of all of the territorial barriers to over 4000 kilometres.

Once the linear traces of the berms were digitised, the forts and other fortifications, and installations, had to be plotted, also in Google Earth. This was done with Google Earth's 'place mark' tool. The position of each installation was marked, and described by a code representing its type, based on a visual inspection. The 'types' of forts and installations included; mural forts; forts in the rear; mural forts with integral firebases; mural forts with firebases subsequently added; small mural forts (described as fortlets); small occupied positions (specific to Berm No. 4),[372] non-mural fire support bases; non-mural, and mural compounds; and garrisons or camps set behind the berms and usually without a defensive enclosure. Not all of the features associated with the barriers were plotted, such as individual artillery gun pits and vehicular, or 'tank' slots, and small bastion like positions (under 50m in size) found along some parts of

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[372] These could be described as very small fortlets, and they are very numerous on that part of Berm No. 4 facing the Algerian border. Because of their number, they have only been recorded in the sampling square selected for detailed recording close to Algeria, to indicate how they contribute to the Moroccan defensive scheme.

the berms, usually without internal features.[373] The table in Fig. 4.5 provides basic descriptive information on the types of installations recorded (with their descriptive codes). This simple plotting by type was then imported into QGIS, and converted to shape files. Longitude and latitude coordinates were also generated. This 'virtual' survey has recorded at least 1,820 military installations on, or associated with the Moroccan barriers. Nevertheless, the plots created of the berms and their associated installations should not be presumed to be exhaustive. The low resolution Google Earth imagery can appear unfocussed in places, making it hard to discern the details of features. There is also the possibility of human error, whereby some features or installations have simply been missed out during the plotting process.

'Snapshooting' the Berms

With Western Sahara traversed by thousands of kilometres of barriers, and with close to 2000 associated military installations – many of which could share the same characteristics – a practical way of illustrating and describing the barriers, through samples, or 'snapshots', had to be devised. The first notion was to compile an expanded inventory of all of the features associated with the berms, based on the original digitisations from Google Earth, but only in those areas covered by high-resolution imagery. This proved too time consuming, and it soon became obvious that it would create data far above the needs of this dissertation as it is structured. As a result, a sampling strategy was devised incorporating grided sample areas – rectangles – measuring twenty-five kilometres east to west, by twenty-eight kilometres north to south.[374] Only those rectangles, located over Google Earth's high resolution imagery, and including the berms were then selected, and out of them, a 50 percent random sample was made, along with some purposively selected deletions and additions. This resulted in a total of up to 22 rectangles from which descriptive examples, as 'snapshots', of the berms and associated installations could be selected (see Fig.

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[373] Essentially, this project has limited itself to the recording of easily identifiable and distinct defensive, offensive, and support entities. To additionally record the many, and various, small features distributed behind and along the berms, would demand an extensive research dissertation of its own. In the light of this, it has to be kept in mind that an analysis of the Moroccan berms is only one consituent part of this research.
[374] These are average dimensions, since the dimensions of the rectangles, both longitudinally and latitudinally were set using decimal degrees, and as such, the dimensions of the rectangles vary from north to south on the globe.

4.6).[375] Such examples of Google Earth, high-resolution imagery of berm lengths and installations, taken from these sample areas are incorporated throughout Parts 1 and 2 of this chapter. These 'snapshots' are integral to the text, and they clearly illustrate the materiality of the berms in a surprisingly direct way. GIS examples, or 'snapshots', generated in QGIS, have also been based on, and around, the randomly selected sampling rectangles, and they too illustrate this chapter.

Additional Cartography

Besides Google Earth, and as already noted above, Spanish military mapping from 1960 has been employed in this research. Although the scale is only 1:2,000,000 it has been very useful in providing names of places and natural features, and in clearly illustrating the topography of the territory. Some Soviet Russian mapping has been consulted too, and used as background mapping. Russian maps were produced during the Cold War for many of the landmasses on the planet, and the coverage for Western Sahara is of a reasonable quality.[376] French mapping of 1945, republished by the United States military,[377] has also been occasionally consulted, but only for comparative purposes with the Spanish mapping.

Chronology and Outline Descriptions of the Territorial Berms

Disposition of Berm No. 1

Writing in 1979, John Mercer noted:

> Moroccan energies, after the initial phase [of the conflict], were concentrated on
> defence fortification, the main posts being ringed with concentric trenching and

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[375] These rectangular 'snapshot' areas were created, numbered and randomly selected in QGIS. Their numeric designations are: 28*, 62*, 92*, 100, 124, 126, 157, 187, 215, 221*, 248, 359, 482, 491, 520, 549, 553, 583, 850, 853, 854, 952**. Rectangles numbers with '*' represent those that were additionally, and purposively, selected to cover regions not included in the initial random sample of rectangles, and 952** is a rectangle that was manually positioned over berm four, in Morocco, near the border with Algeria. There are instances where the randomly selected rectangles lay only partially over Google Earth high resolution imagery. Where this has occurred, as in the case of Berm No. 2 (and for part of Berm No. 1) its sampled 'snapshot' has been taken outside of the nearby rectangles (see Fig. 4.11).

[376] The full range of available Russian Soviet mapping for Western Sahara, produced between 1980 and 1987 (as noted on individual map sheets), is available at: http://mapstor.com/map-sets/country-maps/western-sahara.html. It should be noted, however, that the berms do not appear on the maps. This suggests, and it would not be surprising, that the data for the maps was compiled prior to the commencement of the building of the berms.

[377] U.S. Army Map Service, Corps of Engineers, 1958.

barbed wire. From time to time a large contingent crosses the open desert, either on a supply run or to help another post under siege by the Sahrawis. For these Moroccan troops, now comparatively aware of the true nature of the conflict, the war, like the desert, must appear, endless, barren, difficult to survive: they have every reason to think back with bitterness of their fervour during the 'victory [Green] march'.[378]

With the precedent of large defended areas already established, at Smara and Bou-Craa, the Moroccans embarked in August 1980 on the construction of its first defensive territorial barrier – Berm No. 1. The aim of this wall was to defend Smara, El-Ayoun and Bou-Craa, and to exclude Polisario fighters from the northwest corner of Western Sahara – the 'useful triangle'. The barrier was built in two phases. The first phase, Part 1 (from Jebel Zini to Bou-Craa), started at the southern end of the Jebel Zini massif, at the western end of the Ouarkziz Mountains, south-southwest of Tan-Tan, and around 140 kilometres east-southeast of Tarfaya (Cape Juby). The barrier extended southwards into Western Sahara territory and its first stretch reached Smara by March 2nd 1981. It was extended to Bou-Craa by May 11th of the same year, where it linked up with the Phosphate works' earlier perimeter defences that led to the coast, southwest of El-Ayoun. The second phase of the barrier, Part 2 (from Bou-Craa to the Atlantic), was completed by May 1982 with the berm reaching the sea south of Bojdour.[379]

Zunes and Mundy have presented the first berm as initially extending from Zag, close to Morocco's border with Algeria, where a salient of defences was created in May 1980, just two months prior to the commencement of the barrier southwards from Jebel Zini.[380] It includes the southern escarpment of the Ouarkziz Mountains, upon which (according to Google Earth imagery), there are no defences of any kind. Tusa, and Laschi, also consider the very first berm as extending across the Ouarkziz Mountains from Zag, but it is the intention here to treat Berm No. 1 as only starting from Jebel Zini, in line with the majority of the published accounts already summarised, of which Zunes and Mundy, Laschi, and Tusa are the only exceptions.[381]

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[378] Mercer 1979: 12.
[379] Seddon, 1987: 105 and Hodges 1983: 289-290
[380] Hodges, 1983: 288-289.
[381] Zunes and Mundy 2010: 7, Laschi 2009: 139, and Tusa 1988: 40-41.

Berm No.1 – the first of the territorial berms – is shown in Fig. 4.7. Part 1 of the barrier (as already noted) starts on low ground beneath the southwest end of the Jebel Zini massif, at an elevation of around 230 metres. Above it is the spur-like Ras el-Khanfra, where there are forts, enclosures and fire support bases.

Running southwards to Smara (around 110 kilometres away), the barrier rises to the 300 metre[382] contour to which it more or less clings, overlooking the Gaat Chbabien depression, at least 100 metres lower, and to the east. The 300 metre contour delineates a relatively level area that slopes downwards to the west, and at its southern end, the berm drops towards the Saguia al-Hamra, at an elevation of just over 150 metres, around 15 kilometres north of Smara. The Saguia al-Hamra marks the northern limits of the earlier Moroccan defences surrounding the city, made up of two, though incomplete, defensive traces. When the berm reaches the Saguia, it partly turns to the west for a very short distance, to align with an extension to the earlier Smara defences. A gap is preserved between the two, presumably to allow the Saguia to drain. But at this point, along the northern bank of the Saguia, the barrier's main course continues east-southeast across it (though leaving another gap for drainage) creating a convex, easterly salient around Smara and its earlier defences. At around 19 kilometres south-southeast of Smara, the barrier turns west-southwest, and an extension of it heads backwards, in a northeasterly direction, to join up with the earlier defences.

The berm, southwest of Smara, arcs southwards cutting across an undulating terrain. It heads towards Bou-Craa, and joins up with the earlier perimeter embankments delineating the phosphate works. The Bou-Craa perimeter was not well defended, and the trace is mainly a single earthen bank with no substantial strong points. Google Earth imagery makes it appear much more like a simple earthen boundary bank, rather than a defendable bulwark. Summary statistics for Part 1 of Berm No.1 are shown in Fig. 4.8.

Part 2 of the barrier starts at approximately 35 kilometres east-northeast of Bou-Craa, as an extension out of the south flank of the Part 1 berm. It descends southwesterly

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[382] References to heights above sea level should not be considered as absolute values. They are taken either from Google Earth or Soviet mapping.

again, cutting across wadis and keeping to the high ground where it can. Where it resumes a west-northwesterly route, it keeps to the watershed between two wadis before it drops into the north-south Wadi El Jat, then climbs onto the southern, portion of the Izik plateau. It actually reaches an embayment in the plateau, and its steep sides are incorporated into the barrier as a natural feature, though supplemented by cliff-top forts. There are also, further trench and berm constructions at the northern end of the embayment.

The berm heads west-southwest across a north-south strip of sand dune country, and gradually follows the downward sloping terrain, towards the sea. The berm incorporates the Sabkhat Aridal as a natural barrier, and then resumes its course to the coast, around 28 kilometres south of Bojdour. At 15 kilometres from the coast, it bifurcates. A short westerly extension has been added as a secondary barrier, terminating at the coast 10 kilometres north of the original berm. Summary statistics for Part 2 of Berm No.1 are shown in Fig. 4.9.

Fig. 4.10 tabulates the basic elements for the whole of Berm No. 1. Made up of single, double and multiple configurations of embankments (as illustrated in Fig. 4.7), its overall length from Jebel Zinni to the Atlantic is 634 kilometres. It is striking that 74% of the barrier is made up of single earthen embankments, while natural barriers account for 16%, leaving 10% made up of double and multiple configurations of embankments. As Fig. 4.7 indicates, there are double and multiple embankments along the 'front' of the Smara salient (27 kilometres in length), while there is another double embanked section of 13 kilometres between Bou-Craa and Smara, and another double and multiple embanked section overlooking the Gaat Chbabien, at 23 kilometres in length. As a broad indicator of density of military installations along and behind the entirety of Berm No.1, and excluding the installations constructed at an earlier date in and around Smara, there is one installation for every two kilometre of built (and natural) barrier.[383]

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[383] This is based on the total distance of Berm No.1 at 634 kms (including natural barriers) from Jebel Zinni to the Atlantic coast, divided by the total number of installations, numbering 325, resulting in a density of one installation for every 1.95 km of barrier.

Forts (ft), fortlets (flt), forts with an integrated firebase (ftfb), and forts with an added firebase (ftfba) which are all situated on the barrier itself, or adjacent, account for 66% of all of the installations associated with Berm No. 1. They number 220 in total and their density along the berm amounts to one fortified mural installation for every 2.9 kilometres.[384] Fire support bases (fsb) in the rear, number 40 in all, and their density works out at one firebase for every 15.9 kilometres of barrier.[385]

GIS snapshots illustrating how these installations are disposed along Berm No. 1 are shown in Figs. 4.11 and 4.12. The first, Fig. 4.11 (showing rectangles 124 and 157 from Fig. 4.6), illustrates the Smara salient and includes a part of Berm No. 2. The overwhelming majority of mural installations are forts (ft) with numerous fire support bases (fsb) in the rear. Also, there are forts in the rear (rft), relatively close to the barrier. That portion of Berm No. 1 in rectangle 215, shown in Fig. 4.12, is close to the Atlantic, and crosses flat open desert. This is in stark contrast to the hilly terrain of the Smara salient. The installations along the berm in Fig. 4.12 are mainly fortlets (flt) with some mural forts (ft), and mural forts with firebases (ftfb and/or ftfba). It is the difference in terrain, the predominance of fortlets, and the lack of firebases (fsb) in the rear that differentiate this section of Berm No. 1 from that portion defending the Smara salient. Though it should not be a surprise that Smara was, and still is, heavily defended.

Disposition of Berm No. 2

In December 1983,[386] construction began on a second barrier, Berm No.2 (see Fig. 4.13). It was completed in January 1984.[387] The barrier began close to a mural fort with a firebase attached, at around 23 kilometres southeast of Bou-Craa. With the fort being on slightly high ground, at around 250 metres, the new wall drops slightly, then steadily, towards the Mauritanian frontier to the east-southeast. Just before crossing the border, the barrier splits in two, creating a polygon, at around 400 metres in elevation and situated on a northern extension of the Guelta Zemmour massif. The polygon joins up with a mural fort just inside Mauritanian territory, where there is also

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[384] This is based on the total distance of Berm No.1, at 634 kms, divided by 220 fortified mural installations, resulting in a density of one installation for every 2.9 kms of barrier.
[385] This is based on the total distance of Berm No.1, at 634 kms, divided by 40 firebases, resulting in a density of one installation for every 15.9 kms of barrier.
[386] Seddon 1987: 107.
[387] UPES 2008.

a break through the berm. To the east of the fort, the berm splits again, incorporating north-south ridges of the Guelta Zemmour massif, at an elevation of about 460 metres.

Still in Mauritanian territory, the barrier proceeds due east, over north to south alternating hills and wadis, dropping from a height of approximately 430 metres to about 350 metres above sea level into a wadi, where it then extends northwards at around 390 metres elevation. The barrier crosses the Mauritanian frontier back into Western Sahara where a mural fort is situated, and then proceeds northwards, following the contours on the high ground along the west bank of the Wadi Uein Terghit (Terguet), running at an average elevation of just over 350 metres. At 37 kilometres south-southeast of Smara, north of Amgala, the berm drops down (almost 100 metres) to follow the watershed of a ridge running parallel with the Wadi Uein Terghit. The barrier, running to the northeast, creates a salient, around 40 kilometres due east of Smara, and follows the wadi to the northwest where the barrier then crosses the Wadi Lejcheibi, a tributary to the Saguia Al-Hamra. The Wadi Lejcheibi lies at an elevation of approximately 200 metres, and from there, the berm extends north-northwest, rising up and then dropping to under 200 metres elevation at the Saguia Al-Hamra. Crossing the Saguia, the north-northwest course of the barrier continues with the berm descending along the south most reaches of the Gaat Chbabien, then rises up to the first berm, joining it at a mural fort east of the area of Khreibichat.

The table in Fig. 4.14 summarises the basic statistics for Berm No. 2. Of its 357 kilometre length, 66% of it consists of a single embanked barrier, with the remaining 34% made up of double and multiple embankments along with multiple configurations of barriers. With, on average, 202 military installations associated with the barrier, there is one installation for every 1.8 kilometres of berm. Where the barrier extends through Mauritania (see Fig. 4.13), it is made up of mixed sections of double (or multiple) embankments, and single embankments. Continuing northeastwards, there are also alternating sections of double, multiple, and single embankments overlooking the Wadi Uein Terghit, and where the wall runs parallel to the Smara salient, it is again made up of double, or multiple arrangements of embankments (see Fig 4.13). This overall stretch of wall (from just south of the Mauritanian frontier to where Berm No.2 is joined by Berm No.3 at the Wadi

Lejcheibi) is 137 kilometres long with only 28 kilometres made up of single embankments. Mural forts (ft) and fortlets (flt) account for 65 % of all of the installations associated with Berm No.2. They number 132 in total and their density along the barrier amounts to one fortified mural installation for every 2.7 kilometres of built barrier.[388] There are 24 fire support bases behind the barrier, making up 12% of all of the installations associated with it, and their relatively regular distribution averages out at one firebase for every 14.9 kilometres.[389] There are no firebase come fort variations on the berm itself.

A GIS snapshot of Berm No. 2 is shown in Fig. 4.11. It illustrates a sample distribution of the installations on the barrier along the Smara salient (just to the east of rectangles 124 and 157 from Fig. 4.6). It almost mirrors the disposition of installations along Berm No. 1 which it superseded. The two berms, along with the earlier concentric defences around Smara, with all of their combined fire support bases, illustrate the effort that was made to defend Smara, a city between 30 and 40 kilometres from the Polisario controlled, liberated zone.

Disposition of Berm No. 3

Like the second berm, Berm No.3 was constructed within two months, from April to May 1984.[390] The aim of this barrier (see Fig. 4.15) was to defend the southern border of Morocco with Western Sahara, and to diagonally cut across the Western Sahara panhandle taking in the former Spanish posts of Echdeiria and Hausa. The barrier starts at the southern, upper lip of the depression in which the Moroccan town of Zag is situated, 32 kilometres from the border with Western Sahara, to the south. The rim of the Zag depression had earlier fortifications, including intermittant berms and forts, and fire support bases (and as already mentioned, Zunes and Mundy, Laschi and Tusa, have considered these features part of the first Moroccan berm[391]).

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[388] This is based on the total distance of Berm No.2, at 357 kms, divided by the total of 130 forts and 2 fortlets (that is 132 fortified mural installations), resulting in a density of one installation for every 2.7 kms of barrier.
[389] This is based on the total distance of Berm No.2, at 357 kms, divided by 24 firebases, resulting in a density of one installation for every 14.9 kms of barrier.
[390] UPES 2008.
[391] Zunes and Mundy 2010: 7, Laschi 2009: 139, and Tusa 1988.

The berm heads southwest at an average elevation of just over 500 metres, starting out as a double embanked barrier (for 26 kilometres) until it gets within around eight kilometres of the Western Sahara border. Thereafter it consists of a single embankment running for 142 kilometres across open *hamada* desert, until it reaches the greater valley system of the Saguia al-Hamra. Here, the berm terminates on an escarpment overlooking the Wadi Mesuar, a parallel and tributary wadi running to the north of the Saguia. The escarpment is approximately 200 metres higher than the wadi system, and its precipitousness has allowed the barrier to consist of only a string of forts, running in a west-northwesterly direction, for fifty-two kilometres (southwest of Echdeiria). Less than a kilometre south of the most westerly fortification along the escarpment (and at an elevation around 130 metres lower), the berm resumes, with double and multiple embankments on a south-southwesterly course, crossing a broad expanse of the Wadi Mesuar before crossing the Saguia al-Hamra, and then heading almost due south to an escarpment overlooking the Wadi Dirt and the Wadi Leicheibi. The escarpment is the better part of 50 metres above the Wadi Leicheibi, and the barrier turns westward meeting up with Berm No. 2 at a mural fort where the Wadi Leicheibi joins another wadi (the Wadi Uein Terghit), which drains into the Saguia al-Hamra. The length of the barrier from where it resumed, until joining up with Berm No. 2, is 118 kilometres, with only three kilometres consisting of a single embanked barrier.

The berm along the top of the escarpment over looking the Wadis Dirt and Leicheibi is very complex. It hugs the heights, following every twist, inlet and turn. It mainly has double and multiple configurations of embankments, and in many instances, they are also designed to cut off the lower reaches of the myriad natural embayments that mark out the high ground (for an example of such barriers see Fig. 4.52). Fifteen percent of the barrier is made up by the natural obstacle of the escarpment over the Wadi Mesuar, while 43% of the barrier consists of a single embankment. Double and multiple embanked barriers, and those with multiple configurations of banks make up 42% of the barrier. Of the 181 military installations associated with the barrier, 113 are fortified mural installations, mainly forts (ft), but including one fortlet (flt) and one fort with an integrated firebase (ftfb). These make up 62% of all the installations associated with the barrier (see Fig. 4.16), and their distribution averages out at one fortified installation for every three kilometres of barrier (including the Wadi Mesuar

escarpment).[392] There are forty-one fire support bases behind the barrier. These make up 23% of the associated installations, and their distribution averages out at one firebase for every 8.2 kilometres.[393] The distribution of all types of installations associated with the entirety of the barrier averages out at one installation for every 1.9 kilometre of built and natural barriers.

Fig. 4.17, showing rectangles 92 and 126 from Fig. 4.6, is a GIS snapshot illustrating how installations along Berm No. 3 are disposed. It also illustrates the circuitous nature of the barrier (along with Berm No. 4 extending to the east) on the high ground above the wadi (the Wadi Dirt) to the south. That portion of Berm No. 3 that extends to the north is clearly straighter, and it covers ground that is not very undulating.

Disposition of Berm No. 4

The fourth berm extended Morocco's control over most of the Western Sahara panhandle, reaching very close to the border with Algeria (see Fig. 4.18). Its construction commenced in December 1984 and it was completed in January 1985.[394] The barrier begins deep in Moroccan territory, at a terminal fort on a north facing escarpment, overlooking the greater Wadi Draa basin, 35 kilometres due south of the Wadi Draa itself, and 77 kilometres north of the border with Western Sahara, and 16 kilometres due west of the Moroccan-Algerian border. The barrier runs southwards across open *hamada* desert, passing the older Spanish post at Mahbes, to the west. It enters a region of dissected terrain with wadis running to the west and to the south, and at a mural fort overlooking the Wadi Ben Amera to the south, the berm turns westward. The barrier is made up of either double or multiple embankments, and multiple configurations of embankments along the entirety of its route, save for a trace of a single embankment (41 kilometres in length) while crossing the Graret Quercha, and a similar, but very much shorter length, approximately twenty-two kilometres to the northeast, where there is also a very short length of natural escarpment incorporated as part of the barrier.

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[392] This is based on the total distance of Berm No.3, at 338 kms, divided by the total of 111 forts, 1 fortlet, and 1 fort with an integral firebase (that is 113 fortified mural installations), resulting in a density of one installation for every 3 kms of barrier.
[393] This is based on the total distance of Berm No.3, at 338 kms, divided by 41 firebases, resulting in a density of one installation for every 8.2 kms of barrier.
[394] UPES 2008.

Behind and to the west of this substantial barrier, by around 10 kilometres, there is a subsidiary berm consisting of a single earthen bank, 138 kilometres long. It more or less mirrors the trace of the main barrier along the Algerian frontier, but instead of extending to the Wadi Draa in the north, at approximately 12 kilometres north of the Western Sahara-Moroccan border, it turns to the west and joins up with Berm No. 3 close to a track between Mahbes and Zag. It also heads westerly at its southern end, tying up with some rear installations associated with the barrier.

The east to west, southern trace of Berm No.4, starts by following a latitudinal watershed. It dog-legs to the southwest and then arcs southward following the watershed of eastward flowing wadis (including tributaries to the Wadi Ben Amera). Crossing the Graret Quercha, the berm heads west-northwest on an escarpment overlooking the headwaters of the Wadi Ternit, but then follows the Wadi Dirt, which joins up with the Wadi Leicheibi. On the high ground above the wadis, the barrier clings to the high ground, and mirrors every bend and embayment, and it is here that the barrier is its most complex, with multiple embankments and additional configurations of barriers. It joins up with Berm No. 3 along the same escarpment, and the two barriers create a formidable obstacle facing southwards, overlooking Polisario controlled territory. With the construction of this berm, linked to the third berm, which in turn joined Berm No. 2, the Moroccans secured their southern border, excluding Polisario and the Saharawis in the Tindouf refugee camps from the Saguia al-Hamra and much of the Western Sahara panhandle.

The table in Fig. 4.19 provides basic statistics for Berm No.4. There is an average density of one military installation for every 1.7 kilometres of built barrier (discounting the small occupation positions [sop] only recorded in sampling rectangle 952 – see Fig. 4.6, and the reference in Fig. 4.5). In contrast, the main frontal barrier, at 486 kilometres (78% of the barrier),[395] has a density of mural installations, comprising, forts (ft), fortlets (flt) and forts with firebases attached (ftfba) of one installation for every 2.2 kilometres.[396] These total 186 in number and make up 49%

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[395] If the rear, subsidiary barrier, at 138 kms in length, is deducted from the total length of all of Berm No.4 (including natural barriers), then the distance of the barrier's frontal trace is 486 kms.
[396] This is based on the total distance of the frontal trace of Berm No.4, at 486 kms, divided by the total of 153 forts, 31 fortlets, and 2 forts with an added firebase (that is 186 fortified mural installations), resulting in a density of one installation for every 2.2 kms of barrier.

of all of the installations associated with the barrier. The fifty-three firebases (fsb) set behind the barrier, are spread out at average intervals of 9.2 kilometres.[397] They make up 14% of all of the installations associated with the barrier.

Two GIS snapshots illustrate the disposition of installations along Berm No. 4 (Figs. 4.20 and 4.21). In Fig. 4.20 (showing rectangle 100 from Fig. 4.6) there is a relatively even distribution of mural forts along the barrier looking southwards, into Polisario controlled territory, while there are only a few fire support bases in the rear. In contrast, Fig. 4.21 (showing rectangle 952 from Fig. 4.6) has a greater density of mural forts along with forts in the rear, and a greater number of firebases. In particular, there are small occupied positions (sop), since the Moroccans built a substantial number of these small, half circle, fortified positions along this westernmost stretch of berm directly facing Algeria. These are described further in Part 2 of this chapter, but this snapshot shows that they are distributed very densely, with one positioned at just over every half kilometre.[398]

Disposition of Berm No. 5

With the Moroccan frontier secured, and with much of the Western Sahara panhandle, literally corralled, and with the territory cut in two by Berm No. 2, the Moroccans embarked on building Berm No.5 in May 1985. The barrier was completed in September, later that year (see Fig 4.22).[399]

The barrier begins within Mauritanian territory, at 21 kilometres southwest of Amgala where it links a north-south ridge in the northern part of the Goleta Zemmour massif with the south most limit of Berm No. 2 (where there is also a mural fort). The rocky and very hilly terrain north of Guelta Zemmour is very corrugated, with a number of interdigitated hills running south-southwest to north-northeast. The dips and troughs of the terrain, spread over a latitudinal distance of approximately twelve kilometres, rises eastwards from an elevation of under 320 metres in the west, to a peak of almost 500 metres, and then, dropping to the east to under 400 metres. The terrain rises again,

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[397] This is based on the total distance of the frontal trace of Berm No.4, at 486 kms, divided by 53 firebases, resulting in a density of one installation for every 9.2 kms of barrier.
[398] Fig. 4.21 shows sampling rectangle 952, within which the length of Berm No. 4 is 30.2 kms long. There are 53 sop installations in this rectangle which results in a distribution of one sop for every 0.57 km of barrier.
[399] UPES 2008.

to 420 metres, dropping to under 380 metres, and then rising to 450 metres. In its eastward direction, the land drops again, this time to just over 380 metres, and rises to 410 metres. The very eastern limit of the high ground finally drops to under 360 metres before gently rising to the east, in Mauritanian territory. This corrugated terrain is a major element of Berm No.5 for a distance of around sixty-three kilometres north of Guelta Zemmour, where only relatively short lengths of earth embankments have been constructed between hills and across wadis, along with strategically placed forts and fire support bases. These short lengths of barrier block wadis and inlets within the massif, and are usually double banked.

At around thirty-eight kilometres northeast of Guelta Zemmour, and five kilometres due west of the Mauritanian frontier, the berm resumes as a continuous construction, made up of single and multiple embankment arrangements. At this point it starts on a 490 metre high peak, and immediately drops by sixty metres to the south. It then heads in a southwesterly direction, outlining the eastern limit of the main part of the Guelta Zemmour massif. For much of the course of the barrier, south of Guelta Zemmour, there is a matrix of subsidiary embankments, creating multiple enclosures behind the primary, frontal trace (which includes multiple configurations of double and single embankments). These link up hills, and have forts and other types of installations associated with them. The mesh of barriers passes to the northwest of the Sebkhat Aqsumal, by only a few kilometres, and links up with the hills (and incorporating the escarpments) of the Gor Lefcih (or Gour Lafkah). When reaching the southern limit of the Gor Lefcih, with Oum Dreiga to the northwest by twenty-seven kilometres, the barrier heads west-southwest. Here, it is no longer a matrix of barriers, creating enclosures between rocky outcrops in the desert, but it is a frontal trace made up of sections of single and multiple embankments, with a meandering, subsidiary rampart in the rear, situated at a variable distance of anywhere between one and 13 kilometres. There is also evidence for an apparently earlier alignment of the frontal trace along part of the barrier.

At approximately 135 kilometres east of Dakhla, and at around 19 kilometres northwest of the Sebkhat Tennuaca, the barrier becomes a consistent single embankment that heads westward to the sea, via a sabkha depression, just south of Imlilli. Here, there is a two kilometre break in the berm, but the sabkha has been

incorporated as part of the barrier. The barrier ends with a mural fort around one kilometre from the sea and 50 kilometres south-southwest of Dakhla.

The table in Fig. 4.23 provides basic statistics for Berm No.5. Of the total 1002 kilometres of built and natural barriers making up the berm, there are 321 associated military installations, averaging one installation for every 3.1 kilometres of barrier. Along the frontal trace (at 648 kilometres long and making up 65% of the total barrier[400]) there are 203 forts (ft), and 19 fortlets (flt), located at an average interval of 2.9 kilometres.[401] Firebases (fsb) behind the frontal trace average out at one for every 14 kilometres.[402] The forts and fortlets make up 69% of all of the installations associated with the barrier, while the firebases make up 14%.

GIS snapshots illustrating how these installations are disposed along Berm No. 5 are shown in Figs. 4.24 and 4.25. The main difference between these is terrain. Fig. 4.24 shows a portion of the barrier through the southern part of the Guelta Zemmour region (in rectangle 359 of Fig.4.6) with the berm situated on high ground with natural drainage running to the southeast. In contrast, the berm in Fig. 4.25 (which is close to the coast in rectangle 583 of Fig. 4.6) is laid out in straight segments, and the barrier cuts across ground that slightly rises and dips. Strikingly, there are a considerable number of forts in the rear in this latter sample of the berm.

Disposition of Berm No. 6

In February 1987, the Moroccans embarked on the final part of their partition of Western Sahara, attempting to completely exclude Saharawi nationalists and Polisario fighters from the bulk of the territory. The final, and sixth barrier (see Fig. 4.26), was completed in April 1987.[403] It started at a mural fort on Berm No.5, at around 170 kilometres due west of the Mauritanian border and around 230 kilometres east of Dakhla, and about 160 kilometres northwest of F'derik (Idjil). It heads south-southwest, bypassing Ausserd, twenty kilometres to the west. Further south, it passes

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[400] This is based on subtracting 354 kms of rear, subsidiary berms, from the total length of 1002 kms for all of the barriers making up Berm No.5.
[401] This is based on the total distance of Berm No. 5, at 1002 kms, divided by a total of 222 forts and fortlets, resulting in a density of one fortified mural installation for every 2.9 kms of barrier.
[402] This is based on the total distance of Berm No.4, at 1002 kms, divided by 46 firebases, resulting in a density of one firebase for every 14 kms of barrier.
[403] UPES 2008.

Zug, forty kilometres to the east, and then it clearly arcs to the southwest, and Western Sahara's southern border with Mauritania. It passes the earlier Spanish post of Tichla, twenty-eight kilometres to the north. The barrier runs parallel with the Mauritanian frontier, and even overlaps it in places. It reaches the Atlantic at a terminal fort, situated on a low level cliff overlooking the sea and around fifty-six kilometres north of La Guera.

The barrier is made up of double and multiple configurations of embankments for most of its north-northeast to south-southwest frontal trace. From around ninety-four kilometres north of the Mauritanian frontier, the frontal trace becomes a continuous single embankment. For a great deal of the barrier's length, there are subsidiary, rear and parallel, single embankments (though well under three kilometres of these are double embanked). They are situated anywhere from one to twenty-four kilometres behind the frontal trace, and some of these have integral forts and other associated installations as well. Sizable portions of these secondary berms, incorporate the few rocky, spike like hills (*guelbs*) that are present in the southern quarter of Western Sahara, undoubted beacons in an otherwise flat, *hamada* desert landscape – the Tiris plateau.[404] Far to the west, however, there are occasional sand dunes within fifty kilometres of the Atlantic.

The table in Fig. 4.27 outlines the basic statistics of Berm No.6. The total length of all of the berms making up this barrier is 1168 kilometres, and on average, there is one military installation for every 3.2 kilometres of barrier. There are 611 kilometres of single embanked, rear, subsidiary ramparts (save for three short sections of two banks or more, at a total length of under four kilometres), making up 52% of the whole of Berm No.6. However, unlike the fourth and fifth berms, where subsidiary barriers do not have forts (ft) and fortlets (flt) associated with them, this berm does. At the northern end of the barrier, where a subsidiary berm heads in a northwesterly direction toward Berm No.5, passing the *Sabkhet Tennuaca* to its immediate west, there are six mural forts and fortlets on the secondary barrier. Also, just before Berm No.6 heads westwards to the Atlantic, between Zug and Tichla, the barrier splits. Here, the subsidiary barrier (up to 24 kilometres behind the frontal trace) includes 24 mural

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[404] Mercer 1976: 23.

forts and fortlets. These account for 34 forts and fortlets leaving a total of 272 forts and fortlets on the frontal trace of the barrier (557 kilometres long[405]). The frontal trace, therefore, has a distribution of one mural fortification for every two kilometres along its length.[406] Also, in relation to the frontal trace, where there are 25 firebases (fsb) in the rear, their distribution averages out at one firebase for every 22.3 kilometres.[407] All forts and fortlets make up 84% of all of the installations associated with the entirety of the barrier, while the firebases make up 7%.

A sample distribution of some of the installations along Berm No. 6, along the Mauritanian frontier (in rectangle 853 of Fig. 4.6), is shown in Fig. 4.28. There is almost an even number of mural forts and fortlets, there are extensive sand dune areas, and although there is a garrison and one fort in the rear, there are no fire support bases. This is very indicative of Berm No. 6 within 150 kilometres of the coast.

PART 2
Towards an Anatomy of the Berms

As has been pointed out in Part 1 of this chapter, descriptions of the Moroccan walls, the berms, are incomplete, imprecise and contradictory. Commentators have obviously tried to describe a complex series of structures as if it were a single build wall with a conformity of features. But the 'Great Wall of Morocco' is not that. The very fact that as a series of barriers, the matrix of defences was constructed across differing terrains, at different times, means that its construction adapted to changing topography and strategic and political contingencies. These changes, including the chronology and disposition of the Moroccan barriers, have been indicated by employing Google Earth, and the details made evident are the basis for the following, descriptions and characterisations of the salient components of the berms. The aim is now, therefore, to

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[405] This is based on the total distance of Berm No. 6 at 1168 kms, having 611 kms of rear, subsidiary berms subtracted from it, resulting in 557 kms of frontal barriers.
[406] This is based on the total distance of the frontal trace of Berm No.6, at 557 kms, divided by 272 fortified mural installations, resulting in a density of one fortified mural installation for every 2 kms of barrier.
[407] This is based on the total distance of the frontal trace of Berm No.6, at 557 kms, divided by 25 firebases, resulting in a density of one firebase for every 22.3 kms of barrier.

apprehend the make up of the different barrier components, and how they have created an ensemble of features marking out, and partitioning the very land of Western Sahara. By being in existence for only some thirty odd years, the barriers bring to mind Olivier's proposition of 'an archaeology of the short term'. An archaeology that does not mimic 'more classical periods', but seeks out its own methodologies, unique and sometimes contingent, to the study of the particularities of the very recent past.[408]

The Architecture of the Moroccan Barriers

The nomenclature drawn upon in this research for describing the various features, or installations, that is the 'architecture', associated with Morocco's Great Wall does not directly marry with modern military terminology. The use of descriptors such as 'forts' and 'fortlets', in particular, harks back to Roman period archaeology when describing Roman fortified positions in Britain and elsewhere, and they are not to be found in modern military glossaries.[409] Instead, modern military concepts of defence centre around ideas of protection and 'survivability',[410] and under this umbrella, particular types of defensive structures and contingencies are to be found. For instance, the term 'base', as opposed to 'fort', is used for any 'locality from which operations are projected or supported', or 'an area or locality containing installations which provide logistic or other support',[411] while the contingencies of protecting such bases fall under the rubric of 'base defence', which is defined as

> the local military measures, both normal and emergency, required to nullify or reduce the effectiveness of enemy attacks on, or sabotage of, a base, to ensure that the maximum capacity of its facilities is available to [in the dictionary quoted] US forces.[412]

Not withstanding these examples, the terms 'fort' and fortlet' have still been used in this study, as have references to them being 'mural' or 'non-mural'. In contrast, the modern term 'fire support base', which first came into use during the Vietnam War,[413]

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[408] Olivier 2001.
[409] US Department of Defence 1995.
[410] US Department of Defence 1985.
[411] US Department of Defence 1995: 54.
[412] US Department of Defence 1995: 54.
[413] Ott [1975] 1995.

will continue to be used alongside these anachronisms. Other descriptive terms for elements or installations associated with the berms that have been devised for this research, and have been described in Fig. 4.5, will be elaborated upon below.

It is easy to look at the Moroccan barriers and compare them with other strategic geographic barriers from history, such as Hadrian's Wall and the Great Wall of China. The very nature of the berms in their range and extent beg the comparison. But there are real discontinuities in space and time – geography and era – separating these ancient barriers from the Moroccan berms, and other defensive systems of today, and because of this it could be considered wise not to pursue direct comparisons. However, correspondences can occasionally be found as to make it a misjudgement not to note the apparent commonalities where they occur. Analogies are of value, and relevant analogues will occasionally be incorporated to explore the ways and means of people's engagement with the materiality of their surroundings,[414] in this case, the materialities of the militarised landscape of the Moroccan berms. This also applies, even more pertinently, to American fortifications of the Vietnam War era, and here analogues of real value can be found.

Ramparts to Berms

The term 'ramparts' is not to be found in modern military jargon. As a generic term, it easily describes the earth and stone barriers that make up the Moroccan berms. In traditional usage, a 'berm', is the edge, or ledge, of flat ground between a wall or rampart, and a ditch. Hadrian's Wall has a clearly defined 'berm'. But the more modern use of 'berm' as an earthen bank (defensive or otherwise), comes from the United States where its first instance is recorded in 1854 as a 'birm-bank' associated with the towpath of a canal.[415] By referring to an embankment in this instance, the term has been used by the American military to denote a protective, defensible earthen mound or bank of any size and length, and this definition has spread into general military usage. The berms can also be generically described as 'parapets'. But this too is a word not easily found in modern military usage even though it was used in both

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[414] Wylie 1985: 107.
[415] From the Oxford English Dictionary, online, http://www.oed.com/view/Entry/17945?redirectedFrom=berm& accessed 13 September 2012.

world wars for defensive earthworks instead of the more modern 'berm'.[416] In fact, the term parapet was used up into the 1970s when the use of 'berm', in conjunction with bulldozing, started to gain prominence.[417]

The ramparts or parapets, berms, or earth embankments, that make up the Moroccan barriers, are essentially obstacles designed to hinder the movement of mobile Polisario forces into the Moroccan occupied zone of Western Sahara. They were designed to serve as a 'tripwire', and as an obvious testimony of Morocco's presence.[418] As the various descriptions by commentators and journalists have stated, and observations through Google Earth have confirmed, the berms could be single or multiple embankments, they could have ditches associated with them, and they could include stone revetments or walls, all tying together the various installations situated on the barriers themselves. Their recorded heights can range anywhere from one to four metres. By taking 'snapshot' views of high resolution Google Earth imagery from the 22 sampled rectangles selected (see Fig. 4.6), and by looking further at terrestrial and low level aerial imagery available on the internet (in essence, further snapshots), we can take a good look at the various configurations of the sand and stone embankments making up the berms.

When looking at the basic earthen berms as features in their own right, Google Earth and other imagery can do more than just indicate type. They can even provide indicators of how the barriers were built. For instance, individual embankments appear to be from five to eight metres wide, and even more in some instances. They can show signs of being bulldozed from both sides to create a linear mound, while there are instances of the barriers being bulldozed from only one side – the Moroccan side. The bulldozer tracks can range from around 10 to 20 metres in length.

Fig. 4.29 shows a single embankment along Berm No.1 in the Smara salient (located in rectangle 124 of Fig. 4.6). The bulldozer tracks are clearly visible only on the

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[416] See Imperial War Museum 1998 and U.S. War Department 1944. In this latter publication, 'berms' are referred to in their traditional sense, as a ledge between a parapet and an excavated feature, e.g., a fighting position pit, or foxhole.
[417] Ott [1975] 1995. Throughout this publication, General Ott almost always describes the earthen banks around field artillery as parapets (he even uses 'breastwork'), but he specifically talks about berms (pp. 162-163) only in conjunction with bulldozing.
[418] Tusa 1988.

western side of the earthen bank. They extend for around 15 to 25 metres. The sharp shadow on the west side of the berm indicates that there is a single apex at the top of the bank suggesting that its section is more or less triangular. In contrast, Fig. 4.30, which illustrates another section of Berm No.1 (but this time close to the Atlantic in rectangle 215 of Fig. 4.6), shows the barrier as having an almost flat top, and even with a hint of a depression, giving it more or less a trapezoidal profile. The image may not indicate it, since bulldozer tracks are not visible, but it is possible that the flatter top of the barrier might be due to it being bulldozed from both sides. Fig. 4.31 (from rectangle 124 of Fig. 4.6) provides another view of a section of the bank along Berm No.1. It has definitely been built by being bulldozed from both sides, and its possibly trapezoidal profile indicates a very slight depression along its top. Though the bank is more triangular in the lower right of the image.

Double and multiple embankments can show a variety of configurations. Besides the plain embankments already illustrated, there are single embankments with short stretches of secondary banks. An example from Berm No.5 illustrates this in Fig. 4.32 (from rectangle 583 in Fig. 4.6). It shows secondary embankments along the rear of a single embankment where the barrier crosses wadis.

The barriers show greater complexity when the embankments multiply in number. Fig. 4.33 shows a part of Berm No.1 (located between rectangles 124 and 157 of Fig. 4.6) with a secondary bank to the rear (by an average of 250 metres), which follows some of the contours of a watershed. There is also a track to the west, running parallel to the barrier, and another track (along a wadi) passing west to east through the barrier. Both barriers were constructed by being bulldozed only from one side – from the west. Often, however, double embanked barriers are much more uniform, as illustrated in Fig. 4.34. Here, the two banks making up a part of Berm No.2, along the Smara salient (and located around nine kilometres southeast of rectangle 157 in Fig. 4.6), are under 15 metres apart, and they are truly parallel. The image is low resolution, but a parallel track just behind the barrier is visible, as is another track (in all actuality a braided track, but it too is unclear) heading north-northeast, away from the barrier.

Double embanked barriers can also have short sections of intermediate, subsidiary banks, similar to those shown in Fig. 4.32. Fig. 4.35 shows a portion of Berm No.5 (located just west of rectangle 491 in Fig. 4.6), which includes variable lengths of longitudinal, subsidiary banks, about 10 metres behind the frontal barrier, with a second defensive barrier in the rear. What is distinctive here is that the rear embankment includes a ditch just in front of it. So the sequence is, from the south, an east to west frontal embankment with short lengths of subsidiary banks immediately behind, then an area of flat ground around 15 to 50 metres wide, followed by a ditch with a bank immediately on its northern side. The bank has undoubtedly been raised from the earth excavated to make the ditch since there are no apparent bulldozing tracks associated with it. Fig. 4.35 also shows a break in the rear ditch and bank, like a short causeway, which would give easy access to the frontal rampart.

In many parts of Western Sahara, as shown in Fig. 4.35, there are multiple embanked configurations of barriers, with a ditch in front of the rear embankment. Fig. 4.36 illustrates a section from Berm No.5 (located in rectangle 359 of Fig. 4.6) where there is a frontal barrier with a building or bunker type structure incorporated into it. The area behind the frontal barrier is probably at a slightly lower level than the ground in front of it, to the southeast. This is because it must have been created by bulldozing from its rear (the northwest) since the natural drainage in front of the barrier has not been disturbed. Close examination of the image shows that the frontal barrier has two ridges, so it is likely that it was constructed in at least two bulldozing phases. There is a central bank at about 12 metres behind the frontal barrier, and at another 10 metres or so, there is a ditch with a bank on its northwest side. The overall depth of this stretch of berm is up to 30 metres. There are also two breastworks behind the barrier, in the upper half of the image, which represent vehicular (or 'tank') slots. However, these are probably for jeeps, or other similar vehicles, since they are apparently less than four metres wide. There is also a break in part of the bank and ditch near the bottom of the image, which presumably gives or aids access to the mural building, or bunker, nearby.

Multiple embanked berms can be even more complex then the length shown in Fig. 4.36. Fig. 4.37 shows a section of Berm No.4 located in rectangle 100 of Fig. 4.6. In this image it is clear that the barrier was constructed along an east to west watershed,

since natural drainage gullies can be seen to run off to the south. As in Fig. 4.36, there are three banks with the rear bank including a ditch just in front of it. There are a number of routeways (causeways) through the barriers, and between the central bank and the frontal bank there are at least two right-angled embankments that compartmentalise the front half of the barrier. There are numerous bunkers associated with the front of the barrier, and there is even a dog-leg entry giving access to the string of structures, and positions, in the lower part of the stretch of barrier shown. The barrier has an average, overall, north to south depth of under 40 metres, with an approximate distance of less than 20 metres between the frontal bank and the central one. It is very light, but there is a pale line roughly seven metres in front of the barrier, which might represent barbed wire. It is not always easy to see barbed wire on Google Earth imagery, and it is more often found only in front of mural forts. There are motor tracks behind the barrier running east to west, and there are two sub-circular earthworks, more than 125 metres north of the barrier (to the left), and roughly 11 metres in diameter. These might represent single gun artillery positions.

Fig. 4.38 is a low level aerial photograph of Berm No.2, within Mauritania, at the corner of the Western Sahara panhandle.[419] It illustrates a treble embanked section of the Moroccan barrier similar to that shown in Fig. 4.37. The photo shows a rally car from one of the Paris-Dakar rallies. Rallies went directly from Smara to Zouerate in Mauritania, in 1996, 1998-99, 2001, and 2004 to 2007,[420] so the photo could have been taken in any one of those years. The approximate location of the photograph is shown in Fig. 4.39, situated due south of rectangle 157 in Fig. 4.6, in Mauritanian territory. Fig. 4.38 shows a cleared gap in the Moroccan wall through which the car is being driven. The cut flanks of the recently bulldozed track are clear. Soldiers are standing on either side of the cutting, watching the blue car pass, which is heading south into Mauritania. It is interesting to note that just in front of it, there is a large 'no parking' sign, presumably set up to tell the drivers not to stop while within the militarised barrier. This photograph says much about the make up of the berms. The soldiers give a definite sense of scale to the barrier, and it is obvious that the central and rear banks (the front of the barrier is to the left of the photo) are triangular in section and considerably higher then the men, with the frontal bank appearing lower

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[419] This is an undated, and unattributed photograph of the Moroccan Berm from Origo 2009.
[420] Dakar Rally 2009.

than the stone buildings (or bunkers) just behind it. There are further, apparently unroofed, stone structures that appear to be integral with the frontal bank, and these might represent fighting and/or observation positions. There are clear bulldozer impressions behind the barrier, and visible at the right of the photograph. There are also stones painted white along the sides of the bulldozer impressions, and these might point to the impressions being deliberately created to serve as vehicle parking areas. The ditch in the photograph has relatively steep sides, and its depth can be visually estimated to be at least three quarters of the height of a man – based solely on the men in the picture.

Although the barrier consists of three banks and a ditch, further in the immediate background, there is a fourth embankment to the north, while even further into the background, at the upper left of the photograph, there is an additional frontal barrier heading away to the west, from a shallow wadi shown by relatively dense vegetation. There is a fair sized *zariba*-like enclosure in the very centre of the photograph, presumably made up of thorn bushes, while just in front of it, and slightly to the left, there is another, smaller *zariba*-like structure. There is a possible open topped stone structure just in front of the ditch, and just beyond the track that has been cut through the barrier for rally cars to pass. The stone buildings, or bunkers, are at least as high as a man. Their floors may be partially sunken and their roofs are flat. An illustration of low lying profiles of buildings behind the berm (Berm No. 4, near Algeria), are shown in Fig. 4.40. It gives an impression of what a section of the Moroccan barrier, perhaps similar to that shown in Fig. 4.38, might look like when viewed from the front.

Stone walling has been incorporated into the Moroccan berms where the ground is not very sandy, and stones are obviously readily available. This is the case in portions of the Western Sahara panhandle, and an instance of stone walling is shown in Fig. 4.41. This photograph was taken somewhere within easy reach of Tifariti by an Italian photo journalist and it shows a barrier made up of three linear elements.[421] Salek Labaidi Bachir, now a Saharawi journalist, crossed the Moroccan barrier southeast of

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[421] Photograph of the Moroccan 'wall' (dated: 19 February 2010) taken by Bruno Zanzottera 'not far from the village of Tifariti' for *Parallelozero*, an Italian photo journalism agency based in Milan. Available at: http://stock.parallelozero.com/?p=5 and http://www.parallelozero.com/images/stock/mid/c72e465d7af3494aa14600a8956d98bb5fa097fc.jpg accessed 13 January 2014.

Smara in 2004 (then aged 17), into the Polisario controlled liberated zone. The barrier he crossed was identical to that shown in the photograph. It consisted, from the Moroccan side, of a dry stone wall, around 1.5 metres high by 0.75 metres wide, then at around three metres further on there was an earthen bank, approximately two metres high, followed by a further earthen bank beyond which was a barbed wire fence.[422] Fig. 4.41 does not show the barbed wire, but the frontal barrier (at the very left of the photograph) has two ridges presumably caused either by being bulldozed from both sides, or by being bulldozed from the rear side in two phases of earth moving. Such a double-ridged frontal embankment is visible in Fig. 4.36.

There are also instances of the barriers having a frontal rampart with a dry stone revetment (facing the Polisario controlled zone). In 2008, a Saharawi protest was staged in front of the Moroccan barrier near Mehairis. Here the protesters made their way through a flimsy fence of barbed wire, and actually approached the barrier which was around two metres high and faced with dry stone walling. While Moroccan soldiers watched and did nothing, some protesters climbed on top of the frontal rampart and started to dismantle some of its stone facing. There was also a second barrier behind the frontal embankment with a depression between the two. The protest was staged near a small mural post where there were fighting positions in the rampart as well.[423]

Other features that make-up the Moroccan barriers are minefields and barbed wire. The ramparts never had dense fields of barbed wire in front of them as in the trench systems of the First World War. On Google Earth, barbed wire is only most evident in front of forts and fortlets. The distribution of mines in front of the barrier are, apparently, quite differential too. A sizable proportion of people successfully cross the barrier into the liberated zone unscathed, and the Polisario have, before the 2001

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[422] Bachir, Interview.
[423] Malainin Larkhal showed me a video of this protest when I was in the Tindouf refugee camps on 12 October 2011, and I could clearly make out the details of the Moroccan barrier construction. I was also able to talk with Hamdi Touballi who took part in the protest and was visible in the video. For more on Larkhal and Touballi, see Chapter 5.

ceasefire, actually removed mines and covertly repositioned them behind the Moroccan lines.[424]

On Forts and Fortlets

A 'fort' is used here, generically, to describe an enclosed fortified position, while the term 'fortlet' has been borrowed from archaeological usage. Both terms have little currency in contemporary military jargon and are anachronisms. For instance, 'fort' is not to be found in compendia of military jargon, such as the United States Department of Defense's *Dictionary of Military Terms,*[425] *The Oxford Companion to Military History,*[426] nor *The Penguin Encyclopedia of Weapons and Military Technology.*[427] In practice, the overarching term 'fortification' is always preferred. But the word 'fort' is commonly known and understood, and its diminutive, 'fortlet', speaks for itself; it is literally a small 'fort' – but size is relative. The term 'fort' is also to be found in virtually all publications about the Moroccan barriers and it is commonly used in overviews of all types of fortifications, including modern ones.[428]

In modern military usage, the concept of fortified positions has a variety of descriptors, and in Anglophone literature, these have apparently evolved since the beginning of the twentieth century, spurred on by the contingencies of field operations and their concomitant fortifications. The term 'fort' appears to have been superseded by 'strong point',[429] and 'defensible post' and 'redoubt'.[430] Even though, earlier, well established forts were integrated into the massive trench systems of World War One, the new European defensive systems devised between the world wars did not use the term 'fort'. The grandest of all, the Maginot line referred to its main fortified positions, its fortresses, as *ouvrages*, ('works' in English). There were 'large works', 'small works' and 'artillery works'.[431]

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[424] Zunes and Mundy 2010: 22, and Malainin Larkhal, Interview. Also, during my visit to Western Sahara and the refugee camps in 2011, Saharawis took it as fact that Polisario/SADR fighters had often removed Moroccan mines and placed them behind the barriers, on the Moroccan side.
[425] US Department of Defence 1995.
[426] Holmes 2003.
[427] Macksey 1995.
[428] For example, see Hughes 1974.
[429] Wheeler 1893.
[430] War Office 1911 and Imperial War Museum 1998. Thuillier 1902 uses the terms 'defensible post', 'redoubt' and 'fort' interchangeably.
[431] Kaufmann and Jurga 1999: 19.

The Vietnam War saw a reinvigoration of the traditional fort, 'more akin to Old West frontier army posts within Indian Territory and surrounded by hostile and capable foes'; and in 1966 these Special Forces installations were simply referred to as 'fighting camps'.[432] Numerous other terms were used to describe fighting positions and bases of operations, and surprisingly, there was no consistent terminology in the Vietnam theatre. The commonest were firebases, or fire support bases, forward fire support base, patrol base, fire support patrol base, landing zone, camp and base camp. The term 'fort' was reserved for the older French fortifications situated throughout the country.[433] Israel's Bar-Lev line was contemporary with the Vietnam conflict, and as already pointed out, it was provided with strong points called *Maozim* (the singular, *Maoz*, means castle-keep in Hebrew).[434] More up to date terms for fortifications include advanced operations bases, forward operations bases and main operations bases.[435] In Afghanistan today, the lone outpost appears to have made a comeback in the deployment of fortified 'checkpoints'. In some instances, these are not too dissimilar to the frontier like fighting camps of 1960s Vietnam.[436]

This very brief review of military jargon has shown that 20th and 21st century terms for fortified positions is so mixed, that the generic term, 'fort' (and its diminutive 'fortlet'), is more than adequate for describing fortified positions along the Moroccan berms. It is therefore appropriate to now describe these in more detail, along with the other installations that are integral to the Moroccan barriers.

Mural Forts and Fortlets

The difference between mural forts and fortlets could be considered somewhat arbitrary. In this study, the distinction between the two came about through the very processes of plotting the mural forts on Google Earth, when an apparent pattern seemed to emerge with strings of smaller forts situated between larger ones. Such a grading of fortified positions can be found in many types of fortification systems, and

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[432] Rottman 2005a: 5.
[433] Kelley 2002: xviii-xx
[434] Dunstan 2008: 17-19.
[435] US Department of Defence 1995.
[436] Refer to 'Flashman's Fort' in Harnden 2011.

in Britain for instance, such distinctions are common on both the Antonine and Hadrian's Walls.[437] What have been designated as fortlets along the Moroccan berms rarely cover more than 1,000 square metres, while some heavily defended forts can be more than 300,000 square metres in area. Some installations are concentric in plan with multiple perimeter embankments of sand and stone, and most are compartmentalised with earthen blast barriers. Fighting and/or observation positions are placed along the fort perimeters, and internally there can be mortar pits and other artillery positions. Most, if not all of the internal buildings are partially subterranean and bunker-like. As already shown in Part 1 of this chapter, a relatively small number of mural forts have artillery firebases attached to them, though it is more usual for firebases to be hidden from view, and set back, behind the barriers. Forts and fortlets, along with other installations, can be positioned in flat open desert, or on hilltops and along escarpment edges. The distances between them can vary from around 650 metres to up to four kilometres.

As with the different territorial berms, all of the forts and fortlets have been created through bulldozing and digging. They can be quite variable in outline, but they fall into four broad morphological (though mainly descriptive) categories, and these are described below. Indicative examples of these can be illustrated by looking at 'snapshots', visible through Google Earth, from some of the 22 sampled survey rectangles (see Fig. 4.6), and by looking at additional terrestrial and low level aerial imagery, accessible on the internet.

Polygonal:
These can include forts and fortlets with approximately rectangular, square and trapezoidal outlines. Triangular and multi-sided traces are also included in this grouping. The corners can be sharp or rounded, and the sides can even be 'bent' in some instances. Four examples of polygonal forts are described below. Fig. 4.42 clearly shows a fortlet (flt 10) on Berm No. 1 (located in rectangle 215 of Fig. 4.6). It is obviously rectangular (about 70 metres long by 60 metres wide, with an area of around 3,993 square metres) and it almost straddles the berm centrally. It also has a clear, rectangular central area. Since Berm No. 1 is now redundant, the bunkers and

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[437] Breeze and Dobson 1987.

other types of structures around its perimeter, and internally, are roofless. Roofing materials and other portable materials were presumably removed when the post was evacuated. Internal blast barriers are minimal though there is an external barrier just outside, and protecting the entrance into the fortlet, on its northwest side. There is one external building, and on either side of the fortlet, there are fighting/observation positions in the berm itself – where there are also additional entries into the fortlet. Another mural installation, a fort (ft 163) on Berm No. 1, is shown in Fig. 4.43 (located just outside the northeast corner of rectangle 187 of Fig. 4.6). It is essentially an uncluttered trapezium with two concentric perimeter ramparts (about 335 metres long by 256 metres wide, with an area of around 75,608 square metres). It too straddles Berm No. 1 and it is longitudinally divided in two. There are clear indents in the outer rampart, along the south front of the fort, that represent fighting/observation positions. There are also smaller enclosures, mainly along the inside of the southern perimeter with hints of structures, one of which might be a mortar pit. Evidence for the bulldozing of the embankments, mainly from north to south, is clearly visible. Being along Berm No. 1, the fort is now redundant.

A polygonal fort (around 250 metres long by 125 metres wide, with an area of around 22,826 square metres) with rounded corners and sides is shown in Fig. 4.44. This is a fort (ft 685) on a portion of Berm No. 3 which faces the Polisario controlled liberated zone (located in rectangle 126 of Fig. 4.6). The berm is made up of multiple embankments visible at both ends of the fort. The perimeter of the fort is defined by two concentric embankments, with bunkers and fighting positions facing south and east. The north-northwest, outer trace of the fort is very well-defined. It is probably revetted with stones on the outside, and there are visible bulldozing tracks from the making of the ramparts. The entrance into the fort in its northwest flank is ambiguous. There is a motor track that runs parallel to the longitudinal alignment of the fort, but from it, from the northeast, an off-shoot track approaches the fort through what might be a fenced off, rectangular enclosure. The offshoot track appears to head to the fort's perimeter at a point where there is a small group of structures in the outer trace – the apparent entry into the installation – but the entrance cannot be clearly seen. It is probable, therefore, that the entrance is very narrow indeed, perhaps only capable of allowing one motor vehicle to pass through at a time, if at all. The fort is divided internally by earthen embankments, and there are many semi-subterranean structures

which are all roofed. It is also possible that there is at least one mortar pit visible in the south-southeast part of the fort. There are clear areas in the central part of the installation.

Fig. 4.45 shows a redundant fort (ft 1335) along Berm No. 5 (located in rectangle 583 of Fig. 4.6). Drifting sand has accumulated around it therefore some of its details are obscured, in particular, the location of its entrance which might be on either the east or west ends of the installation, adjacent to the territorial berm. This fort is a long, rounded polygon with two concentric perimeter banks (around 545 metres long by 175 metres wide, with an area of about 69,109 square metres). It has been subdivided into around 34 small compounds by internal earthen blast barriers, within which are the remains of a small number of buildings. The southern trace of the fort has fighting/observation positions, and bunkers that are just visible. A trough caused by the bulldozing of the northern outline of the fort, and the territorial berm, is just visible. It is partially filled with wind blown sand. There are also two short lengths of earthen banks just outside the northern perimeter of the fort.

Circular:
There are no truly circular forts or fortlets, but sub-circular outlines are not uncommon, as are semi-circular traces. This grouping includes oval to kidney shaped fortifications and sub-circular delineations that are similar to fans (or tear drops). There are also shapes that hint at being diamond like, in that they are sub-circular, but with opposing apexes.

The first of four examples of circular forts is a semi circular fortlet (flt 1252) on Berm No. 4, shown in Fig. 4.46 (located in rectangle 952 of Fig. 4.6). This installation (about 125 metres long by 70 metres wide, with an area of around 7,250 square metres) is concentric with two embankments making up its east facing front, but with up to four embankments making up its semi-circular rear. The rear defences appear to be integrated extensions of the secondary, rear ramparts of Berm No. 4. There are some earthen blast barriers compartmentalising the fortlet, and there is an entrance on its western side, accessed via two dog-legs, through the outermost defensive rampart. There are some buildings inside the fort, along with similar structures – bunkers – along the east facing front, where there are also some fighting/observation positions.

There is an apparent cordon of barbed wire in front of the installation, along its east facing flank. This fortlet is on that part of Berm No. 4 which is in Moroccan sovereign territory, north of Western Sahara. It is active and faces Algeria to the east.

Also on Berm No. 4, and actively facing Algeria from sovereign Moroccan territory, (located in rectangle 952 of Fig. 4.6), is the half egg shaped fort (ft 1250) shown in Fig. 4.47 (about 345 metres long by 170 metres wide, with an area of around 45,964 square metres). This installation's northeast facing front is crowded with bunkers and fighting/observation positions. There are some further structures closer to the centre of the installation and some mortar pits. The interior of the fort is subdivided by earthen blast barriers, which clearly show the bulldozer tracks from their creation, or upkeep. There are avenue like routeways within the compound and there is a clear entrance in the western perimeter, which also has an earthen barrier in front of it. The southern and western trace of the fort is concentric with multiple embankments. It is possible that there is also an earth embanked 'U' shaped position for a large vehicle, possibly a tank or a self-propelled artillery piece. There is barbed wire in front of the fort, roughly parallel with its eastern side, which is barely visible in the figure as a pale line.

Fig. 4.48 is a very clear image of a sub-circular fort (ft 1597), still in active use on Berm No. 5 (located in rectangle 359 of Fig. 4.6). This fort (about 245 metres long by 180 metres wide, with an area of around 35,184 square metres) has a perimeter of two concentric ramparts that are very well-defined. They appear, in the main, to be revetted (presumably with stones). There are also clearly defined fighting/observation positions along the east facing front of the fort, along with bunkers just behind. The fort is subdivided by earthen blast barriers, and there are some revetted, trench like passageways, one of which links an area with two obvious mortar pits with the eastern front of the fort, and one other type of gun pit. The entrance to the installation is clearly open, and nearby is a helicopter landing zone, immediately to the northwest. Some tracks from bulldozing, presumably to maintain the outer defences, are visible along the west and northern exterior of the fort, with a hint of clearance activity along part of the eastern front.

The last example of a fort in the circular category is an installation that is kidney shaped and located along the redundant, southern portion of Berm No. 5 (ft 1387). It is shown in Fig. 4.49 (and located in rectangle 553 of Fig. 4.6). The fort (about 330 metres long by 185 metres wide, with an area of around 45,646 square metres) has a perimeter of two concentric banks, and it is subdivided into multiple compartments by earthen blast barriers. Many of the embankments, including those portions of the outer trace behind Berm No. 5, show signs of the bulldozing which created them. There are three entry points into the fort with one including a spur embankment extending out of a rectangular outwork. The figure shows that windblown sand has accumulated within and around the fort and it obscures details. Nevertheless, there are fighting/observation positions, and some bunkers, along the southern, outward facing trace of the fort.

Irregular:

These include forts and fortlets with sinuous outlines, or outlines that follow natural contours. The latter are more commonly found in the hillier parts of Western Sahara. Surprisingly, though, irregular traces of fortifications can also be found in relatively flat desert areas.

An irregular fort (ft 1391) along Berm No. 5, and situated in an area of desert with low relief is shown in Fig. 4.50 (located in rectangle 583 of Fig. 4.6). It is a double embanked, concentric installation with a single embanked extension along its south front and with multiple compartments divided by earthen blast barriers. The fort (about 580 metres long by 320 metres wide, with an area of around 122,201 square metres) is situated along a now redundant part of Berm No. 5, and wind blown sand has accumulated in places. There are roofless buildings and bunkers, many of which are along the fort's southern trace where there are also fighting/observation positions. Traces of bulldozing from the construction (and upkeep) of the fort, and the territorial berm, are visible. There are also indicators of a single gun pit for a piece of artillery. The entrance into the fort is on its northern side, and there is an earth embankment protecting it. There is also a break in the western perimeter of the fort that might represent another entry point.

Fig. 4.51 shows a still occupied fort (ft 681) along Berm No. 3 (located in rectangle 126 of Fig. 4.6). It follows the contours of a serpentine escarpment looking over Polisario controlled territory to the south. The fort (about 520 metres long by 270 metres wide, with an area of around 62,564 square metres) has a concentric perimeter, consisting of two earthen banks, and the interior has been sub-divided by numerous earthen blast barriers. There are also well-defined routeways within the installation. Fig. 4.52 is a lower level aerial view of the same fort, and it shows that most of the embankments are revetted with stones. It also shows that most of the buildings, or bunkers, are partly subterranean. Additionally, Fig. 4.52 shows that the frontal embankment of the fort is at a lower level than the second rampart, therefore, as indicated in Fig. 4.51, there are fewer bunkers and fighting/observation positions along the very front of the installation, with a greater number of bunkers positioned on the slightly higher, second earthen bank. There are four probable mortar pits in the fort, while Fig. 4.52 clearly shows an additional gun pit close to the west most extremity of the fort (where an apparently blocked entry into the installation is visible). A turning circle for vehicles, visible in Fig. 4.51, indicates the main entrance into the fort as being at its northern extremity. However, the figure does not show the entrance clearly, so perhaps it is either obscured or very narrow indeed. To the north of the entrance, within 200 to 600 metres from the fort, there are three helicopter landing zones. These are not shown in Fig. 4.51.

The junction of Berms Nos. 3 and 4 is shown in Fig. 4.53 where there is another indicative example of a still active, irregularly shaped, concentric mural fort (ft 687), located in rectangle 92 of Fig. 4.6. Like ft 681, this installation (about 450 metres long by 305 metres wide, with an area of around 60,089 square metres) follows the natural contours of the escarpment upon which it is positioned. There are fighting/observation positions, and some bunkers along the southern perimeter of the fort, and there are numerous bunkers and other buildings inside the installation. There are multiple compartments outlined by earthen blast barriers, with well-defined routeways extending across the installation. As with forts ft 681 and ft 685, the main entrance appears to be obscured, or perhaps even blocked with a building, though just to its west there is a break in the rampart that is clearly another entry point into the fort. There are two helicopter landing zones to the immediate north, where also, the portion of Berm No. 3 which previously extended from the fort northwards (to the west of the

more square-like landing zone at the far left of the image) has since been bulldozed away (bulldozer tracks and the faint shadow of an alignment indicate the former position of the berm). There is also an installation identifier inscribed on the ground just outside the entrance to the fort. Two small oblong earthworks are also visible just outside the northern limit of the installation.

An irregular mural fort (ft 1269) that started life as a half circular installation, situated on Berm No. 4, is shown in Fig. 4.54 (about 350 metres long by 70 metres wide, with an area of around 24,365 square metres). It is located in sovereign Moroccan territory close to, and facing east towards the border with Algeria (within rectangle 952 of Fig. 4.6). It is still active. The earlier frontal barriers of the installation, along with a sizable portion of its internal earthen blast barriers, have been bulldozed away, leaving a fort that arcs from south to north and opening to the east. Its perimeter is concentric with multiple earthen embankments. There are clear fighting/observation positions in the outer rampart facing Algeria with, apparently, very few bunkers. Instead, the bulk of the fort's buildings and bunkers are situated within and behind the second frontal rampart. The fort is compartmentalised with earthen blast barriers and there is a clear entrance on the northwest side. It includes a protective, and partly masking, earthen bank in front of it. There is a very clear cordon of barbed wire in front of the fort, and additionally, some small circular earthworks to the southwest that might represent temporary gun emplacements.

Complex:

This term does not apply to the shape of a fort *per se*. Instead, it denotes a layout that is literally more complex (to lesser or greater degrees) than the delineations noted above, and usually made more 'complex' by being made up of different types of sections or compounds of varying shapes (multi-part). Four indicative examples are described below.

A straightforward, complex mural fort (ft 1648) situated on a knoll along the southern limit of Berm No. 6 (active and facing Mauritania) is shown in Fig. 4.55. Located in rectangle 850 of Fig. 4.6, it is about 130 metres long by 85 metres wide, with an area

of around 7,554 square metres[438]. Its shape follows the contours of the knoll on which it is situated and its trace is made up of a single defensive embankment, which is revetted on the inside. In all probability, the perimeter rampart was constructed by clearing away loose earth from the top of the knoll and banking it up along the perimeter, then facing it with stones along its inner face. This has resulted in a very well-defined outline in which there are numerous niches representing fighting and observation positions. There are bunkers and buildings inside the fort and two clear gun pits. The fort is accessed by a ramp and there is a bulldozed embankment around the base of the knoll, behind the territorial berm. The berm itself has an accumulation of drifted sand along its southern face, but its northern side has been maintained by bulldozing. Outside the fort, to its southeast, is a further embanked enclosure taking in a smaller knoll, which also has some dugout fighting and observation positions on its top. There is also a helicopter landing zone to the immediate northwest of the installation.

Another complex, mural fort (ft 145) is shown in Fig. 4.56 (about 330 metres long by 185 metres wide, with an area of around 34,001 square metres). It is situated along Berm No. 1 and it lies in an area of desert with very low relief (located close to, but outside the northeast corner of rectangle 187 of Fig. 4.6). Although it has been out of use for some time, with all of its buildings and bunkers roofless, the scouring in the sand caused by the bulldozing in its construction and upkeep is still quite evident. The fort seems to have been initially conceived as a simple double embanked, partly concentric installation, subdivided by earthen blast barriers. The eastward facing outer embankment appears to incorporate a trench-like passageway, within and along its length, along with niches representing fighting/observation positions. Behind these are bunkers, incorporated into the second perimeter rampart. The fort has been expanded with an additional rampart added to the west, which includes a right-angled entry into the installation. A further enclosure was added to the north, with an observation passage (or trench) looking eastwards. Bunkers and buildings were constructed in the extensions to the fort, along with two gun (probably mortar) pits. Additional

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[438] In the far southwest of Berm No. 6, the overwhelming majority of forts are under 10,000 square meters in area, therefore, and on the face of it, it is hard to differentiate between forts and fortlets. Nevertheless, fortlets have still been marked out by their smaller size, designated in the southernmost part of Western Sahara by being under 5000 square metres in area.

embankments with some buildings were also constructed outside the fort to the west, where an identifier for the installation was also inscribed on the ground.

A third example of a complex fort (ft 1274) is visible in Fig. 4.57 (about 470 metres long by 140 metres wide, with an area of around 50,789 square metres). It is on Berm No. 4, in sovereign Moroccan territory, and near the border with Algeria. This still active fort was originally a sub-circular double embanked fortification (around 160 metres in diameter), which was subsequently extended to the north. The initial, near circular trace includes fighting/observation positions in the outer embankment facing east, with bunkers and other buildings within the second rampart. There is a clear entrance on the western side of the fort. Subsequently, the fort had a rectangular extension added to the north. This too is concentric with multiple embankments, and with fighting and observation positions in the outer rampart (formerly part of the frontal bank of Berm No. 4) facing Algeria to the east. There are bunkers and other buildings within the second frontal embankment, and there is a rectilinear area within the extension that is possibly a helicopter landing zone. The entry to the fort was made quite elaborate when the installation was enlarged, with protective earthen banks being added. There are circular embanked artillery gun emplacements, just outside the fort to the west, where there is also an installation identifier inscribed on the ground.

Fig. 4.58 shows a distinctive complex fort (ft 290) situated along the Smara salient on Berm No. 1. This is a large group of enclosures utilising high ground and a spur, and at least four knolls overlooking a wadi to the east (covering a large area of around 205,581 square kilometres). The core enclosure (around 520 metres long by 360 metres wide) at the lower left centre of the figure has concentric, double embanked defences with observation and fighting positions facing the east. Behind these are subterranean bunkers that appear to be roofless, indicating that the fort is redundant. Similar structures are visible within sub-circular enclosures within the fort, and there are additional earthen banks. The serpentine, contoured extension to the east also has fighting and observation posts facing the east, in salient positions and on a knoll, linked by a communication trench. The single embanked outer perimeter (probably the latest phase of the defensive ensemble) links a number of knolls which are all fortified with fighting positions and bunkers, and two of these have communication trenches

heading back to the core fortifications. This installation is indeed, a good example of a multi-part, complex fort.

In summary, from the examples cited here, all mural forts and fortlets have at least one earthen (sand and stone) rampart or embankment (a berm) surrounding them, though most have multiple embankments that follow the whole or at least part of the trace of any given fortification. These encircling banks are not very different from the linear embankments of the territorial berms, and judging from Google Earth imagery and terrestrial photography, their profiles and methods of construction (through bulldozing) are exactly the same. Google Earth imagery shows that in almost all instances, there are observation and fighting positions along the fronts of the forts and fortlets. Some of these are open while others are, or were, covered. The latter would include semi-subterranean bunkers. There are also bunkers within the compounds, which are undoubtedly for accommodation, command, communication, stores and munitions (see fig. 4.52). The examples illustrated show that it is not unusual for forts and fortlets to be internally compartmentalised by earthen blast barriers (see fig. 4.59). These would protect personnel and facilities if the position was shelled while under attack, and they could be used to secure internal portions of a fort if an enemy actually occupied any part of it.

The fighting and observation positions along the perimeter of a fort or fortlet can be covered or uncovered. Where they are uncovered, they can often appear to be simple niches within the internal face of a bank or rampart, presumably revetted with stones or sandbags. Such niches can be seen in Fig. 4.60, where along the trace of the fort, there is a raised walkway with obvious fighting/observation positions constructed in the perimeter bank. A comparative example from Israel's bar Lev line is shown in Fig. 4.61. In this instance, small revetted fighting positions are clearly discernable along the perimeter of an Israeli *Moazim*. Such open positions, as would also be the case with covered positions (bunkers), could undoubtedly accommodate small arms and machine guns, and as in fig. 4.62, even recoilless guns. Mortar positions could also be included, but these might be placed deeper within a fort along with limited artillery, presumably howitzers. It is more usual for 'big' guns to be placed in fire support bases in the rear. Though in contrast to this usual practice, Berm No.1 (and in some occasional instances Berms No. 3 and 4) has fire support batteries attached, and in

some cases constructed as integral to some of its mural forts. But before continuing with a description of fire support bases (firebases), an overview of other, smaller mural installations is in order.

Small Mural Installations and Mural Compounds

There are numerous installations attached to the berms that are compounds and/or fighting positions. Mural compounds ('mcomp' in Fig. 4.5) can be of almost any shape and almost always without internal features. They are apparently cleared areas enclosed by a single bank. Examples (see Fig. 4.63) are mcomp 251 (about 195 metres long by 55 metres wide) and mcomp 252 (about 120 metres long by 65 metres wide) along Berm No. 1, and located in rectangle 157 of Fig. 4.6. There are also, long and thin rectilinear compounds that can be found attached to, and running longitudinally along some of the berms. Fig. 4.64 illustrates one such 'parallel' compound ('pcomp' in Fig. 4.5). Here, the compound (pcomp 132 on Berm No. 1, and located in rectangle 187 of Fig. 4.6) is long and thin (about 370 metres long by 40 metres wide), with a clear entrance, and an additional longitudinal bank close behind the frontal trace, facing east. There are no obvious internal buildings, but fighting and/or observation positions can be made out in the front. It is possible that mural compounds are some kind of *ad hoc* troop and material marshalling areas, while parallel compounds are occupiable fighting and observation positions. Both could have been used on a contingency basis by Moroccan reaction forces, to counter Polisario attacks or incursions.

In numerous instances, and along many lengths of the berms, there are small (under 50 metres along their longest side) bastion like features that may very well be smaller versions of the larger compounds evident along the berms. They may have served as small mustering positions, or observation and/or *ad hoc* fighting positions, perhaps designed to accommodate small detachments of quick reaction forces. They have not been individually plotted on the project GIS, but elaborate versions of these have been plotted within sampling rectangle 952 (see Fig. 4.6) at the eastern most extent of Berm No. 4. Recorded as 'small occupation positions' ('sop' in Fig. 4.5), they are in effect, small fortlets, (usually up to 50 to 60 metres along their greatest length) with bunkers and other structures, and observation and fighting positions. They are very densely

distributed along Berm No. 4, facing Algeria (Fig. 4.21), and examples of them are shown in Fig. 4.65 (sop 2097 and sop 2098).

Many portions of the berms also include individual artillery gun pits just behind them, and earth embanked vehicular slots – or tank slots – similarly emplaced. There are also many instances where vehicular slots, for self propelled artillery or tanks, were constructed up against the berms themselves, presumably to accommodate mobile firepower that could move along any given length of barrier in a reactive capacity to any form of attack.[439] Examples of vehicular slots and gun pits outside of fortifications and behind the berms can be seen in Figs. 4.36, 4.37, 4.53, 4.54, 4.57, 4.63 and 4.65.

Fire Support Bases

The fire support base (or firebase) as a distinct entity came into being during the Vietnam War,[440] in an environment where artillery firepower had to be delivered over all points of the compass. In Vietnam, there was no 'front line' as would be commonly understood, instead, the American military and its allies had to contend with enemy operations that could 'erupt' from almost any location. Because of this, fire support bases were mainly disposed in a network with the ability to give interlocking and supportive artillery fire.[441]

Kelley depicts fire support bases in Vietnam as

> ground installations designed to house artillery and/or mortar units firing in support of maneuvering infantry elements and of other bases within the range of their weapons. Firebases typically housed infantry security forces and communication elements, units that varied in size according to the dictates of the terrain, the number of artillery pieces in place, the estimated size of nearby enemy forces and degree of threat.
>
> Most were generally circular in design (or built in any shape necessary to conform to the terrain) and contained any number of artillery pieces and/or mortars defended by various combinations of exterior concertina wire, trenches, sandbagged

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[439] Similar positions, constructed for reactive tanks and self propelled artillery were incorporated into Israel's *Bar Lev Line* defences along the Suez Canal (Dunstan 2008: 28).
[440] Hay [1974] 1989: 97.
[441] Foster 2007: 14.

bunkers/foxholes and dirt berms. …landing pads for helicopters were normally built within or adjacent to most firebases… [442]

While Picken, recounting the Australian experience in Vietnam, succinctly describes a fire support base (FSB) as:

> In its simplest sense, the FSB was a rapidly constructed fortified artillery base position (gun area), usually sited near the centre of the area of operations (AO) and used as a support base for task force, battalion or company operations. The role of the FSB was to bring artillery and mortar fire within range of friendly forces operating in depth.[443]

Fire Support Bases on the Berms

Although the Moroccan defensive barriers against Polisario are linear, the concept of the fire support base has obviously been applied to them. Along all of the berms, firebases are to be found well behind the frontal barriers. However, along segments of Berm No.1, there are thirteen instances of firebases being part of, or attached to mural forts (with forty-two further firebases in the rear). This is counter to all of the other berms, except for Berm No. 3, which has one such installation, and Berm No. 4, which has four. Two indicative examples of mural forts with integrated firebases, from Berm No.1, are shown in Figs. 4.66 and 4.67 (mural firebases are abbreviated in the table in Fig. 4.5 as either 'ftfb' – a fort with a firebase as an integral part, or 'ftfba' – a fort with a firebase apparently added at a later date).

The first of these, Fig. 4.66, shows a mural fort with an integrated firebase within its enceinte. This is ftfb 133, on Berm No. 1 (located in rectangle 187 of Fig. 4.6). It measures about 660 metres by 440 metres, with an area of around 208,701 square metres. This installation is very much a complex fortification. There appears to be an initial phase that consisted of an irregular mural fort in an area of low desert relief. The front of the fort, with its narrow double embankment, and multiple fighting positions and bunkers, follows natural contours and faces southeast. Its interior is subdivided with a single embanked enclosure, or compound, that includes four

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[442] Kelley 2002: xix.
[443] Picken 2012.

artillery gun pits (measuring between 20 and 26 metres in diameter, and possibly for self propelled artillery). There are further subdivisions within this compound, and further buildings or bunkers. Subsequently, the irregular fort, with its internal fire support capabilities, had added to it, another compound around its northwest side. This is a single embanked enclosure that is subdivided, including rectilinear enclosures and one large circular enclosure. There are also, open, 'U' shaped vehicular slots. Traces of the bulldozing to construct the installation are faintly visible in places, though wind blown sand has masked these. The buildings and bunkers that are visible are all roofless since this fortification is on a redundant berm.

The second figure, Fig. 4.67, shows a rectilinear mural fort (around 120 metres by 300 metres in area), also on Berm No.1, but with a firebase added onto its northwest flank (ftfba 16). Located in rectangle 215 of Fig, 4.6, the original mural fort is very clear and its compartmentalisation with earthen blast barriers, and with routeways, is sharply delineated. The fort is now redundant, so its internal bunkers and buildings, which are all roofless, can be easily made out. The rampart surrounding the fort is single banked, and along its southeast, frontal trace, there is a string of bunkers, and buildings that presumably represent accommodation as well as observation and fighting positions. In fact there are probably up to six fighting positions (though faint) that extend out slightly from the frontal trace like small stubby bastions. The fort has two right-angled entrances on its northwest flank, and further gaps or entry points adjacent to where it joins with Berm No. 1. The added firebase compound is rectilinear in shape (around 80 metres by 230 metres in area) with a very sharply defined perimeter. It has an entry at its southwest corner, which is shared with the mural fort. The firebase has few structures in it save for four gun pits, around five metres in diameter. There is an entry into the fort where there is a concentration of buildings, which might, by virtue of their closeness to the firebase, represent a fire command centre. The overall area of the installation is 60,339 square metres.

Fire Support Bases Behind the Berms

As already pointed out, the overwhelming majority of fire support bases are located behind the territorial berms. The distances vary from anywhere between, less than 200 metres to more than 14 kilometres. Because the berms are usually sited on relatively high ground so as to get a good view of the terrain in front of them, firebases are

commonly found on slightly lower ground behind them. There are even instances where a firebase is deliberately positioned behind a hill or hillock. Firebases are usually surrounded by an earth embankment, and within them, there can be from two to 13 artillery gun emplacements (usually gun pits). Single gun installations are very uncommon, but there are also firebases built to accommodate self-propelled artillery, and in these instances the guns can be sited in large vehicular slots. Seven indicative examples of firebases are described below, mainly to illustrate apparent trends in the construction of the installations and the disposition of their guns. As in the foregoing descriptions of other installations along the berms, the following 'snapshots' have been taken from, or close to, the sampled rectangles selected from Google Earth.

Fig. 4.68 illustrates a polygonal shaped firebase (fsb 1470), positioned more than four kilometres behind, and to the northwest of Berm No. 5 (and located to the west of rectangle 491 in Fig. 4.6). The firebase was originally sub-square in plan, but its northeast corner had been cut back, perhaps to allow the stagnant water that apparently accumulated in the wadi, against the base's northern perimeter, to drain away (though perhaps, unsuccessfully). The firebase is surrounded by a single embankment, which has been constructed and maintained by bulldozing. It has an area of around 103,436 square metres with sides measuring approximately 390 metres by 340 metres. The firebase is on an active length of Berm No. 5, facing Polisario controlled territory. There are numerous buildings and bunkers clearly visible within the compound, along with marked out routeways and some less clear vehicular slots. The entrance to the firebase is from the north and a helicopter landing zone (partly surrounded by stagnant water) is nearby. There are three gun pits in a line from west-northwest to east-southeast and they have an average internal diameter of 23 metres. They all have structures on both sides of their open ends, which are probably crew shelters, and/or ammunition stores. The Google Earth image actually shows self-propelled artillery within each gun pit, and their large diameters would be necessary for such mobile guns to manoeuvre.

An example of a more rectilinear firebase (fsb 1255), located just over five kilometres behind Berm No. 4, is clearly shown in Fig. 4.69 (located in rectangle 952 of Fig. 4.6). It has an area of around 70,000 square metres with sides measuring approximately 335 metres by 265 metres. This installation is within sovereign Moroccan territory facing

the border with Algeria to the east, and it is clearly occupied with artillery in its gun pits and with its bunkers and buildings roofed. This base could also be considered a 'complex' installation since it has a compartmentalised extension to the north. The firebase has a double embanked perimeter along three of its sides, along which are observation positions and bunkers. There are also other bunkers and buildings distributed throughout the installation. There are right-angled entries into the base, at the north and southwest corners, and there are four gun pits with well-defined circular embankments. Their internal diameters average out at under 17 metres. Three of them, which are linked by earthen banks, have external, oblong earthworks attached to them. These are possibly for ammunition storage or other vehicles, while within the parapets outlining the gun pits, there are small square structures or bunkers – possibly crew shelters. The Google Earth image clearly shows that there are self-propelled artillery pieces in each gun pit. There is at least one clearly defined, possible gun pit outside the firebase, and being at around 10 metres in diameter, it could accommodate a howitzer, or just serve as an observation post. There is a cleared square area just outside the base's southern perimeter, which is barely visible, and this might be a helicopter landing zone.

An example of a sub-circular fire support base (fsb 1327), positioned around 4.25 kilometres behind Berm No. 5 is shown in Fig. 4.70 (located in rectangle 583 of Fig. 4.6). The firebase is positioned behind the redundant portion of Berm No. 5 to the west of Berm No. 6, and it is obviously out of use since all of its bunkers and buildings are roofless. Nevertheless, (with an area of around 26,876 square metres, and with a diameter of nearly 200 metres) this is a good example of a well-defined firebase with a total of five gun pits, all with internal diameters of around 18 metres. Four of the gun positions are along the southern perimeter of the base with the fifth gun pit just north of centre. The firebase has a single perimeter embankment, and observation positions are distributed along it. There are bunkers associated with the gun pits and there are a variety of buildings within the northern trace of the base. There is also a half circular enclosure within the northern side of the installation. The entrance to the base is from the northeast, and it is protected by an external blast barrier. There are depressions from bulldozing around the installation, presumably from its maintenance as well as construction.

The redundant fire support base (fsb 1257) shown in Fig. 4.71 is situated two kilometres east-southeast of fsb 1255 (described above) and west-northwest of Berm No. 4. This part of Berm No. 4 is still actively occupied, but fsb 1257 obviously went out of use at some time, presumably to be replaced by fsb 1255 (both firebases are in rectangle 952 of Fig. 4.6). The firebase can be considered as being irregular in shape, though it is essentially a bent oblong with its convex side facing the Algerian frontier to the east. Its length is around 455 metres with a width of roughly 270 metres, and with an area of 67,737 square metres. The installation is surrounded by a single earthen bank, and there are additional enclosures along its western side. There are two entrances into the base. One is at the northwest end, protected by a blast barrier, while the second is at the southwest end, passing through an outer enclosure. There are the remains of roofless bunkers along the base's eastern trace along with depressions and mounds at the very south of the installation. There are four obvious gun pits, more or less in a line arcing to the east. Their internal diameters average out at around 19 metres and most have small rectangular earthworks at their openings, which are probably the remains of crew shelters. There is a further arced parapet, immediately north of the gun pits, and this has an internal earthwork. Superficially, this looks like a gun pit, but it might be the remains of some kind of command position. The size of the gun pits suggests that they were designed for self-propelled artillery.

A complex fire support base (fsb 237) is illustrated in Fig. 4.72 (located in rectangle 157 of Fig. 4.6). This redundant installation is just over one kilometre north of Berm No. 1. Its overall dimensions are around 230 metres by 223 metres with an area of about 32,305 square metres. The main part of the firebase is a sub-circular, earthen enclosure with four gun pits integrated into its perimeter. There is also a central gun pit and just to the north, a sub-rectangular embanked enclosure, capable of housing another gun. Two further compounds are up against the immediate perimeter to the north. The main sub-circular enclosure has an additional, mantle like, compound around its northern end wherein there are two further gun pits, unroofed bunkers, and vehicular slots. The entrance into the firebase is from the north. The five gun pits in the southern half of the main part of the installation have internal diameters averaging eight metres. This indicates that they were probably designed for towed artillery. The two perimeter compounds north of these average, internally, at just over 12 metres in diameter, while the rectilinear enclosure (north of centre) is eight by 14 metres in area.

These last three positions might have been designed for self-propelled artillery (perhaps turreted howitzers). The two gun pits in the northern, outer part of the installation, have internal diameters of around 10 metres. These could house either towed artillery or self-propelled howitzers.

Fig. 4.73 shows a firebase (fsb 703, located in rectangle 92 of Fig. 4.6) designed to accommodate self-propelled artillery. The installation is located about one kilometre northwest of Berm No. 3, and it measures around 225 metres by 250 metres, with an approximate area of 47,596 square metres. It is partly surrounded by a sub-circular embankment that is incomplete, incorporating a plateau like rise in the ground to the east-southeast. This would also mask the firebase from the territorial berm. This firebase is redundant, as is the section of Berm No. 3 that it is associated with, being situated behind Berm No. 4. Tracks from the bulldozing to construct this base are clearly visible in the Google Earth image. The main features in the installation are the four, open vehicular slots that face east-southeast towards Berm No. 3. They are between nine and 10 metres long by around six metres wide, internally, and at least three of them have the remains of bunker-like structures (now roofless) associated with them. These would have served as shelters for the gun crews. Because these vehicular slots are mono-directional, it is probable that they were intended for self-propelled howitzers with rotating turrets. There is a round dugout behind the slots, and to the west, there are the remains of a couple of features that might be roofless bunkers.

The last illustrative example of a fire support base (fsb 682) is shown in Fig. 4.74 (located in rectangle 92 of Fig. 4.6). It too is situated behind Berm No. 3, and it appears to have been abandoned, even though the barrier to its south is still active. In fact, it is only around 1.5 kilometres north-northeast of fort ft 681 (described above). This firebase is an example of an unenclosed artillery position, covering an area of around 190 metres by 180 metres, at approximately 36,693 square metres in area. It is hidden behind a knoll to the south, and a second to the northwest. The southern knoll has been fortified with earth embankments and dugouts, and at least two vehicular slots for tanks or self-propelled guns. There are also dugout positions on the eastern slope of the northwesterly knoll. There are three artillery gun pits laid out in a triangular fashion. They have dugouts and earthworks that probably represent bunkers

associated with them. The average internal diameter of the gun pits is 17 metres (and they are around 60 to 80 metres apart), so it is likely that they housed self-propelled artillery. But one of the gun pits appears to have the roofless remains of a bunker within it, and this might very well represent a later phase when the function of the position might have changed, perhaps from a firebase to a field encampment.

The examples of fire support bases depicted here (including the mural forts with firebases) indicate the generalised range of morphology, and fixtures, of firebases behind the Moroccan berms. All have a single earth embankment surrounding them, except for one, and the majority of gun pits are large enough for self-propelled artillery. Of the examples cited, the numbers of gun pits range from three to five (with the potential, elsewhere along the berms, of up to 10 in one installation). Additional structures include bunkers for shelter and accommodation, with the largest associated building or bunker probably representing a command and communications post.[444] For comparative purposes, see Fig. 4.75, which is a contemporary sketch of firebase Kramer in Vietnam. There are real schematic similarities in this drawing with the firebases along the Moroccan berms, especially if the tents are replaced with mud brick or stone structures, and bunkers. See also Fig. 4.76, which clearly shows the layout of firebase Roy in Vietnam. This base accommodated self-propelled artillery, and the photograph shows the immediate buildings and structures associated with the gun pits, with further ancillary structures and tents. However, unlike in Vietnam, where American firebase gun pits were laid out in a circular or star like formation,[445] in Western Sahara, many of the bases have their guns laid out in arcs, convexly directed toward the nearby territorial berm. Nevertheless, the artillery employed would still be able to give all round fire support if required. A low level aerial view of such a Moroccan firebase, unfortunately at an unknown location, is shown in Fig. 4.77, and this clearly shows an arc of self-propelled guns with associated parapets and buildings, some of which are semi-subterranean.

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[444] For descriptions of fire support bases see Arnold 1987, Foster 2007, and Ott 1995
[445] Arnold 1987, Foster 2007, and Ott 1995.

Other Installations: installations in the rear

There are support installations and facilities behind all of the territorial berms. These can be simple compounds ('comp' in Fig. 4.5) with no, or very minimal internal features, but similar to the mural compounds visible along the territorial berms. Examples of such compounds from Berm No. 1 (comps 256 and 257) are shown in Fig. 4.78 (they are both around 60 metres by 40 metres in area). Here, the compounds are situated in a broad wadi beneath higher ground to the west, with the territorial berm around 1.25 kilometres to the south. The southern compound (comp 257) is in two parts (a dividing embankment is faintly visible), while comp 256, to the north, includes a faint circular feature that could have housed a gun. As with mural compounds, it is possible that these installations were constructed to serve as mustering positions and temporary storage compounds. Both compounds are located in rectangle 157 of Fig. 4.6.

There are also forts positioned in the rear ('raft' in Fig. 4.5), and these can include enclosures with single embankments surrounding a military camp, or garrison, as in the example shown in Fig. 4.79. In this view from Berm No. 6 (located to the north of rectangle 853 in Fig. 4.6), the fort (rft 1674) is subdivided into three large compartments by slight embankments, and there are various buildings spread throughout the installation. The boundary rampart is irregularly delineated, and the main entrance is along the south side. This installation is just under 10 kilometres north of Berm No. 6, and it measures around 415 metres by 380 meters, with an area of approximately 119,763 square metres. The facility is very much a camp as opposed to a fort, strong point, or fighting base. Another example, this time of a very developed camp just east of Smara and immediately behind Berm No. 1 is rft 282, shown in Fig. 4.80 (located in rectangle 124 of Fig. 4.6). The irregular outline of this facility follows the contours of the higher ground that it is situated on, and its perimeter rampart includes observation and fighting positions. There are many buildings and vehicle parks, plus a sports field. There are clearly marked out

routeways, helicopter pads and a communications pylon. This installation is around 550 metres by 385 metres in plan, with an area of around 115,184 square metres.

However, some forts in the rear are constructed just like mural forts, and in these instances they are usually positioned very close to the berm. One such example is rft 236 (see Fig. 4.81), a now redundant fort only around half a kilometre north of Berm No. 1 (located in rectangle 157 of Fig. 4.6). It conforms to the expected layouts of polygonal mural forts: it is concentric with two ramparts, and it measures around 235 metres by 150 metres, with an area of about 27,465 square metres. The outer bank has fighting positions and observation posts (presumably including bunkers – now unroofed), while the inner compound has been subdivided by earthen blast barriers. The entrance is protected by a blast barrier, and traces of bulldozing, presumably from upkeep as well as construction, are clearly visible. For all intents and purposes, this is a mural fort, which for reasons of military contingency has been positioned behind Berm No. 1, as opposed to being positioned on it. Another example of a fort in the rear is rft 706 (see Fig. 4.82), less than four kilometres northwest of the redundant part of Berm No. 3. This fort has an irregular single rampart around it, and there are extensions to the north and west. The installation is compartmentalised, and possible earthen bunkers or partly subterranean structures, though now roofless, are just visible. There are also three bulldozed vehicular slots that could have accommodated self-propelled artillery. What looks like the main entrance into the fort is from the south, and it has a blast barrier in front of it. Also, it is interesting to note that this redundant installation is in relatively low-lying ground, which has caused water from seasonal rains, to accumulate within its southern compound. The fort covers an area of around 97,070 square metres, measuring overall, about 425 metres by 370 metres. It is located in rectangle 92 of Fig. 4.6.

In the Guelta Zemmour region, it is not unusual to find forts in the rear that are situated on top of rocky hills, or along ridges. One such fort (rft 1588), at around one kilometre northwest of Berm No. 5, is shown in Fig. 4.83 (located in rectangle 359 of Fig. 4.6). Here, a narrow ridge top enclosure (around 35 metres wide by 205 metres long, with an area of just under 4,500 square metres) is clearly shown with buildings, undoubtedly including bunkers, hugging the frontal trace of an installation that obviously follows natural contours. There is a clear entry via a track that passes a

probable, helicopter landing zone to the immediate northwest. There is also a ridge top rampart that extends northwards, following the lie of the land. A low level aerial photograph of a similar ridge type installation (though more densely packed with buildings) is shown in Fig. 4.84. In this image (though its precise position is unknown), buildings and bunkers cling to the ridge of a hill much like a closely packed hill top village from, for instance, the Mediterranean or the Levant. It is also fortified, in that a trench or parapet can be made out along the farther edge of the buildings.

There are also enclosed and unenclosed military camps or garrisons ('gar' in Fig. 4.5) behind the berms. They consist of numerous buildings similar to those in Fig. 4.84 but more spread out, especially if situated on flatter ground. A Google Earth image of part of an unenclosed camp (gar 1112) around 8.5 kilometres north of Berm No. 4 (measuring around 775 metres by 575 metres in area) is shown in Fig. 4.85 (located in rectangle 100 of Fig. 4.6), while Fig. 4.86 illustrates the nature of such a camp from a low level aerial view. In fact, this unattributed aerial photograph is an image of gar 1112 taken from the north, and it shows the buildings along the wadi that runs diagonally in the lower left corner of Fig. 4.85 (and marked out with a rectangle). These images clearly illustrate the nature of a Moroccan military camp in the desert. It shows the irregularity of the camp's layout with a variety of relatively small buildings, some of which are above ground while others are partially subterranean, and it shows lines of armoured personnel carriers indicating that this is a base for a rapid reaction force. The Google Earth satellite image (Fig. 4.85) of gar 1112 also shows lines of vehicles, and these are probably armoured personnel carriers just like the ones in Fig. 4.86.

Summary

This chapter has had the sole aim of trying to present, in a comprehensive manner, the monumental materiality of the Moroccan berms. This has been in stark contrast to the limited descriptions and anecdotes about the barriers usually put forward by analysts, commentators, and journalists. The methodology has been traditionally archaeological, relying on description and a form of sampling, though dependant on

remotely collected imagery, mainly from Google Earth. Such an approach is within the forensic range of archaeological methodologies.

Other great military barriers can be directly engaged with, such as the Great Wall of China and Hadrian's Wall. To anyone on the ground, they are constituted and apprehendable. Even the Palestinian barrier built by Israel can be encountered materially, and therefore directly. As pedestrians, these barriers can be walked along, and upon, though of course, the Palestinian barrier can only be observed from ground level. With the Moroccan barrier dividing Western Sahara still manned and mined, it is unapproachable. Its scale is immense. By covering a national territory, and by varying in its makeup across that territory, the barriers are hard to conceive of holistically. The tables and plots presented here, along with satellite and other imagery, therefore, have had the main aim of trying to mitigate this. Counts of forts, lengths and types of earthen banks, along with maps and photo images, do not have to be used for statistical presentation and analysis only; they can be used by our imaginations and our critical faculties, to gain an understanding and appreciation of the monumental character of the barriers dividing and partitioning Western Sahara.

Although we can only look at, and chart, the Moroccan berms from afar, there are those who have faced the barriers directly, either as combatants, as journalists, or as refugees trying to cross the barriers from the Moroccan side to the Polisario controlled Free Zone. Such people have had direct experiences of the berms, and concomitant to this chapter, it is their confrontations with Morocco's 'Great Wall' that are dealt with next, in Chapter 5.

CHAPTER 5

CONFRONTING THE BERMS

This chapter continues on from Chapter 4, with an aim of giving greater presence to the materiality of the Moroccan berms: but not through the panoptic gaze of Google Earth. Instead, it will give the distanced view of the berms, and the desert in which they are disposed, a greater depth by bringing the Moroccan barriers down to a human scale. The emphasis is on how desert regions have been fought over in asymmetrical war, and by extension, how the barriers have been perceived, confronted and negotiated on the ground, by either attacking fighters, occupiers, observers, or civilians desperately trying to cross from Moroccan occupied Western Sahara to the Polisario controlled Free Zone.

Mobile Guerrilla Tactics

Before the berms were completed – enclosing most of Western Sahara – Polisario/SPLA held sway over the territory's open desert. Their long-range raids, even into Morocco and Mauritania, were audacious. But since in the end they could never match the manpower and material of the Moroccan armed forces, their fighting strength could only lay in their revival of the traditional Arab raid, or *ghazi*.

Chapter 3 has already described the revival of the *ghazi* in the context of the anti-colonial hostilities that took place in the western Sahara, from the late 19th century up to the Ifni-Sahara War of the late 1950s, and further still up into the last quarter of the 20th century. Outside of the context of inter-tribal conflict, the employment of the surprise, lightening raid has been an important tactic for any weaker hostile in an asymmetric war. Hugh Kennedy noted a 7th century occurrence where 'a wily old Bedouin leader' gave advice to a force of inexperienced Iraqis invading Syria. He encouraged them to reconnoitre the position of the nearest water source and to use their mounted mobility to position themselves between the water source and the

enemy. They were urged not to fight on open ground so that the larger Syrian force could not surround them.

> They should not stand still or form a traditional line of battle because their opponents had both horsemen and foot soldiers and each group would support the other in close-quarter combat. If the[ir] line was broken, it would be disastrous. Instead, they should keep the advantages offered by their mobility and divide the[ir] army into small squadrons (*katā'ib*), each of which could support the others.[446]

This is clearly a description, from a Bedouin perspective, of a fast moving, mounted engagement, where knowledge of terrain, unconventional fighting, and fighting in small groups, with a flexibility of manoeuvre and mutual support is described in an asymmetric situation. This too was the essence of partisan warfare, for instance, in Spain during the Peninsular War of 1808-1814. With a superior knowledge of the countryside, insurgents harassed the occupying French army in small groups. They would quickly attack and then withdraw, and attack again, incessantly harassing the enemy,[447] giving us the term *guerrilla*, from the Spanish for 'little war' or *petit guerre*.

> Guerrilla tactics stem from the basic tenet of their forces seeking only to give battle on their terms, which entails knowing their opponent's position and strength, knowing when it is possible to isolate him from help or escape before help arrives, having the element of surprise on their side and fighting at a time of their choosing… The ambush and raid are their favoured tactical methods.[448]

This method of warfare was honed by T.E. Lawrence in the Hejaz, during the Arab Revolt of 1916-1918, during the First World War. Lawrence could not reconcile warfare as practiced by the established armies of the time, with the tactics of the irregular tribesman that were the bulwark of the Arab revolt against Turkey, especially within the geographic expanse of Arabia. So Lawrence went back to first principles, as he wrote, he realigned his thinking by re-contextualising it, and as he said, taking

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[446] Kennedy 2007: 60.
[447] Chartrand 1999: 165-166.
[448] Smith 2006: 157.

'refuge in Arabia', and thereby, looking at the very land area the Arabs 'wished to deliver'.

> I began idly to calculate how many square miles: sixty: eighty: one hundred: perhaps one hundred and forty thousand square miles. And how would the Turks defend all that? No doubt by a trench line across the bottom, if we came like an army with banners; but suppose we were (as we might be) an influence, an idea, a thing intangible, invulnerable, without front or back, drifting about like a gas? Armies were like plants, immobile, firm-rooted, nourished through long stems to the head. We might be a vapour, blowing where we listed. Our kingdoms lay in each man's head; and as we wanted nothing material to live on, so we might offer nothing material to the killing.[449]

This echoes a view expressed by Clauswitz more than 80 years earlier, who when writing about a 'people in arms', described a guerrilla war as one which by its nature, would not consist of concentrated actions and troops movements. Instead, such an insurgency would be spread out spatially and temporally, and be more like a 'process of evaporation', depending 'on how much surface is exposed'.

> The greater the surface and the area of contact between it [the insurgents] and the enemy forces, the thinner the latter have to be spread, the greater the effect of a general uprising. Like smoldering embers, it consumes the basic foundations of the enemy forces.[450]

And presaging Lawrence, Clauswitz went on to describe a popular uprising as one that 'should be nebulous and elusive' and never materializing 'as a concrete body', so that the enemy could not strike at it decisively. Nevertheless, guerrillas should still be able to hit their enemy in a concentrated way. Though described like a 'fog', they 'must thicken and form a dark and menacing cloud out of which a bolt of lightning may strike at any time'.[451] Lawrence recognised that the Arabs of the Hejaz, as with Polisario combatants, had 'range over force'. They had strategic, not tactical strength. 'Their cards were speed and time, not hitting power',[452] and this was only possible

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[449] Lawrence [1926] 1974: 197-198.
[450] Clauswitz 1993: 579.
[451] Clauswitz 1993: 581.
[452] Lawrence [1929] 2005: 280-281.

because of the camel and the Bedouin's knowledge of the desert. Though added to this was the employment of armoured cars, which became integral to the campaigns in the Middle East, including the Hejaz. With Europeans becoming comfortable with the use of armed motor vehicles in rough, desert terrains, they eventually developed 'a style and art of sand-driving',[453] which would evolve into a truly 20th century approach to desert warfare, of which the Polisario/SPLA would become beneficiaries.

The Italians first used armoured cars in Libya in 1912.[454] But the British, besides employing heavy and light armoured cars in the Middle East in World War One, also organised Light Car Patrols in Egypt's Western Desert, from 1916 to 1919.[455] These were cut down Model T Fords, with some armed with machine guns, which proved highly effective for reconnaissance patrols and raiding against Sanusi insurgents from Italian occupied Libya during 1915-1917. Rolls Royce armoured cars had proved their worth as attack vehicles, but in facing the Sanusi, the lighter Ford's, with their ease of maintenance and high wheel bases became vehicles of choice.[456] Theses cars proved that the deeper desert could be accessed by appropriately fitted out motor vehicles, and could be used in desert warfare. They became the inspiration for R.A. Bagnold's use of motorcars in his explorations of the Libyan Desert from 1929 to 1938,[457] and equally, the inspiration for the Long Range Desert Group of the Second World War.[458] Closer to Western Sahara, however, the French employed motorised Foreign Legion units, which took part in their occupation of the western reaches of the Sahara. These were mainly armoured cars patrolling throughout the Algerian Sahara, southern Morocco, and Mauritania, and supporting French actions in ensuring the pacification of the tribes based in Western Sahara and northern Mauritania.[459] The Italians also developed their offensive desert motorized capabilities between the two World Wars. In 1938, their Libyan Saharan Companies were reorganised and motorised and they developed the *Sahariana* desert patrol car – designed specifically for long distance desert travel and fighting.[460]

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[453] Lawrence [1926] 1974: 177.
[454] Macksey 1995: 37.
[455] Harold 2005.
[456] McGuirk 2007: 261.
[457] Bagnold [1935] 2010.
[458] Kennedy Shaw 1945: 11-13.
[459] Windrow 2011: 603-605.
[460] Molinari 2007: 12 & 27, and Trye 1999: 121-122.

With the onset of World War Two, and with the threat of an Italian invasion of British held Egypt, Ralph Bagnold proposed an approach to desert fighting that would not have been out of place to Lawrence some 25 years earlier, and the Polisario in the last quarter of the 20th century. In 1940, Bagnold approached Sir Archibald Wavell, Britain's Commander in Chief in the Middle East, with the idea of self contained, motorised units being employed to enter Libya through the deeper desert – where he explored between the wars – to reconnoitre and harass Italian forces. In short, in Bagnold's own words, to carry out 'piracy on the high desert'.[461] This comparison with piracy, with war on the high seas, was an analogue used by Lawrence in describing the Hejaz campaign against the Turks.

> In character these operations were like naval warfare, in their mobility, their ubiquity, their independence of bases and communications, in their ignoring of ground features, of strategic areas, of fixed directions, of fixed points. 'He who commands the sea is at great liberty, and may take as much or as little of the war as he will': he who commands the desert is equally fortunate. Camel raiding parties, self-contained like ships, could cruise securely along the enemy's land-frontier, just out of sight of his posts along the edge of cultivation, and tap or raid into his lines where it seemed fittest or easiest or most profitable, with a sure retreat always behind them into an element which the Turks could not enter.[462]

This description by Lawrence can equally apply to the tactics of the Polisario/SPLA in their war with Morocco and Mauritania. While Lawrence's fighters were camel mounted, the raiders of the LRDG and Polisario were vehicle mounted. As such, their ranges were greater, and they could carry adequate fuel and supplies and be self-sufficient. While Polisario undertook long-range raids into sovereign Mauritanian and Moroccan territory, just as the LRDG did in their raids into Italian Libya, their embracing of motorized guerrilla tactics affected how they confronted the Moroccan berms, and their raids affected the reactions of the Moroccan military.

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[461] Thompson 1998: 17, citing Bagnold (n.d.).
[462] Lawrence [1929] 2005: 281.

Polisario Confronting the Berms

In 1986, the journalist Jeremy Harding visited Western Sahara and saw a portion of the berms at close quarters. His Polisario guide, Nuruddin, though able to speak a number of European languages often condemned the wall with the French term '*la pourriture*', referring to the barrier as something rotting, something in decay. His view was simple and contemptuous. If the wall were left alone, it would just crumble away, it would return to the desert from which it was made.[463] But the archaeology of the berms tells a different story, and in time, traces of the walls will be indelibly inscribed onto the desert's surface, save perhaps, in those extremely sandy regions where the desert winds are their strongest.

Polisario insurgents undoubtedly had the upper hand in their fight against Mauritania and Morocco, and then Morocco on its own, in the vast desert spaces of Western Sahara. Like Lawrence's camel mounted raiders, and Bagnold's LRDG, they would exploit their intimate knowledge of the desert, and they would harass and attack Moroccan positions. Their guerrilla tactics were finely honed, and with small groups of armed Land Rovers they would always attack Moroccan positions, on the move, and then quickly withdraw. Additionally, when Polisario forces occupied a Moroccan position they would not stay long, but again withdraw, and rapidly attack another Moroccan strong point. Such continued harrying of the Moroccans improved the SPLA's fighting abilities, and the Moroccans were even more vulnerable when the attacks occurred in the hotter times of the year, with the Saharawis being much more comfortable in the Summer heat than the majority of Moroccan soldiers.[464]

Although Saharawi tactics could include large columns of tens of vehicles, even up to a hundred or more at a time (also including armoured vehicles), in the end, their strength lay with their own modern and mechanized form of the smaller scale *ghazi*. As Chapter 6 will show, as at Tifariti, these tactics were highly successful in taking Moroccan occupied positions in the *badiya*. But when the berms were constructed, for all of Nuruddin's contempt, the Moroccan barriers did put a substantial break on

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[463] Harding 1989: 25.
[464] Fuente Cobo and Mariño Menéndez 2005: 77-78.

Polisario's offensive effectiveness.[465] This being the case, Jon Anderson sardonically described the war with Morocco as turning into a 'kind of military pantomime', where appearing to be at war took the place of real hostilities. To Anderson, who visited Western Sahara between 1988 and 1991, Polisario's offensiveness merely became orchestrated 'displays of their military prowess'. The berms made a 'mockery' of the war, forcing the Saharawis to symbolically continue to assault the barriers, to breath life into the conflict as a sort of 'bellicose ritual or blood sport. Like a family seeking to retain the semblance of a nobler lineage than present appearances suggest'. Anderson additionally observed that Saharawi participants in these actions talked about them for months after the fact. He went on to say:

> Indeed, these battles amount to precious heirlooms, material for the carefully tended oral history of a war that now exists mostly in name. Guerilla veterans like Moulay [Anderson's guide] are discernibly wistful, speaking as if their best times were behind them, back in the days before the wall.[466]

Contrary to this, Polisario combatants were still able to occasionally attack the berms in a relatively conventional way and bloody the Moroccan defenders. One very bad year for Morocco was 1987 when substantial Polisario forces attacked the Moroccan military in 16 locations.[467] A common Polisario attack on the barrier, according to Fuente Cobo and Mariño Menéndez, could target two mutually supporting mural posts at the same time, approached at night to avoid detection. The first phase would be a mechanised incursion across the barrier followed by a second phase of further vehicular and tank attacks on the two posts. While holding the forts, the force that crossed the berm would wait and engage the Moroccan rapid reaction force that would be called into the battle (in a third phase), and deal them as fatal a blow as possible. Another Polisario motorised unit would give back up to the attackers and take captured material and prisoners to the rear.[468] Such a surprise attack could only shock the Moroccans, cause them to deploy forces away from other positions, destroy material and give the Moroccans a 'bloody nose'. But a territorial inroad would not be made. These were essentially harrying attacks, and that was all the SPLA was able to

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[465] Zunes and Mundy 2010: 23.
[466] Anderson 2006: 158-159.
[467] Fuente Cobo and Mariño Menéndez 2005: 112.
[468] Fuente Cobo and Mariño Menéndez 2005, pp. 112-114.

do to a lesser or greater degree. But Polisario and the SPLA could be mischievous in their relationship with the berms. It was not unusual for them to approach the berms at night, and as already pointed out, remove mines from in front of the barriers and rebury them behind the Moroccan positions.[469] Such a simple attritional tactic could only add to the spectre like quality of the Saharawi insurgents.

Moroccan Soldiers and the Berms

The Moroccan forces manning the berms (and numbering up to 120,000[470]) have mainly been conscripts, save for the officer class, and many came from the more temperate parts of Morocco north of the Wadis Draa and Sus, and including the very clement Rif and Atlas mountain regions.[471] Because of this, they were not used to the extreme heat of Western Saharan summers, when Polisario would increase their operations, and this definitely took its toll on them.[472] Although, as already pointed out, this research mainly looks at the Western Sahara conflict from the Saharawi perspective, there is at least one Moroccan soldier whose experiences of manning the berms can inform this dissertation.

In 2010 the Algerian journalist and writer on Arab affairs, Anouar (Anwar) Malek interviewed a Moroccan army deserter for the Algerian newspaper *Echourak*, and it was published online. The soldier was an infantry officer named Abdelilahou Issou who was commissioned in 1988 and rose to become the head of an infantry company. Stationed along one of the berms facing Polisario held territory, he explained that an infantry company could be split up and stationed at different posts along the barrier, between which were unmonitored lengths of berm fronted by land mines and barbed wire. The minefields and barbed wire failed to prevent the SPLA from infiltrating the barrier, and, according to Issou, the Moroccan units facing a mechanised Polisario attack would often flee 'in disarray'.[473] This might be an exaggeration, but it tallies with some of the comments made by Polisario interviewees, Mohammed Deya and Habua Breica – that Moroccan soldiers would easily give up after a fight and that

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[469] Zunes and Mundy 2010: 22.
[470] Pazzanita 2006: 92.
[471] Hodges 1984: 103.
[472] Jensen 2013: 35.
[473] Malek 2010.

Polisario tactics were a psychological strain on them.[474] Issou claims to have thwarted a number of Polisario incursions between 1988 and 1990 but he became bitter when his resources were reduced (for instance, he described himself as being 'downsized' – presumably he meant that the number of men under his command was reduced).

In his interview, Abdelilahou Issou never mentioned where he was stationed along the berms, but he talked about continual attacks by the SPLA. Saying that 'Polisario fighters pounded daily our positions with heavy machine-guns causing many casualties among the Moroccan troops'. He added that the soldiers' lives became a 'nightmare' from Polisario's 'relentless and ill-fated attacks'. Though he also claimed that Saharawi 'commandos' would sneak into Moroccan army barracks and slit the throats of sleeping soldiers, which made him very fearful and kept him up at night.[475] This last point is out of keeping with the way in which Polisario have presented themselves as behaving throughout the sixteen years of war. As Anderson noted:

> Polisario has refrained from using terrorism to strike at Morocco beyond the wall. Because it pretends to nationhood, the Polisario affects the sober demeanor seemingly appropriate for a sovereign state: Its fighters aren't called guerrillas, but soldiers – and soldiers, of course, don't commit acts of terrorism. This is war with a sense of honour, fought on the battlefield.[476]

But a sense of honour was not apparent on the battlefield, according to one Moroccan army doctor who was captured by Polisario during the fighting at Lebouirate in 1979, and recounted that he saw Polisario fighters kill wounded Moroccan soldiers in their hospital beds.[477] Honest accounts of all wars will show that extreme brutality can occur on all sides. Even one of my informants, Malainin Larkhal, who has maintained that Polisario fought honourably since it was against their 'Saharawi culture' to do otherwise, has commented that if hostilities were to resume between Morocco and the SADR, the younger fighters of today, out of frustration with the political impasse that exists over Western Sahara and the maltreatment of Saharawis in the occupied

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[474] Deya, Interview and Breica, Interview, 2 November.
[475] Malek 2010.
[476] Anderson [1992] 2006: 159-160.
[477] Account of Dr. Azeddine Benmansour, captured by Polisario/SPLA at Lebouirate, Morocco, 24 August 1979. In Hollowell 2009: 37-39.

territories, would fight with a greater brutality than any of that which might have occurred in the war before the 1991 ceasefire.[478]

Crossing the Berms

There are those who have taken the extreme step of leaving the Moroccan occupied zone for the Polisario liberated one, and have done so by walking hundreds of kilometres across open desert, crossing over the berms, and traversing the minefields. Many have been activists who would have faced imprisonment for their political activities, such as Malainin Larkhal and Hamdi Touballi, or they have been idealistic teenagers like Salek Labaidi Bachir. These individuals have had a very direct experience of the Moroccan barriers, and not as military personnel cosseted within defended camps and positions, but as vulnerable civilians, pedestrians, facing first the open desert, and then the complete panoply of the fortified berms.

Salek Labaidi's 'story' began in 2004, when as a teenager of seventeen, he and some friends were appalled by the treatment of corralled camels by the Moroccan army in the city of Smara, in the occupied zone. As Salek recounted in an interview:

> [The] Moroccan soldiers had caught the camels close to the Moroccan wall, and they were taken to Smara where I lived. The soldiers didn't feed or water them, but the camel means our [Saharawi way of] life, our culture. We, and the people of Smara, felt strongly that the soldiers did something bad.[479]

So Salek, with four friends broke into the camel compound and freed the camels, and as a result, the friends found themselves crossing the desert, and escaping into the liberated Polisario held territory southeast of Smara. What is striking, is that this was not an obviously political act, instead, the teenagers were moved by a perceived societal imperative to liberate an animal which represented the essence of Saharawi culture. The camel is the animal upon which their traditional, nomadic, pastoral society depended, and since there are no oases as such in Western Sahara (save for the valley of the Saguia al-Hamra), the following of the rains by camel, across vast ranges

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[478] Larkhal, Interview.
[479] Bachir, Interview.

to seek out pasture and temporary water sources, was integral to the centuries old lifeways of the Saharawi tribes. As already noted, this was why the largest of the Saharawi tribes, the Reguibat, used to be known as 'the people of the clouds',[480] meaning that they would follow the clouds that bring the rains, and this could only be done by camel.

This act of 'animal liberation' caused Salek and his companions to walk seventy kilometres, towards and across the berms that surround Smara, and into the liberated zone. They passed a rear support base, and then ten kilometres further, to the south-southeast, they stood on a hill which overlooked the barrier. 'After a short walk, we saw the berm, it was very big, like a snake'.[481] It was one o'clock in the morning and the moon was out. Salek described the land around the berm as barren, and there were lights from the small bases along the barrier. Upon encountering the barrier, Salek was initially confronted by a dry-stone wall around one and a half metres high by three quarters of a metre thick (see Fig. 4.41). Then at about three metres distant, a two metre high earthen bank, followed again by a second similar bank with a single fence of barbed wire in the front. There was a military base nearby, encircled with barbed wire, and Salek remarked that there was something which he interpreted as a radar installation. The teenagers had stopped to rest between the second and third barriers, but when they thought that they were seen by a Moroccan soldier, only a few metres away, they ran over the third barrier and through the barbed wire. Surprisingly, Salek could not remember how he got through the wire, but he obviously did, and he and his companions made it safely through the minefield. The five youths eventually made their way to Bedouin grazing their camels in the liberated zone. Their journey took four days, and they eventually moved on to the Saharawi refugee camps near Tindouf, Algeria, where Salek is now a journalist.[482]

Malainin Larkhal's case was different. He was a high profile activist in the Moroccan occupied capital of Western Sahara, El-Ayoun (he is now Secretary General of the Saharawi Journalists and Writers Union). Speaking in an interview, he recounted how he had been arrested a number of times and even tortured, so for his own safety, and

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[480] Thompson & Adloff 1980: 309. Also referred to as 'sons' or 'children of the clouds': this moniker has also been applied to all Saharawi tribes. See Hodges 1983.
[481] Bachir, Interview.
[482] Bachir, Interview.

for that of his fellow activists, he left the occupied territory in the Summer of 2000 when he was threatened with a further arrest.

He travelled southwards, towards Mauritania, with his brother and a friend. First by car to Bojdour, and then by another car driven by a smuggler who agreed to take them close to the berm by the border with Mauritania. They were then to travel southwards by foot, but their trek to the wall was much longer than expected. Malainin knew that he and his friends were at a disadvantage being, as he said, 'city boys'. They didn't know the 'ways of the desert', and they were travelling in the southwest of the country where there are many sand dunes which made walking very difficult, but luckily, they had the 'strength of youth' on their side. When they made it to the berm, they first came upon a Moroccan base where they saw Moroccan soldiers milling about, and Malainin even took the time to note the base's mud brick buildings. The smuggler had told the three that when approaching the berm, they would first come across a track that the Moroccans maintained and swept clear, so as to detect the foot prints of people approaching and trying to cross the barrier. They located the path, and afterward came upon a sand embankment. After this, they found the larger frontal embankment of the barrier, but between the two the ground was strewn with flat stones and this created a distinctive tactile experience for the refugees. In Malainin's words:

> I remember that they were also using rocks between the small embankment and the first big wall [embankment]. They were putting some kinds of rocks, like flat rocks, and the problem was that when you're walking, you make noise, because they start hitting each other… it was unnatural, their presence was unnatural, and I remember that. Walking on these walls, when you're walking under these conditions, you think that everyone is looking at you, and that any sound you make will bring soldiers.[483]

Malainin encountered no barbed wire in front of the barrier and made it safely through the land mines in front of it. After crossing the border into Mauritania, the three refugees eventually made their way northwards to the Saharawi camps, near Tindouf.

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[483] Larkhal, Interview.

Seven years after Malainin Larkhal crossed the berms, the young Saharawi activist Hamdi Touballi was compelled to leave his home in El-Ayoun for the Polisario controlled free zone. Hamdi had become very involved in protests in the capital and was arrested on the first day of the Saharawi civilian uprising (or *intifada*) that started in the occupied territories in May 2005. He was subsequently arrested a number of times and kept under surveillance, so in January 2007 he decided to leave his home and cross the berms. A friend of his first drove him into the desert southeast of Dakhla and then walked with him part of the way toward the berm. They got within 30 kilometres or so of the barrier, and Hamdi then walked on by himself. Hamdi recounted to me his crossing of the barrier:

> I remember, it was maybe half past two or three in the morning [when] I found myself at the wall. When I was close to the wall I could hear Moroccan soldiers talking near to me, but I was lucky because I was alone. I was very, very scared, not from the soldiers, but from the mines. I thought, that if I exploded a mine the problem was that no one was with me, no one could help me. And of course, the Moroccan soldiers would not help me.

Hamdi described the barrier he crossed as consisting of two earthen banks, with the frontal barrier higher than the rear embankment, around eight metres behind it. There was barbed wire in front of the berm, but Hamdi could not recall how he got through it.[484]

Malainin, Hamdi and Salek all made it successfully across the berms. In the locations in which they crossed, they all describe a line of parallel barriers, though the first of these was made of stone in the north of the country. The barriers could be climbed and walked over easily, but they were obviously designed (essentially as steep sided sand banks) to stop vehicles – the motorised raiding parties of the Polisario/SPLA. It is striking that the barbed wire, noted in all published descriptions of the berms, was meagre in the sections crossed by Salek and Hamdi, and non-existent in the south, near the Mauritanian frontier. It is also noteworthy that the minefields were easily, and safely crossed by foot. Malainin Larkhal is of the opinion that the mine fields and barbed wire fences have not been maintained by the Moroccans, because over the

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[484] Touballi, Interview.

years, as already noted, SPLA soldiers have removed the mines and barbed wire in many places.[485]

Importantly, these three accounts give us something of an experiential view of the Moroccan barriers, and for the durations of their journeys, Malainin, Hamdi and Salek became immersed in their undertakings, and 'dwelled'[486] in the hostile environment of the desert and the berms. They had to confront the barriers they crossed in an undeniably direct, bodily way. They had to carefully navigate across an unknown space, as Ingold would say as 'wayfarers',[487] using all of their senses to make their way, in a 'kinesthetic interplay' of the tactile, sonic and visual,[488] while filled with fear and other strong emotions. Tilley would describe their visceral experiences as 'holistic' and even 'carnal',[489] though in the real life context of individuals facing the possibility of death in a hostile environment (from armed soldiers and land mines) these terms might appear inadequate, perhaps even trite. Trying to understand a landscape, especially a contested one through the experiences of intimately involved individuals, 'is much more than an academic exercise – it is about the complexity of people's lives, historical contingency, contestation, motion and change'.[490]

Salek's distinctive description of the barrier as a large 'snake' is reminiscent of the sinuousness of the trenches and wire entanglements of the First World War. In fact, when viewed from above, in Google Earth for instance, the berms can appear graceful. They can appear serpentine or angular, to sweep or glide, and the forts can appear organic in form. But when viewed from the ground, Malainin had this to say about Morocco's 'great' wall:

> It is very ugly. When I've seen, for example, the Berlin wall, you can draw graffiti on it, you can express yourself, it is something physical.., I mean, when you see the

[485] Fadel and Larkhal, Interviews.
[486] Ingold 1995.
[487] Ingold 2007.
[488] Feld 2005: 181.
[489] Tilley 2004.
[490] Bender 2001: 2.

Israeli wall, it's similar, it's very imposing and big, this one is just a berm, it's just dirt, some embankment. Even if you take it in photos it isn't interesting…[491]

This brings us back to the contemptuous view of the berms expressed by Jeremy Harding's guide, Nuruddin. Although the barriers definitely limited Polisario's offensive operations they are still viewed as impotent. So impotent, that Saharawi youths periodically march up to the wall in the north of the country, in protest, and even try to dismantle it.[492] Of course, this impotency has not been tested in battle, and it will take a resumption of hostilities to see if the Saharawi contempt for the barrier is truly well founded.

Summary

This chapter, along with its predecessor, has aimed to give presence to the materiality of the Moroccan berms that partition Western Sahara. Chapter 4 has shown, through description and characterisation of the barriers, the extreme lengths that a nation can take to appropriate another, while this chapter has more than indicated, the nature of direct human interactions with the physical result of those lengths – Morocco's 'Great Wall'. As an archaeological feature (complex and multi-phased), it is one of the largest of its kind, though the Great Wall of China exceeds it by at least 2700 kilometres.[493] As an archaeological phenomenon that literally traverses great swathes of an entire country, it is archaeology at a truly macro scale.

When the berms are viewed through Google Earth, they are a visual expression of Harrison's view that an archaeology of the present should be perceived as a single stratum upon which the past and present is manifest. When looking at the geography across which the berms traverse, then the very places where soldiers have undoubtedly fought, and where civilians have found themselves forced to 'dwell' (and some still

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[491] Larkhal, Interview.
[492] While I was in the Tindouf refugee camps in November, 2011, Malainin Larkhal and Hamdi Touballi showed me a video of such a protest, where Hamdi and other youths walked up to the stone wall fronting the barrier, and under the gaze of Moroccan soldiers, started to dismantle a small portion of it.
[493] Turnbull 2007: 59. However, the real length of the Great Wall of China is not known since it consisted of many different 'walls' constructed at different times (see Waldron 1990), and even Turnbull notes that 2200 km of the walls making up the 'Great Wall' no longer survive.

do) in an unfamiliar environment – in their bid to cross the barriers – indicate that this multi-faceted study of the berms is undoubtedly an archaeology in and of the present. The immensity of the berms, and perhaps more importantly, the will to build them across a national territory, indicates, as Gonzáles-Ruibal might put it, 'reason' that has gone 'berserk'. The berms are exaggerated and baroque. In a theatre of war that has been asymmetrical, they are excessive – they are super modern. And when the archaeology of the berms is augmented by the experiences of those who have confronted them directly, now and in the recent past, then the traumatic materiality of the Western Sahara conflict can be disclosed and made bare.

But the berms are also, quite fundamentally, a material expression of the three issues or themes that infuse this research: colonialism, conflict and exclusion. They manifest the colonial will of Morocco to keep hold of Western Sahara, they were born out of conflict – warfare in the open desert – and their aim has been to mitigate Polisario's advantages as desert, guerilla fighters. In the end, they have partitioned the country and excluded those Saharawis in exile, in Tindouf in Algeria, from around 80 percent of their country. It has also turned the 20 percent of the country under SADR control into a liminal zone, a threshold outside the Moroccan edifice of the berms, and with one location specific to, and within it – the settlement of Tifariti – being of special importance to the Saharawi people.

The materiality of Tifariti, and how its archaeology indicates the part the settlement has played in the story of Western Sahara is dealt with next, in Chapter 6. In the relative terms of this research, it is landscape archaeology at the meso scale. It examines the palimpsest of the immediate Tifariti region from the Middle Holocene up to the present day. It too is an archaeology, in and of the present.

CHAPTER 6

THE LANDSCAPES OF TIFARITI

Pre-Islamic Archaeology in the Tifariti Area

Western Sahara is rich in prehistoric remains. A very small number of archaeological teams, mainly from Spain, work in the country, but a relatively substantial number of sites and features have been recorded and published. Nevertheless, what has been published is only the tip of the iceberg, since so much of the fieldwork carried out to date has been mainly exploratory, and there have been very few systematic excavations of stratified sites.[494]

The University of East Anglia has been involved in fieldwork in the territory since 2002, and since 2007, its Western Sahara Project (WSP) started to intensively survey an area 14 kilometres north of Tifariti, referred to as the TF1 Study Area (see Fig. 6.1). The study area covers approximately 9.5 square kilometres, and includes 411 prehistoric monuments, which it is presumed range in date anywhere from around 3000 B.C. to A.D. 1000. Virtually all of the monuments are funerary or ideational (or ritual) and relate to a period (recognised in many other parts of the Sahara as well) when a cultural shift into pastoralism occurred, spurred on by the aridification of the Sahara around 5200 years ago. There is also evidence for occupation sites dating to the Early and early Middle Holocene, representing the seventh to ninth millennia B.P.[495]

This prehistoric/pre-Islamic archaeology with its rich funerary remains is viewed, in the context of this research, as the base stratum upon which the archaeology of later periods lie. It is a rich layer, which, based on fieldwork carried out by the WSP, is visible in most areas, especially where the ground is particularly hilly and rocky. From the results of the WSP's fieldwork carried out in 2005, 2007, 2008 and in 2009 (and incorporating plots of monuments identified on Google Earth imagery by Yves

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[494] Clarke and Brooks, in press.
[495] Brooks *et al* 2009, and Clarke and Brooks, in press.

Gauthier for the 2009 field season), and taking into account fieldwork for this dissertation carried in 2011, at Tifariti, it is obvious that funerary monuments extend from Tifariti, where the topography changes from flat *hamada* desert in the south, to the rocky and undulating terrain of the *Zemmour* region to the immediate north (see Fig. 6.2). The desert in the south is open with virtually no landmarks, while in the north the landscape is enfolding with a complex network of connected wadis. Tifariti is at the junction of these two lands and, presumably, people at all times would perceive and interact with these distinct regions differently. It has been proposed that the *Zemmour* region, including the Tifariti area, was one of many refuges (or *refugia*) for Saharan peoples in the Middle Holocene.[496] Such areas remained relatively verdant, while other regions of the Sahara were becoming arid and approaching the aridity of today. Even now, the Tifariti area is seen by Saharawis as a good place to live, where there is good pasture, and the climate is clement. For example, Fig. 6.3 shows the amount of vegetation present in the Wadi Tifariti today.

Fig. 6.4, as well as Fig. 6.2, clearly illustrate the generalised distribution of recorded funerary remains around Tifariti, and within the Tifariti Study Area (which measures 14.5 kilometres, east to west, by 16.6 kilometres, north to south, with the settlement of Tifariti just north of centre). They show that by being located amidst hilly and dissected terrain, funerary remains are situated where there are the raw materials – that is to say stones – to build them. There may also be areas of dense concentrations of monuments, suggesting recognised 'lands' or 'zones' of the dead (or 'the spirits')[497] as distinct from habitation areas. However, if talking about pastoralists, is it correct to apply such a dichotomy at all? Surely, and in an arid environment with scant pasture, grazing animals would follow fertile wadis irregardless of any areas of intense funerary remains, especially since the steeper sided wadis in the rockier parts of the desert will collect more water during the occasional rains that occur, resulting in more succulent herbage. Such a situation might encourage a certain amount of opportunism in the placing of funerary constructions close to wadi routeways; and as with those

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[496] Brooks and Clarke 2010, and Clarke and Brooks, in press.
[497] For instance, the location of these types of monuments on higher rocky ground resonates with some aspects of traditional African religions. Amongst the Hausa for instance, hills and inselbergs were traditionally the dwelling places of the spirits, in particular, the 'Iskoki', who were the arbiters of human affairs (Insoll 2003: 27, 293 & 295).

ancient societies where the dead might be buried within domestic spaces,[498] here too can be the sepulchres of the dead in what is in effect a lived in, pastoral landscape of wadis and pasture. The dead and the living can share the same space. The living can continue to utilise the routes that meander through this so called 'land of dead' for centuries afterwards, all because of the imperative to find pasture for grazing animals and beasts of burden, and for the need of pasturalists to get from one location to another.

Two burial cairns in the TF1 Study Area were excavated by the WSP in 2005, and the skeletons found were carbon dated. The dates were (when calibrated) A.D. 420-770 and A.D. 430-595[499] indicating that stone burial mounds, and the customs associated with them were still in use within a couple of centuries before the coming of Islam into the region. The Berber, Sanhaja tribes of the western Sahara converted gradually, though superficially to Islam by the mid 8th century, but their attachment 'to Islam prior to the Almoravid period was superficial, and animist notions retained much of their hold'.[500] As with other parts of the Sahara, Sahel and Sudan,[501] their conversion was partial and their practices were obviously mixed with earlier, traditional African religious practices. With this in mind, it is conceivable that some funerary monuments, for example burial cairns, could have been constructed after the 8th century, and if not, they could have still been a focus for early Islamic burials since a considerable number of Islamic graves ('kerb burials')[502] have been found amidst, and close to tumuli in the TF1 study area (often disposed as 'satellite' burials). This could indicate that such an area of pre-Islamic burials may have continued as an area of ideational significance, perhaps until the reinvigorated evangelisation of the far west of the Sahara during the early rise of the Almoravids in the 11th century.

Archaeology From the Arrival of Islam to the Spanish Colonial Era

Except for occasional Islamic burials recorded throughout the areas surveyed by the WSP, and those kerb burials found specifically amidst earlier funerary remains, as in

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[498] The prehistoric village of Catalhöyük, in Turkey, is well known for its numerous interments in houses. For an overview, see Hodder 2007.

[499] Clarke and Brooks in press.

[500] Pazzanita and Hodges 1994: 39 & 400

[501] Insoll 2003.

[502] 'Kerb burials' is the descriptive term used by the WSP for these, apparently Islamic burials. See Brooks *et al* 2009, and Clarke and Brooks in press.

the TF1 area (see Fig. 6.5), very little else has come to light archaeologically that can indicate human activity around Tifariti from the earlier centuries of Islam to the modern era. Meagre stone outlines, perhaps indicating the footings of simple shelters have occasionally come to light, as have hearths. But without excavating these features their dates will never be known, and where the WSP has investigated what appear to be open air camp sites, they have been dated to the Early and early Middle Holocene. It is highly likely that there are identifiable remains of early habitation sites, both pre-Islamic and later, throughout the areas explored by the WSP (and other archaeological missions), but they have not unequivocally come to light as yet. They are either hard to recognise or the survey methods employed have been inadequate. Since there are no oases in Western Sahara (save for the lower Saguia al-Hamra) and Saharawi pastoralists have traditionally had to rely on, and follow the rains for their sustenance – and as Hart has pointed out, 'every schoolboy… knows, Bedouin life is built around camels, grass and water'[503] – it is probable that the one artefact reflecting the human occupation of the Tifariti area, and probably much of Western Sahara from the arrival of Islam to the modern era, is the landscape itself. This is a landscape not so much moulded by people, but one utilised by people in the most basic, experiential and embedded ways.

Tilley has pointed out that a landscape is 'a series of named locales, a set of relational places, linked by paths, movements and narratives'.[504] Richard Bradley has written of an 'archaeology of natural places', observing that 'natural places have an archaeology because they acquired a significance in the *minds* of people in the past'.[505] While in the context of the Sahara (and drawing upon the example of a locale known as Taouardi, near Gao in Mali), Calegari has defined what he calls a 'symbolic-functional place' which is 'a meeting point, full of history and archaeological evidences that, when seasonally attended by the Tuareg people… reveals itself as a sort of "invisible" village',[506] where there are locations for specific practices, mundane and otherwise, including places with historical, mythical and symbolic importance. The TF1 study area might be an example of such a place, such an 'invisible' locus. There is the routeway of the Wadi Tifariti that links the open desert,

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[503] Hart 1998: 31.
[504] Tilley 1994: 34.
[505] Bradley 2000: 35.
[506] Calegari 2005.

just south of Tifariti, with the long distance wadi system (itself, a system of paths and grazing areas) that eventually drains into the Saguia al-Hamra to the north. The prehistoric burials in the area had an importance that transcended the coming of Islam testified by the presence of Islamic graves in their midsts. In fact, eight Islamic burials were incorporated into an impressive prehistoric standing stones site (see Fig. 6.6).

The greater wadi system itself, as a series of linked natural routeways with areas for grazing, camp sites, and burial of the dead, can be viewed as a single archaeological site: a place of pastoral habitation with a myriad of meanings, symbolism and histories. The Wadi Tifariti could also have been a part of one of the many north to south corridors that were used by the long distance caravans that traversed the western fringe of the Sahara from the Moroccan Wadi Nun, including the towns of Goulmim and Aqqa (or Tamdult Aqa), to the Senegal.[507] A map indicating caravan routes through the western Sahara in the 18th and 19th centuries, possibly reflecting more ancient routes, is shown in Fig. 6.7.

Archaeology of the Spanish Colonial Period at Tifariti

As already discussed in Chapter 3, it took the Spanish 50 years before they occupied any parts of the interior of Western (Spanish) Sahara. However, it is conceivable that the Wadi Tifariti saw martial activity associated with the anti-colonial struggle of Sheikh Ma el-Ainin and his sons, after he founded the town and religious centre of Smara, just south of the Saguia el-Hamra in 1898, from whence he lead those regional tribes that allied themselves with him in opposition to French expansion in the west of the Sahara. The immediate Tifariti area at this time was probably a locus for seasonal Bedouin pastoralists since, according to local knowledge, spring water was accessible at Tifariti by at least 1912.[508] This was two years after Ma el-Ainin died (though anti-colonial hostilities continued under his son Ahmed el-Hiba[509]), and one year before a French expeditionary column under the command of Lieutenant Colonel Mouret occupied Smara, and destroyed part of it on March 1st, 1913. On the column's return

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[507] For discussions on these routes across the west of the Sahara see: Norris 1986, Blanchard 2005, and Lydon 2009.
[508] See the Appendix 1, though Fadel (Interview), claims that the very first 'well' at Tifariti was dug in 1912.
[509] Hodges 1983: 60.

to Attar, it travelled southeasterly from Smara in the direction of the Wadi Tagliat (Tagliatt or Tachleieft), a place name in the vicinity of Akchach, around 30 kilometres northeast of Tifariti. While in the Wadi Tagliat, it was attacked by a force of tribesmen under the leadership of Mohammed Laghdaf (another of Ma el-Ainin's sons),[510] and after the column extricated itself it headed back to the Adrar, arriving in Attar on March 28th. Nevertheless, Berthome recounts that while in the area of the Wadi Tagliat, the French troops found an abundance of good pasture and water in shallow wells.[511] This points to the Tifariti region as being conducive to pastoral occupation, then as now, and it is even imaginable that Tifariti could have been visited for water by the French column on its southwesterly route towards Bir Moghrein (Fig. 6.8, shows the route of Mouret's column).

Western Sahara was deemed pacified by 1934 and in that year the Spanish camel corps, the *Tropas Nomadas*, entered Smara, though it would take another two years for a permanent Spanish presence and garrison to be set up in the town. The Spanish had yet to occupy Tifariti (around 130 kilometres southeast of Smara), but a Spanish military survey team must have visited the place in 1944 or 1945 since an astronomical survey point was set up at Tifariti and recorded on the 1949, 1/500,000 scale map of the territory. This map also shows two permanent wells with the descriptor *hasi*[512] (or *hassi*), being wells of only 6 metres or so in depth.[513] A further well was dug in 1951-1952 and also described as a *hassi*.[514] It is probable that these wells were dug by the local Bedouin seasonally occupying Tifariti, since it was only in the decade of the 1960s, that the Spanish authorities started to increase the territory's water supply in earnest by the digging of new wells.[515]

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[510] The location of this engagement is noted on the U.S. Army Map Service map: *Mauritanie, North Africa* (1:2,000,000 scale) 1958, as *Gleib el Fertouna*. *Gebel El Fertuna* (another transliteration of the place-name) is also indicated on the 1949 (1:500,000 scale) Spanish military map of Western Sahara (Rodriguez Esteban 2011). For an account of the 1913 Mouret expedition which covered 1,700 kms in a return journey – departing from Attar on February 9th and returning on March 28th – see Trout 1969: 211, Mercer 1976: 114-115, Hodges 1983: 60-61 and Berthome 1996.
[511] Berthome 1996.
[512] Rodriguez Esteban 2011.
[513] Mercer 1976: 194. Though Pazzanita 2006: 200, puts a *hassi (hasi)* at a maximum depth of 12 metres.
[514] Although wells were recorded at Tifariti by 1949 on the Spanish 1/500,000 map of the territory (Rodriguez Esteban 2011), this later *hasi* is described on the Tifariti History Plaque (see Appendix 1) as 'the first' well of Tifariti, superseding the spring which the plaque notes as existing in 1912.
[515] Mercer 1976: 194.

A Spanish colonial presence was eventually realised at Tifariti in 1964[516] when the place became an outpost for the Spanish Foreign Legion who built one of the new, small forts that were being established in the further reaches of the territory, after the insurgency of the Ifni-Sahara War of 1957-1958. Tifariti received its first community, and colonial government facilities in 1968.[517] But this might have been preparatory to the decision to build a tourism complex that year, with the intention of turning Tifariti into 'the Costa Brava of the desert'.[518] Needless to say, the scheme was never carried out, but some developments did take place and the remains of these make up a substantial part of late 20th century archaeology at Tifariti.

A suggested, though undoubtedly partial, plan of Tifariti during the Spanish occupation (1964 to 1975) is shown Fig. 6.9. It is based on Google Earth imagery and historical photographs available on the Internet,[519] also my visits to Tifariti in 2007 and 2008 as part of the WSP, and the further survey season I undertook at Tifariti in 2011. The figure shows the heart of the settlement. The scrub vegetation in the western half of the Google Earth image clearly indicates the Wadi Tifariti with a tributary. The ground is relatively flat, and the wadis drain to the north at the top of the image. Nonetheless, the ground in the upper centre and upper right (northeast) of the image is very rocky, and it rises above the wadis. It actually creates a shallow basin in which Tifariti sits.

Fig. 6.9 also shows 11 features (including one group of features) from the Spanish colonial occupation, which it has been possible to easily plot. They are (the numbers match the numbers in Figs. 6.9 and 6.10):

1. Fort built by the Spanish Foreign Legion, reputedly in 1964.
2. Infirmary associated with the Spanish fort.
3. Three external buildings near and/or associated with the fort.
4. The post commander's accommodation and/or office.
5. Bake house.
6. Main water cistern (linked by a pipe on stanchions to the fort).

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[516] Bachir Achmed, Saharawi facilitator to the WSP, per. comm.
[517] See Appendix 1.
[518] Mercer 1976: 217.
[519] *Hermandad de Veteranos de Tropas Nómadas del Sáhara* (2011) and *La Mili en el Sáhara* (2001-2013).

7. Subsidiary water cistern (linked by pipes on stanchions to the main water cistern and the commander's accommodation).

8. Rubbish dump.

9. Well site.

10. The 'Colonia': prefabricated, low cost accommodation built by the Spanish for the local Bedouin.

11. Islamic Cemetery

These 11 features are discussed below, though there is an additional feature from the Spanish occupation not listed or shown in the figure, and that is the airstrip that is located 700 metres to the southwest. Instead, its disposition is shown in Fig. 6.59.

1. The Spanish Fort

If the fort was the earliest manifestation of a Spanish presence at Tifariti, then it must have been a very lonely outpost indeed for the first four years of its existence, very much like the fort at Tichla in the 1940s (see Chapter 3). There are two photographs of the fort available on the Internet that show what it looked like by 1975-76. The first is Fig. 6.10, which shows the fort amidst a number of the buildings plotted in Fig. 6.9. The second, Fig. 3.11, in Chapter 3, clearly shows the fort garrisoned and in defensive readiness since sandbags line the corner blockhouse parapets. Even though the fort is now in poor condition due to a Moroccan air attack in 1991 (see Fig. 6.11), the record I made of it in 2011 (along with the earlier photographs I took of it in 2007) coupled with photographs of the identical and contemporary posts constructed at Hausa, Bir Enzaren, Mahbes and Echdeiria (see below) can give us a very good view of what the Tifariti fort and outpost was like between 1964 and 1976.

An outline plan of the fort is shown in Fig. 6.12. It is a partial reconstruction, and photographs of some of the post's external elevations, as they appear today and as they would have looked before 1975-76 are shown in Figs. 6.13 to 6.18. The maximum, overall dimensions of the outpost are 37 metres east to west by 37 metres north to south.[520] The fort was constructed around a central rectangular courtyard aligned east to west, measuring 24 metres by 15.5 metres (see Figs. 6.19 to 6.22).

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[520] The curtain walls are battered and these dimensions were recorded at around 1.4 metres above the ground.

There was a blockhouse type structure at every corner and these were approximately 4.4 metres high, while the curtain walls connecting them were approximately 3.5m high. The blockhouses were rectangular in plan with the largest at the northeast corner of the fort measuring six metres by 13.5 metres, and the smallest at 6.5 metres by 8.5 metres at the northwest corner of the fort. There was a dog-leg shaped blockhouse at the southeast corner extending over an overall area of 11.5 metres square. This was linked to a right-angled entrance into the fort from the west. This only had a bar across it where there was also a door, presumably into a guardroom (these are only just visible in Fig. 3.11, while an entry bar is also visible in the entrance to the fort at Echdeiria in Fig. 6.16).

The central courtyard was surrounded by rooms, averaging 5.5 metres in depth. Externally they, and the corner blockhouses, had narrow, vertical slits (loopholes) for windows, testifying to the defensive nature of the building, while internally, there were more standard sized windows with shutters facing into the courtyard. Access to the roofs was by external, vertical ladders of steel rungs built into the walls of the courtyard. The roofs all had very low parapets, though the parapets of the corner blockhouses were 1.22 metres high. They were not crenellated but they were decorated with repeating geometric motifs in rectilinear panels. The external walls of the fort (averaging 0.45 metres thick) were made of cast concrete and apparently raised in horizontal stages; first to window sill level, then to window head, and finally up to roof level. The interior walls were made of cement blocks, as were all the parapets (0.3 metres thick), while the concrete roofs had metal rod reinforcements. All the walls were painted white (though now discoloured). This was unlike the earlier fort at Tichla, for instance, which was constructed of stone rubble with a rough render (see Fig. 6.23). There is now rubble in the central courtyard of the fort at Tifariti, but a photograph exists showing a small walled off area, surrounded by a low decorative parapet, with low pillars and trailing plants in which there was, what could best be described as a menagerie (see Fig. 6.22). There are wired enclosures and kennels for goats, or perhaps a gazelle, and a possible aviary, perhaps for a bird of prey. There is also a dovecote on the roof of the fort. The low parapet of the enclosure would not have been out of keeping on a Mediterranean patio, and the animals may have been tended as pets, as well as sources of additional food to presumably improve a monotonous military diet.

The domestication of space within the forts was apparently common. Although these were military establishments, the officers and soldiers obviously wanted their living and working space to provide them with comfort within the harsh desert environment in which they found themselves. A photograph (Fig. 6.24) of the interior of the fort at Hausa (a fort identical to Tifariti) shows the courtyard consisting of 'crazy paving', and with a solid awning under which there was a seating area for the soldiers to relax. Another photograph (Fig. 6.25), this time of the similar fort at Bir Enzaren, obviously shows that the courtyard was filled with trees, making the white walled central space a cool, and presumably welcoming place.

At Tifariti (and this presumably applies to the other similar forts), the northeast corner of the courtyard gave access to a shower block, while there were laundry facilities in the east range near by, along with a canteen which had a built in bench with sink, and a decorated bar. Alterations were made to the fort over time, presumably from the initial Spanish occupation up to 1975-76, to the Moroccan occupation of Tifariti (1977-1979), and to the occupation of the post by the Polisario/SADR forces up to 1991. Fig. 6.12 shows the salient constructional phases in plan, and they can be tentatively described as:

Phase 1: This represents the initial construction of the fort.
Phase 2: Alterations were carried out on the fort, mainly in the eastern range. These apparently consisted of alterations, and/or blockages to doorways. These were probably carried out during the Spanish occupation since they were finished (rendered) to match the initial construction of the fort.
Phase 3: This phase consists of further alterations – blockages of doors and infill, but in course un-rendered stonework, laid in a cement mortar and painted to match the existing paintwork. It is possible that this phase is Spanish too, primarily based on the painting of the alterations.
Phase 4: It cannot be certain whether or not this phase is separate from Phase 5, but it is structurally different. It is mainly represented by two large stone rubble walls (in a mud plaster) added to the outside of the north wall of the fort. The purpose of these walls is not known, nor if they had a cross wall connecting them (their northern ends are denuded and the ground is covered in rubble and sand). There is also a stone and

mud mortar infill in one of the doors in the east range of the fort, and this too might belong to this phase.

Phase 5: As noted above, this phase of alterations might be the same as Phase 4. However, it is characterised by mud brick infill, for instance, in the southeast corner of the southeastern corner blockhouse (where a door has also been inserted), and there are a couple of replacement partition walls, plus external walling outside the north wall of the fort. What can separate this phase from Phase 4, though, is the fact that the mud mortar used in this phase is lighter than that used in the previous phase. Perhaps Phase 4 represents some alterations made during the Moroccan occupation of Tifariti, while this latter phase was carried out solely during the Polisario reoccupation of the fort from 1979 onwards.

2. The Spanish Infirmary

When interviewed in October 2011, Bahia Awah (formerly a soldier in the Poliosario/SPLA and stationed in Tifariti during the latter 1980s)[521] made the point that there was an infirmary in Tifariti during the Spanish occupation. He was ambiguous about its location, and when interviewed, I was uncertain as to whether he was talking about an infirmary built by Polisario after the Moroccans left the settlement in 1979, or he was actually talking about a Spanish built building. Nevertheless, photographs of three Spanish posts in Western Sahara from the 1970s, available on the internet, appear to have cleared the matter up.

First, Fig. 6.26 shows the fort at Bir Enzaren with a smaller building away from it and to the right. It is constructed in a similar way to the fort in that it has low parapets on its roof and an apparently matching render. From what can be seen, the building consists of two parts. The larger part has a long horizontal window, with a doorway just beyond it, and there is a nib of an extension towards the fort at the far end of the structure. The second part of the building (closer to the viewer) is smaller, and slightly lower and it has two small windows that are visible. Matching this, and in a photograph of the Spanish post at Hausa, is another similar building (see Fig. 6.27). The windows and door are the same, as is the roofline, though in this instance the roof has eaves and no parapet. The angle of the photograph makes it hard to discern

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[521] Awah, Interview.

whether or not there is a small extension at its furthest corner, nevertheless, the two buildings are apparently identical in form. But what makes this image most important is that it has a caption stating that it is a 'view of the school' (presumably the treble domed structure on the left), the 'medical clinic' (presumably the central building) and the 'Territorial Police Headquarters' (the fort in the distance). An identical building at Mahbes is visible at the far right of Fig. 6.40. It too has a flat roof with eaves, and its close juxtaposition to the fort is very similar to that at Tifariti, Bir Enzaren and Hausa.

These three photographs have helped to identify the Spanish period infirmary, or clinic, at Tifariti, as marked out in Fig. 6.8, and which is visible to the right of the fort in Fig. 6.9 (and distant by around 25 metres). The elevation that can be made out is virtually the same as the building elevations seen in Figs. 6.26, 6.27 and 6.40, except that there is a further extension to the right (though this part of the building at Tifariti would have been out of site in the photos of Hausa, Bir Enzaren and Mahbes). The infirmary was hit during the Moroccan air attack of August 1991 and the elevation visible in Fig. 6.9 has been destroyed (see Fig. 6.28). A view of the building from its south side is shown in Fig. 6.29. It is now the office of the Mayor of Tifariti.

3. External Buildings near the Fort (including 3a and 3b)

An external single storey building associated with the fort at Tifariti is visible to its left, and just beyond it in Fig. 6.9. It was long and thin, rendered, and painted just like the fort. Its estimated footprint (up to 45 metres long by six metres wide) is outlined in Fig. 6.8. With the building no longer present, there are newer buildings standing in its place. The building was under 20 metres south of the fort, and similar buildings can be found in photographs of other Spanish bases in Western Sahara. For instance, such a building (though associated with other structures and with a courtyard) is shown in Fig. 6.16, just in front of the fort at Echdeiria.

Two further buildings, external to the fort and no longer standing are clearly shown in Fig. 6.9 (and indicated in Fig. 6.8). Just north of the infirmary was a building (3a) made up of two parallel ranges on a north to south axis with a narrow courtyard between them. The building seems to have not been rendered in the same manner as the fort, so it is possible that it was not associated with the military. Perhaps it was the settlement's school during the Spanish occupation of Tifariti. Additionally, offset to

the west, and further north of the infirmary was another courtyard structure (3b). What this building was can only be guessed at, but as with the possible school, its imprint was slightly visible on the ground in 2011.

4. The Commander's Accommodation/Office

The Spanish Commandant's accommodation was identified as such by Bahia Awah.[522] It was built in its own trapezium shaped compound (around 35 metres by 35 metres in area) and it can just be seen at the right hand edge of Fig. 6.9. It is also vaguely visible in Fig. 6.22, beyond the fort and just below the hills in the upper right of the photograph. Its present condition in 2011 is shown in Fig. 6.30. The Commander's quarters measure around 10 metres by 10 metres in area. It was rendered and painted in the same manner as the fort and infirmary, and the present enclosure wall of rubble masonry (with some parts in mud brick) has been raised on top of earlier, much more neatly built masonry – probably the remains of the original compound wall.

5. The Bake House

Behind and to the immediate north of the fort (by around 30 metres) are the ruins of the post's bake house, as identified by Bahia Awah.[523] It can be seen just below the fort in Fig. 6.9, and like the fort and the other buildings already described, it was rendered and painted in white, though the building was of mud brick construction. It had multiple rooms and a beehive type oven, and there are the impressions of wall tiles on one of the interior walls. It is now in a very ruinous state with building rubble spread around it (see Fig. 6.31). Some alterations occurred to it in its lifetime since its doorways had been blocked with stones set in a mud mortar. Its size was approximately nine metres by eight metres in area with a narrow, channelled, extension out to the northwest for around 15 metres. This extension is still surrounded by dark earth – probably made dark by ash and soot. The precise purpose of this feature is not known, but it might have been some kind of flue (see Fig. 6.32).

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[522] Awah, Interview.
[523] Awah, Interview.

6. Main Water Cistern, and 7. The Subsidiary Water Cistern

There used to be a water cistern (see Fig. 6.9) situated on the higher, rocky ground north of the fort by about 130 metres. According to Bahia Awah,[524] it was similar to the cistern presently behind the modern infirmary in Tifariti, and roughly at the same elevation – at just a few metres higher than the fort (producing a gravity feed). Its precise size is not known since the place where it was situated is now totally devoid of any remains. Nevertheless, its position is indicated by the series of white washed concrete posts that carried the water pipe that fed the fort (see Fig. 6.32). Also, there is a second line of similar posts (see Fig. 6.33) that link the position of the cistern with a subsidiary, rectangular cistern (No. 7 in Fig. 6.9, and almost 180 metres to the southwest), which provided the Commander's quarters with water.

8. Spanish Army Rubbish Dump

Amidst boulder outcrops around 100 metres north-northwest of the fort is a sheet midden, primarily made up of broken glass from wine, beer and other bottles. This was, as Bahia Awah[525] described it, the rubbish dump for the soldiers of the Spanish garrison at Tifariti. It covers an area of approximately 100 by 60 metres and it is shown in Figs. 6.33 and 6.34.

9. The Well Site

Bahia Awah[526] informed me that the well which provided water for Tifariti and the Spanish garrison (and is probably the location of the well, or *hassi* dug in 1951-52) was situated around 250 metres west of the Spanish fort (see Fig. 6.9). Its remains are very obvious, and it is within a low earth embanked area at the southern end of the compound of a recent experimental/model farm. There are at least four visible shafts (lined with stones and in variable states of disrepair), amidst weathered spoil tips, from the digging and re-digging of the wells, which seems to have continued until quite recently (see Fig. 6.35). There are pipes in and on the ground, including one associated with a small concrete lined water cistern. There are further, substantial diggings for water around 140 metres to the south-southeast and it is probable that these have superseded this earlier well site.

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[524] Awah, Interview.
[525] Awah, Interview.
[526] Awah, Interview.

10. The Spanish Colonia

As part of the Spanish occupation of Tifariti, a *colonia*, that is a planned arrangement of housing for the local Bedouin, was constructed around 200 metres southeast of the fort. It was destroyed as a result of the war, but its remains cover an area of approximately 130 metres by 150 metres. It mainly consisted of 10 gridded blocks of pre-fabricated houses with other, mud brick buildings and amenities. Fig. 6.36 shows its layout. The present track into Tifariti, from the east, bisects the *colonia* remains, utilising an earlier avenue between the housing blocks. There are six low-lying concrete platforms on the north side of the track, equidistantly spaced in a grid pattern. Each measures about 13 by 38 metres. At the eastern end of these, and to the south of the track, there are four more identical platforms. These all represent the foundations for housing, perhaps similar to the houses shown in Fig. 6.37. To the west of these latter foundations are the remains of mud brick buildings. They too are laid out in a grid, but one that is slightly askew to that of the concrete house platforms.

Both Bahia Awah[527] and Muhammed Deya,[528] the Mayor of Tifariti, agreed that there were around 300 'houses' in Tifariti during the Spanish occupation. This is probably an exaggeration since in the years 1968 to 1972 a total of 1319 houses were built in Western Sahara.[529] If 300 of these were in Tifariti, then these would have accounted for almost one quarter of all the accommodation built in the territory, and this was probably unlikely. Tifariti was only a small settlement, situated far out in the *badiya*. Nevertheless, Muhammed Deya[530] did say that there were about 600 families living in the Tifariti area at the start of the war and that many of these were still living in Bedouin encampments since there was not enough permanent housing. Also, and perhaps most importantly, virtually all of the families were still pastoral, and they, or at least some family members, seasonally travelled with their herds in and around the Tifariti region. In fact, Kalthoum Salma,[531] a Bedouin woman from the Tifariti area, recounted in an interview that in the past many nomads, from Mauritania as well as Western Sahara, would encamp together in the Tifariti area and graze their herds.

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[527] Awah, Interview.
[528] Deya, *Interview.*
[529] Mercer 1976: 209, Table 9.
[530] Deya, Interview.
[531] Salma, Interview.

They would also range from Tifariti to Mahbes and Echdeiria in the north of the territory. However, this diminished after a severe drought in 1961,[532] with families settling in the towns, and with many men joining the Spanish colonial military.

11. Islamic Cemetery

There is a walled off Islamic cemetery roughly 275 metres southwest of the fort at Tifariti. It covers an area of around 80 by 45 metres, and is surrounded by a stone rubble wall. The bulk of the graves are aligned, more or less, north to south, so that the interred can lie on their right sides and have their heads turned towards Mecca. However, within the northern third of the cemetery, the graves are aligned northeast to southwest and these are the graves of Moroccan soldiers who died at Tifariti during the Moroccan occupation. The graves, according to Bahia Awah,[533] include multiple burials and they are much plainer than the nearby Saharawi graves. The Moroccan graves are, on the whole, simple earthen mounds with a head and footstone (see Fig. 6.38). In contrast, the Saharawi graves (see Fig. 6.39) have kerbs around them with very sizable head and footstones, and in some instances, decorative arrangements of quartz stones, usually in a longitudinal line along the length of the grave mound. Although considerably more elaborate, these graves are similar to the 'kerb burials' recorded in the field surveys of the WSP, and the use of quartz to decorate them harks back to prehistoric times, since the WSP has recorded scatters of quartz on top of, and around, a number of pre-Islamic tumuli.[534] They are visible on the ground in Fig. 6.5, spread out within the standing stones site in the TF1 study area.

In summary, it has already been noted that the military outposts established by Spain throughout the territory were more than isolated *Beau Geste* type forts. They were central to the control, if not at least the surveillance, of the colonized by the colonizer. These posts were foci providing services (including basic shops), medical facilities, housing, basic education, and security. They attracted many Bedouin, and as Muhammed Deya[535] pointed out in an interview, in the case of Tifariti, the Bedouin stayed relatively close, taking their herds out along the wadis nearby when there was

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[532] Kalthoum Salma's testimony is reflected in the drop of camel numbers throughout Western Sahara from 50,000 in 1960 to 24,000 in 1961. Mercer, 1976: 165, Table 4.
[533] Awah, Interview.
[534] Clarke and Brooks in press.
[535] Deya, Interview.

rain, and in the dry season returning to the settlement, or to a camp close by. At these times the settlement might have looked like the scene in Fig. 6.40, which is a photograph of the Spanish post at Mahbes taken in 1974, with its fort (just like the one at Tifariti), ancillary buildings, an infirmary, and a large Bedouin encampment close by.

The Archaeology of War at Tifariti

The pastoral way of life of those Saharawis who lived in the *badiya* around Tifariti, and of those who were semi-sedentary in the settlement, was to change in an unimaginable way by the end of 1975. On October 31st of that year, the northeast corner of Western Sahara was invaded by elements of the Moroccan military and this was the start of a war that would last until 1991.[536] The Moroccans attacked Echdeiria, Hausa and Farsia, outposts that had been abandoned by the Spanish the day before. Polisario forces put up stiff resistance but were unsuccessful, while remaining Spanish forces made no attempt to stop the clashes.[537] Mauritanian troops also started to invade the southern part of Western Sahara in the third week of December.

In accordance with the Madrid Agreement of November 14th 1975, and after ironing out the practicalities of withdrawal on the ground, the last Spanish garrison in the territory left Villa Cisneros on January 12th 1976. In response to the Moroccan occupation of the country, Polisario, with its very limited resources, tried to occupy and defend those towns and settlements where the Spanish left a vacuum. However, with Morocco's advantage in manpower and material, and with Polisario's need to look after the exodus of refugees heading eastwards out of Western Sahara, this could not be sustained.[538] Small settlements throughout the Territory, including Oum Dreiga, Tifariti, and Guelta Zemmour, which had become important sanctuaries for Saharawi refugees, were being attacked if not taken one by one in the first few months of 1976,[539] and after an air bombardment of Tifariti, in January 1976,[540] it was

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[536] Zunes and Mundy 2010: 6.
[537] This invasion of Western Sahara was also aimed at diverting Polisario's attention from King Hassan's 'Green March', which did not commence until November 6th 1975. Hodges 1983: 219-220.
[538] Hodges 1983: 230.
[539] Damis 1983: 71.
[540] See Appendix 1. As a boy of 14, Bahia Awah experienced bombardment and the dropping of napalm when he was a refugee travelling from his home in Ausserd, in Tiris, to Tifariti. He arrived in Tifariti

claimed by Morocco that their troops occupied the settlement on the 5th of February.[541] But according to the *New York Times* in March 1977, Tifariti was a 'ghost town', abandoned by Polisario as a result of the 1976 bombing, and the Moroccans had 'not moved in'. Instead, the 'Saharan Guerillas' were described as having complete freedom of movement throughout the Tifariti region.[542]

It has been estimated that approximately one third to one half of the Saharawi population left the towns and *badiya* as a result of the Moroccan and Mauritanian invasions of 1975 into 1976.[543] Temporary centres for the refugees moving out of the country were systematically bombarded by air, and livestock as well as people were attacked. It has also been claimed that water sources were poisoned.[544] These attacks are recalled 'with horror' by older Saharawis.[545] Morocco's intention was to concentrate the population in the larger towns, in effect, in a concentration of population that has been a hallmark of many counterinsurgency operations, from the Spanish in Cuba in the latter 19th century[546] to the Americans in Vietnam.[547] A population in towns can be watched and controlled, and they can be isolated from the insurgents in the countryside who they might want to support. In response, Polisario set up refugee camps near Tindouf, in Algeria, and during the years of hostilities, these had a very high proportion of women, children and the elderly, since many men of fighting age were in the Polisario/SADR army – the SPLA.[548]

Since the aim of the Moroccans at the beginning of the war was to clear the regions, they only moved into the 'ghost town' of Tifariti in August 1977 – they eventually withdrew on March 12th 1979.[549] According to Muhammed Deya, the Moroccan occupation of the settlement was part of a large offensive made up of four Moroccan

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about one week after the January 1976 bombardment. He had set out from Tiris on the 25th of December 1975 (Awah, Interview).
[541] Hodges 1983: 230-232.
[542] Howe 1977: 2.
[543] Damis 1983, p. 41.
[544] Salma, Interview.
[545] Shelley 2004: 190.
[546] Hyslop 2011.
[547] Karnow 1983: 253-258.
[548] Damis 1983: 41.
[549] See Appendix 1, and Fadel, Interview. The precise date of 12 March is from Knight 1979.

battalions.[550] Although Tifariti had been bombarded at the beginning of the previous year, many of the buildings were still intact, so the troops occupied the houses of the *colonia* along with the Spanish fort and associated buildings.[551] From this period too, the Moroccans started to fortify Tifariti with 'embankments and trenches around four kilometres [to] five kilometres' around the settlement.[552] They 'dug in', as they had done so, and would continue to do at other locations throughout Western Sahara, with the overall extent of their fortifications highlighting that the invaders were definitely occupying an alien, contested landscape; one which Polisario fighters knew intimately, and wherein they knew how to survive and to fight.

> 'It isn't enough to hold the posts – the land in between has to be occupied, and if it isn't, it will be hell for them,' said a [Polisario] military leader, referring to the Moroccan and Mauritanian 'occupiers'.
> 'But in between, there is nothing…'
> 'That is where we are at home,' he replied imperturbably.[553]

The Moroccan 'post' at Tifariti was reminiscent of the defensive 'boxes' used by the British in World War Two in the Libyan Desert. These could hold three battalions with support and artillery. 'The perimeter would consist of slit trenches to hold the infantry with some more elaborately constructed gun pits for the artillery'.[554] The whole would have frontages of one to two miles (up to more than three kilometres) surrounded by barbed wire and minefields.[555] There is no evidence of there ever being a cordon of barbed wire around Tifariti, and AOAV/LMA has only found limited minefields. Also, the extent of the Moroccan 'box' was more than double that of the boxes laid out in Libya. Nevertheless, the analogy is a useful one, hence the term 'box' is a convenient descriptor of the Moroccan defences at Tifariti.

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[550] Deya, Interview. Muhammed Deya estimated there were 4000 to 5000 troops in the four battalions. This is probably correct since a modern army battalion can consist of approximately 1000 men. He also said that there were earlier attempts by the Moroccans to occupy the Tifariti region, but these were successfully prevented by the battle tactics of Polisario.
[551] Fadel, Interview.
[552] Deya, Interview.
[553] Weexsteen 1976: 3.
[554] Gilbert 1992: 116.
[555] Moorhead 1943: 50-51. Moorhead describes the 'boxes' as square, but this was not so. They were boxes in that they were enclosed and self contained, and supposedly, able to resist attack from all sides, much like an infantry box formation in the Napoleonic Wars. One just has to look at the remains of the World War Two box at Bir Hacheim on Google Earth, for example, to see that the layout of such dug in defences where far from rectangular.

The Defensive 'Box' at Tifariti

When talking about the Moroccan army in the field, Muhammed Deya disparagingly said that whenever they would stop, no matter what they were doing, they would always dig and fortify their positions. Then, after a few attacks by Polisario, they would be forced to abandon the positions that they laboured so hard to make. On the other hand, Polisario never created defended outposts, they never 'dug in', they were always on the move in light vehicles.[556] However, the remains of the labours of the Moroccan army at Tifariti are impressive. The various feature types had specific purposes and the materiality of their presence, cut into the ground, has a story to tell.

Muhammed Fadel,[557] Chief of Reconnaissance of the SPLA in the Tifariti Region, has provided a very generalised overview of the disposition of Moroccan forces in and around Tifariti. With their command post east of the Wadi Tifariti, at the Spanish fort and *colonia*, he maintained that they positioned their artillery and tanks within the higher ground west of the wadi. A ring of dug out defences surrounded this core area, but their west flank did not extend as far as the Wadi Legtaf, the next large wadi to the west. In turn, this defensive trace was encircled by a further ring which extended, as has already been noted, around four to five kilometres out from the centre of Tifariti, and this, according to Fadel, was encircled by land mines.[558]

The Archaeology of the Tifariti Box: the salient features

Tifariti is set within a terrain that generally slopes downward to the north. The tributaries to the Wadi Tifariti, and the Wadi Legtaf (both draining to the north – see Figs. 6.4 and 6.60) have their watersheds around five to nine kilometres south of

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[556] Deya, Interview. This has also been reiterated by Bachir Ahmed (facilitator to the WSP) to Nick Brooks (co-director of the WSP) *per. comm.* However, 'digging in', even for a single night's stay, especially in a hostile environment, is common practice for any conventional army.

[557] Besides the archaeology on the ground (which is mainly examined through satellite imagery), the oral account and descriptions of Muhammed Fadel (who took part in the Polisario operations in and around Tifariti, and in the greater Zemmour region during the war) and Habua Breica (who only joined the SPLA in the 1980s) are my major sources for describing the 'siege of Tifariti'. These are undoubtedly limited and one sided, but they present two unique accounts of an arena of conflict that is not described anywhere else. Their inclusion is in keeping with the hybrid approach of modern conflict archaeology where all types of knowledge are examined, with an 'aim… to foster an intellectually coherent interdisciplinary approach to the study of… twentieth-century conflict' (Saunders 2004, p. 3).

[558] Fadel, Interview.

Tifariti. This is more or less in an arc outlining the south most limit of the basin in which Tifariti is situated (and from which open *hamada* desert extends southwards into nearby Mauritania). Just north of the colonial settlement the ground rises abruptly, though slightly, with roughly southwest to northeast trending folds of very rocky ground (including hard linear, igneous intrusions) dissected by the Wadi Tifariti and its tributaries. This higher ground is a watershed for minor tributaries into the Wadi from the east, and it outlines the Wadi Legtaf on the west. On the north side of the Wadi Legtaf the ground rises in folds again (with numerous linear, igneous intrusions). It also extends to the northeast, creating another watershed (also cut by the Wadi Tifariti) from which further tributaries flow northwards to the Wadi Tifariti.

Descriptions of Defensive Features at Tifariti

I visited Tifariti in October and November of 2011, when one of my survey goals was to familiarise myself with the Moroccan positions on the ground so that I could identify and plot them more effectively on Google Earth. To this end, I photographed and made notes on numerous defensive features in an area of more than 6.5 square kilometres. Upon returning to the U.K, I mapped most, if not all, of the defensive features easily identifiable on Google Earth in the rectangular Tifariti Study Area (14.5 kilometres east to west by 16.6 kilometres north to south) shown in Fig. 6.2. This figure also shows that the Moroccans had to lay out their defensive box within a landscape of prehistoric remains that extends southwards from the TF1 study area of the WSP, into the rocky ground surrounding the settlement of Tifariti.

As already pointed out in Chapter 4, the modern military concept of defence, especially the defence of a fighting force, hinges on the notion of 'survivability'. The following, therefore, is an outline description of the salient types of defensive feature constructed by the Moroccan army so that it could 'survive' while occupying Tifariti from 1977 to 1979 (these were additional to those Spanish colonial structures occupied by the Moroccan army). They are described within six overarching categories, or groups of features, and although there are variations and sub-types within each group, it is the larger group designation that has been applied to each plotted feature in the accompanying mapping. This is because the details that

differentiate the specific sub-types cannot be easily made out in the satellite imagery of Google Earth. Also, I was only able to investigate a small part of the Tifariti defensive box while in the field (the box covers a total area of more than 90 square kilometres) so the cartographic representation of it, like that of the berms in Chapter 4, has been solely dependent on Google Earth imagery, and must be viewed as a remote sensing exercise with all of its inherent limitations. Nevertheless, the descriptive groups are:

Dug Out Positions

The Moroccans did not build earthen barriers (berms) around Tifariti, nor did they dig trench systems. Instead, their defences relied on strings, or concentrations, of dug out fighting positions for one or two soldiers – perhaps more in some instances. Such features are ubiquitous when an army 'digs in' in virtually any terrain. Individual fighting positions can vary from single soldier, scraped out positions,[559] also known as 'skirmisher trenches' (or 'skirmisher pits')[560] – shallow diggings with the spoil heaped in front, in which a soldier can lie to reduce his frontal profile while defending himself (see Fig. 6.41) – to 'foxholes',[561] also referred to as 'slit trenches',[562] which can be up to a metre or more deep (depending on the subsoil) with their excavated spoil spread around them as a parapet, and excavated to accommodate one or two soldiers (see Figs. 6.42 and 6.43). Besides serving as fighting positions, foxhole type diggings can be found away from forward areas as shelters for soldiers,[563] and they can serve as observation posts appropriately positioned.[564] Where the ground is rocky and the bedrock is close to the surface, as at Tifariti, dug out defensive features will not be deep and they will often have low stone parapets around them. Other dug out positions include machine gun and mortar pits (see Figs. 6.44 to 6.47). These are usually larger than two man foxholes (mortar pits can be up to four metres in diameter), and since most dug out positions at Tifariti are partially filled in with side wall collapse and wind blown sand, it is hard to be precise about the original size and depth of many of them, on the ground, let alone through the processes of mapping with a facility like Google Earth. Nevertheless, spot recordings at Tifariti in 2011 indicate that single

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[559] Rottman 2007: 7.
[560] Rottman 2005b: 31, and 2007: 31.
[561] U.S. War Department 1944: 47-51.
[562] Holmes 2003: 298.
[563] U.S. War Department 1944: 52.
[564] U.S. War Department 1944: 54.

man foxholes can be 1.3 to 1.6 metres wide by 1.9 to 2.3 metres long, while presumed double man foxholes, which could also be machine gun positions, mortar positions or even positions for hand held rockets, could range from 3.0 by 2.0 metres to 3.0 by 4.0 metres in area. Though small features have been pointed out to me as small mortar pits, at only 1.4 to 1.9 metres in diameter.[565] With dug out fighting (and other) positions being the mainstay of the Moroccan defences at Tifariti, the overall distribution of all defensive positions can be seen in Fig. 6.60.

Entrenchments

Single and small groups of dug out fighting positions occasionally have approach trenches associated with them. These are usually short linear features that originate behind the fighting positions, and they presumably gave protection to soldiers accessing them – perhaps in situations where certain fighting and observation positions were more liable to attack than others (see Fig. 6.48). There are also distinct groups of fighting positions linked along trenches, and it is possible that these represent mini strong points. By being linked, soldiers could move between the different fighting pits (foxholes or slit trenches), responding to any specific threat and giving each other support (see Figs. 6.49 and 6.50). The distribution of entrenched positions is usually along the outermost defences of the Tifariti box and they are discussed further below.

Built-up Positions

At Tifariti, these are often stone built, enclosed structures that are usually above ground, though in most cases, they are partly dug into the earth. Where it has been possible to examine them in the field, they are made up of stone rubble (on mud bricks in some cases) with a mud mortar, and they would have been roofed when they were occupied. Many of these were probably shelters, or accommodation huts for soldiers, and there are instances of windows in their side walls, made from wooden crates and large tin cans with their bases removed (see Figs. 6.51 to 6.53). Their plans can be rectilinear, or ovoid, and the individual structures can measure around 1.25 to 4.0 metres by 1.75 to 4.0 metres in area. They can be single and/or on their own, close together or in contiguous groups. The bulk of these shelters are in an area I have

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[565] Fadel, Interview.

called the Tifariti 'redoubt' (discussed below). There are similar structures in the TF1 study area of the WSP, but these are mainly made of mud bricks (see Fig. 6.54). Also, similar accommodation features occur along the berms, and they have been noted in Chapter 4, and in particular, see Figs. 4.30, 4.32, 4.52, 4.69, 4.76, and 4.78.

When structures similar in construction to these are on defensive front lines, then they are probably not structures built solely for accommodation, but either sangars or bunkers. However, when viewing these two specific types of features on Google Earth, it is hard to differentiate between them. This is especially the case since all built-up structures are now roofless, and there are instances where these types of features are obviously embanked with earth. This can blur the definition of their outlines, making it nearly impossible to distinguish sangars from roofless bunkers, and both of these from large, revetted dugouts.

Vehicular Slots

As already noted in Chapter 4, vehicular slots are also known as 'tank slots',[566] though this does not mean that they can only accommodate tanks. They are also known as 'hull-down scrapes' or 'AFV revetments',[567] and as 'hull defilade pits'.[568] They are created by excavating a rectangular pit into which a vehicle can be easily driven in and out of. They are surrounded on three sides by earthen parapets. These 'U' shaped features are protective, from which tanks or self-propelled howitzers can safely discharge fire. They can also accommodate trucks or jeeps with recoilless guns, and they can be made to simply protect vehicles behind forward areas. Examples are shown in Figs. 6.55 and 6.56. Small 'U' shaped vehicular slots are apparently 2.3 to 3.0 metres wide, but from the spot records made in the field in 2011, their lengths appear to be no longer than 5.75 metres. Larger vehicular slots, for tanks or artillery, are definitely no smaller than 3.5 metres wide, and from Google Earth, their lengths can be observed up to, and at more than 10 metres. There are few, small vehicular slots along the southern limits of the Tifariti box, but they are very evident north of the Wadi Legtaf. On the whole, they can be found between the limits of the inner and

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[566] Rottman 2005b: 22.
[567] Dunstan 2008: 29. AFV is an acronym for an armoured fighting vehicle.
[568] Rottman 2007: 51.

outer Tifariti boxes, and there is a great concentration in the Tifariti redoubt (see below).

Gun Pits

Artillery gun pits are circular or sub-circular in shape. They can vary in size depending on the type of gun they have been designed for. They can be as small as four metres in diameter, and even smaller, mainly as mortar pits, or they can be more than 10 metres in diameter to accommodate towed artillery or self-propelled guns. They are created by excavating a shallow hollow in the ground and using the spoil to create a circular parapet around them. This can be simply embanked, or revetted internally with stones and/or sandbags. Access is by a ramp through which artillery can be emplaced in the pit, though in Vietnam for instance, the pits were nearly closed with the artillery pieces dropped into them by helicopter.[569] Very often, these pits have small bunkers or shelters associated with them, and storage areas for gun shells (see Figs. 6.57 and 6.58). The distribution of gun pits at Tifariti is discussed below.

It seems that circular gun pits really came into being during World War Two. The mono-directional linearity of defence and offence that was a hallmark of World War One was replaced by an all round approach to tactics, since armed forces became highly mobile with multi-directional troop movements. Occupied positions could be outflanked and attacked from unforeseen directions, therefore support artillery had to be able to pivot around to cover a number of different angles. This really became obvious during the Vietnam War with the creation of fire support bases, which has already been discussed in Chapter 4.

Other Features

Besides occupying the buildings at the very centre of Tifariti, the Moroccans also utilised the old Spanish airstrip (see Fig. 6.59) located around 700 metres south of the Spanish fort. They, or the Spanish, might have been responsible for the three conical cairns on high ground, around 480 metres to the north of the airstrip (and almost in line with it) which might have served as some kind of landing markers. Also, along the lower slopes near the markers, there are large inscriptions on the ground laid out in

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[569] Foster 2007: 22-23.

stones. One is in Arabic and it is visible on Google Earth – it reads 'God, The Nation, The King', and it includes a crown laid out in stones.[570] The other is in capital Latin letters inscribing 'ALTEA', but the meaning of this is not known. LMA/AOAV has mapped the locations of four contained minefields and other areas of unexploded ordnance (UXO) in and around Tifariti (see Fig. 6.66). The minefields are a part of the Moroccan defences around the northern half of Tifariti, while many of the UXOs are probably related to air attacks by Morocco. Fortunately, LMA/AOAV has removed most, if not all UXOs from Tifariti, making it a much safer place today.[571]

The Archaeology of the Tifariti box: a landscape of defence

From August 1977 until March 1979 the Moroccan army 'dug in' at Tifariti, more or less in a continual state of siege.[572] Throughout this period, Polisario/SPLA forces carried out a war of attrition against the Moroccan forces occupying key positions throughout the *badiya*. Their tactics mainly consisted of repeated harassment strikes by small motorised units, unpredictably executed in time and space. Their aims were to isolate the Moroccans in their strongholds by cutting communications and supplies, and to demoralise them, thereby forcing them to withdraw from their positions.[573] At Tifariti, as Muhammed Fadel described, the Moroccan defences consisted of an inner line and an outer line. This is illustrated in Figs. 6.60 and 6.62, and the disposition of these defences can be best described using the KOCOA scheme of battlescape analysis.

KOCOA[574] is a methodology for understanding the landscape character of a battlespace. It was originally devised in its present form by the United States military, though in general, some type of systematised battlescape analysis has been a hallmark of all tactical planning in war. It is now increasingly used by conflict archaeologists as a tool for analysing battlescapes.[575] It is undeniably similar to general landscape characterisation which is a methodology used by landscape archaeologists and the

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[570] Translated by A. Wasse. Email message, 7 November 2013.
[571] AOAV 2008 & 2011.
[572] Fadel, Interview and Breica, Interview 2 November.
[573] Fadel, Interview.
[574] A thorough description of KOCOA (also known as OAKOC) can be found in U.S. Department of the Army 2009.
[575] Bleed and Scott 2011.

heritage management sector, to understand and appreciate historical landscape evolution. KOCOA stands for:

Key terrain: This is any locality whose occupation affords a 'marked advantage' to whichever combatant group controls it. High ground is an obvious example of key terrain since it can dominate an area and thereby afford good observational views and fields of fire. Another example might be a valley or wadi, since its occupation could facilitate the control of movement.

Observation: Essentially *viewshed* – what can be seen from any given position. This also highlights intervisibility and those spaces that cannot be viewed, referred to as dead space. Observation also relates to fields of fire.

Cover and concealment: These relate to protection from enemy fire and observation. They can be natural and/or man-made – therefore, they include defensive features.

Obstacles: Any obstruction that is designed or employed to impede, or stop, a combatant force is an obstacle. These can be natural or man made.

Avenues of approach: These are natural or man made features that facilitate the movement of combatants towards their objectives. They can be summed up as corridors of mobility.

Applying KOCOA to the Tifariti Box

Fig. 6.60 shows the overall distribution of defensive features in the Tifariti box as more or less concentrically placed, but on closer examination this is not so straightforward. There are multiple inner and outer lines of dug out fighting positions. Some are lengthy and well-defined while others are not. There are blocks and lines of features, all related to terrain in and outside of the box. A KOCOA characterisation can help explain them.

Key Terrain and Observation

Although the terrain in and around Tifariti is low lying, it does have topographic variance. Tifariti lies in a slight basin or depression, with natural drainage flowing northwards from the watershed delineating the southern edge of the depression. The northern side of the basin is demarcated by a zone of folding rock formations with dense concentrations of linear igneous intrusions that are ridge-like since they are harder than the rock through which they intrude. There is also slightly higher ground within and outside of the basin, and this lies at an elevation of 480 metres or more. This ground, within and around the Tifariti box, constitutes a zone of key terrain on which the bulk of the Moroccan defensive positions are located (see Fig. 6.61). In the center of the box, and south of the Wadi Legtaf, though also extending east of the Wadi Tifariti, are the inner lines of defensive positions – an 'inner' box. This utilises all of the higher ground around the earlier Spanish settlement, including a salient, though low lying east to west ridge of intrusive igneous rock south of the settlement – just south of the Spanish airstrip (see Fig. 6.62).

What can be observed from the inner defensive box, its viewshed, is quite striking. As Fig. 6.63 shows, by selecting six viewpoint positions along the inner box and using a GIS tool[576] to highlight the ground visible from those viewpoints, a generalised viewshed around the Tifariti inner box can be created. Surprisingly, the viewshed extends southwards only as far as the arcing southern limit of the basin in which Tifariti lies. Here there is an arcing ridge of higher ground at around 480 metres (highlighted by a ring of outer defensive positions), and beyond this arc, the ground apparently rises slightly (as a watershed) before dipping again to the south, thereby producing dead ground. On the western side of this arc there is a tributary to the Wadi Legtaf, and this too is in dead ground. Visibility only increases on the western upward slopes of the tributary, where further, outer defensive positions lie on the 480 metre contour. This higher ground extends to the north side of the Wadi Legtaf, and arcs to the northeast as a further ridge of high ground (also, intermittently at 480 metres elevation) extending east-northeast beyond the Wadi Tifariti. This high ground, this key terrain, is also the location of further outer defensive positions.

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[576] This is the internet application, *Hey What's That,* available at http://www.heywhatsthat.com/.

The 480 metre high ground that marks the east side of the inner box, extends eastwards, but visibility along it is intermittent, with areas of dead ground. Further dead ground is to the east, and there is dead ground to the northeast of the inner box too. Here, the viewshed from the inner box only follows a well delineated north-nortwesterly line of extended defences with more dead ground to the east. This indicates that the ground to the east slopes downwards, out of sight from the inner box, and then rises again further to the east, as is shown in the northeast (upper right) corner of Fig. 6.63.

It is conspicuous how, in the main, the viewshed from the inner defensive box extends out only as far as the 480 metre high ground upon which Tifariti's outer defences – the outline of its outer box – lie. Presumably, it was the limit of this viewshed that contributed to the placing of Tifariti's outer defences where they are. From these slight rises in the ground surrounding the inner box, the outer box could extend the defensive gaze over greater ground, but not everywhere. The viewshed from this outer key terrain is shown in Fig. 6.64 – it is based on 17 viewpoints. When comparing this to the viewshed shown in Fig. 6.63, it is obvious that there are fewer white areas representing dead ground. It also shows how the defences of the outer box had a good reverse view over the inner box. When the two viewsheds are combined, however (see Fig. 6.65), they show that the dead ground within and close to the outer box is diminished greatly, but unexpectedly, the ground to the southeast (and the very southwest) of the outer most defences is still dead. Also there is still some dead ground to the east, and to the northwest. On the face of it, this might appear as a handicap for the Moroccans, but what follows, on issues of 'cover and concealment' might clarify things.

Cover and Concealment

Dug out fighting positions are by their very nature designed to facilitate their own concealment. By being earth embanked and low lying, especially in open country, as in a desert, they also give cover from attack. As already noted, the Tifariti box covers an area of more than 90 square kilometres, and within this the Moroccans dug and constructed at least 7170 defensive positions,[577] with the overwhelming majority

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[577] This is the count of defensive positions plotted using Google Earth.

being concealed (and thereby covered). The nature of the dugouts, in relation to the firepower and tactics of Polisario/SPLA attackers, probably enhanced the survivability of the Moroccan troops. Also, and perhaps most crucially for much of the southern limit of the Moroccan defences, their outer positions were placed just a few hundred metres behind and down hill of slightly higher ground (where the open *hamada* desert opens up to the south) increasing their concealment from SPLA attackers approaching from the south and southeast. These reverse slope, defensive positions could also surprise attackers, especially in their first encounter with them, since they would become visible to the attackers only when they would be in range of the smaller arms (assault rifles, sub machine guns, and machine guns) deployed by the troops occupying the defences.[578] Similarly, the majority of artillery gun pits were placed within, and south of, the inner defensive box (see Fig. 6.68), and these too would not have been immediately visible to Polisario's motorised attackers.

Obstacles

Tifariti has no natural obstacles to the south, and the openness of the terrain would make attackers relatively visible from a considerable distance. Even if an enemy cannot be seen directly, if they approach by motor vehicle, as the Polisario/SPLA would have done, their dust streams would be visible for many kilometres. Nevertheless, if they did break through the outermost defences of the box, they would have had to negotiate at least two lateral ridges of intrusive igneous rock, which would have slowed down their movement, and in some instances, even dictate their route of attack through limited gaps in the ridges. Similarly, the undulating hills that are present in the northern half, or so, of the Tifariti box, and which extend northwards for a good many kilometres, do present real obstacles to motorised attack. As Figs. 6.4 and 6.61 indicate, these are numerous, lateral intrusions of hard igneous rock that break up the terrain into ridges and troughs. With the troughs running roughly parallel with the Tifariti defences, the terrain suggests that it would have been difficult, or at least slow going, for the Polisario/SPLA to make direct, head on, hit and run attacks that were their hallmark. Their movements would have undoubtedly been hampered causing them to relinquish, to some degree, the element of total surprise. Also, even if a motorised attack was successful, the raiding party would possibly be forced to

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[578] The types of small arms used by Morocco, as noted in Denis 1976: 653, had a range of around 300 to 800 metres.

withdraw through a route not of their choosing, but one dictated by the configurations of the ridges and troughs. This would have been an operational handicap, making them vulnerable to potential counter attacks and maybe even driving them into a minefield.

The minefields (shown in Fig. 6.66) were distinctly placed only around the northern half of the Tifariti box on, or adjacent to, wadis in three out of four instances. This is in stark contrast to the claim made by Muhammed Fadel, that the settlement was surrounded by mines. Also, no mines were located by LMA/AOAV and MINURSO around the southern half of the Moroccan defences. Perhaps this was a matter of economy since the open desert to the south would have required too many mines, while in the north, the obstacles posed by the ridge and trough character of the terrain might have forced SPLA attackers into the wadis where their movement could be swift (if staying out of the sandy centre of the wadis), but predictable and limited, and unfortunately for them, channelled into the minefields.

The defences themselves must not be ignored as an obstacle, or better, as a series of obstacles to SPLA attackers. That is what they were constructed for, and the distribution of their different types is shown in Figs. 6.66 to 6.69. The greater concentration of defences is disposed in the northern half of the Tifariti box, and this is supported by the density plot shown in Fig. 6.70. Such a distribution would additionally suggest that the north of Tifariti was more liable to being attacked, but as already pointed out, the very terrain could hamper attacks by fast motor vehicles, and this would have been exacerbated by the mine fields associated with the natural routeways – the wadis. With this being the case, and as a result, with the SPLA being deterred from attacking from the north, the density of defences there might not accurately reflect the SPLA threat. On the other hand, the defences in the south appear to have been laid out with the concept of defence in depth in mind, and with a considerable variation of different types of positions. If SPLA attackers made it past the outer ring of defences, the system, theoretically, could have bogged them down within a matrix of obstacles made up of defensive lines of dugouts (many enhanced as entrenchments) and gun positions, prior to their reaching the inner defensive box. Be that as it may, in the last two months of the Moroccan occupation of Tifariti, it was

from the south, southwest and southeast that the SPLA/Polisario attacked, compelling the Moroccan army to withdraw from Tifariti.[579] More of this is discussed below.

Avenues of Approach

The corridors of mobility for the SPLA into and around Tifariti were the wadis to the north, and what could be called a 'plain of mobility' to the south – the open *hamada* desert (see Fig. 6.71). The northern wadi routes were limited in number, and the folding igneous landscape in between them did not make travel across country easy. The wadis could also be mined, as already noted, and most could be observed from many positions along Tifariti's outer defences. In contrast, the desert to the south gave easy movement to motorised SPLA units (much of it was dead ground), and when far enough away from Tifariti, they could circle back into the rockier terrain on either side of the settlement, and beyond, to seek cover after a sortie. Also, attacks from the south had the added advantage of being driven into the prevailing northerly winds. For instance, SPLA units could drive up close to Moroccan forward positions at night when the dust streams from their vehicles could not be seen, and the sound of their motors could drift away to the south on the prevailing winds, furthering their ability to surprise the Moroccan garrison. But the open desert may not have always been to their advantage. While moving throughout the flat *hamada*, Polisario raiders were always vulnerable to potential air surveillance and attack. Be that as it may, and for all of their superiority in material, the Moroccans may have held crucial outposts dotted around the *badiya*, but in the empty areas in between, the Saharawi fighters – the 'sons of the clouds' – really did predominate, and were always 'at home'.

The Archaeology of the Tifariti box: Tifariti besieged

It has not been possible to find published descriptive references to the fighting that took place in and around Tifariti between 1977 and 1979. This was a period when the Polisario/SPLA held sway throughout the *badiya*, and what could be called 'the siege' of Tifariti was part of a continual war of attrition, in which most if not all Moroccan positions away from the main urbanised centres of the territory, were being continually harassed by Polisario. In a place like Tifariti, the aim was to remove the

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[579] Breica, Interview 2 November.

Moroccan occupiers, and not to destroy them in battle.[580] This is contrary to the view that when a force is encircled, as the Moroccans were at Tifariti, it would usually be 'followed by a battle of annihilation, the classic goal of all types of ground combat'.[581] Saharawi forces were more inclined to rout their enemy in battle, more in keeping with the longer term, historical approach to warfare as described by John Keegan.[582] And as T.E. Lawrence explained in his *Science of Guerilla Warfare* (though with reference to Turkey and Arabia):

> Now the Arab aim was unmistakably geographical, to occupy all Arabic-speaking lands in Asia. In the doing of it Turks might be killed, yet 'killing Turks' would never be an excuse or aim. If they would go quietly, the war would end. If not, they must be driven out: but at the cheapest possible price, since the Arabs were fighting for freedom, a pleasure only to be tasted by a man alive.[583]

In fact, Malainin Larkhal has even pointed out that in the fighting prior to the 1991 ceasefire, Polisario fought with a chivalric 'spirit'.[584] In describing the tactics employed by Polsario/SPLA in 1976, John Damis has written:

> Polisario military tactics stressed mobility and the element of surprise. …the front operated in groups of five to eight Land Rovers, units small enough to conceal themselves in the hills during the day. At night, moving under the cover of darkness, Polisario guerrillas were able to employ a variety of light weapons – rifles, machine guns, land mines, mortars, antitank launchers, SA-7 shoulder-mounted missiles – and engage in hit-and-run operations to harass Moroccan forces and interdict supply columns.[585]

Damis went on to say that in the hillier areas of Western Sahara, the guerrillas had an 'abundance of caves and hideouts' in which to conceal themselves (see Fig. 6.72). Also, that in 1977 and 1978 their raiding parties became more ambitious, consisting of up to 150 vehicles that could, apparently, move freely across the *badiya* with little

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[580] Breica, Interview 2 November.
[581] U.S. Department of the Army 1952: 1.
[582] Keegan 1978.
[583] Lawrence [1929] 2005: 277.
[584] Larkhal, Interview.
[585] Damis 1983: 83.

interference. 'The guerrillas began to employ heavier, Soviet-made weapons, including 122-millimeter rockets, cannons, and Kalashnikov assault rifles'.[586]

Muhammed Fadel emphasised that while the Moroccans occupied Tifariti, the Polisario/SPLA aim was to continuously attack them 'in guerrilla style, so as never to give… the enemy a chance to rest' and to cut off their supply lines, and by doing so, 'to attack their morale'.[587] By making it hard for the garrison to receive supplies overland, the Moroccans were forced to supply and stay linked with Tifariti solely by air. However, the airstrip was obviously vulnerable, because the SPLA invested Tifariti from the south.[588]

Habua Breica – though not a contemporary of Muhammed Fadel – has additionally described the SPLA investment of Tifariti. He summarised the Polisario tactics as those of a war of attrition. SPLA units would frequently select different parts of the Moroccan defensive perimeter and attack them using two to four land rovers. These would be rapid attacks with all guns continually firing. Shock and awe tactics, but on a relatively small scale, aiming at weak points in the Moroccan defences, and repeatedly attacking from different directions. The Saharawis would aim to over run selected locations, and to take prisoners for intelligence. These attacks also drew Moroccan mortar and artillery fire, and by so doing, the Saharawis would learn where the Moroccan guns were. Such tactics were de-moralising for the Moroccans,[589] and as Che Guevara has written, after a furious surprise attack, the battlefield

> suddenly converts itself into total passivity. The surviving enemy, resting, believes that the attacker has departed; he begins to relax, to return to the routine life of the camp or fortress, when suddenly a new attack bursts forth in another place, with the same characteristics… The fundamental thing is surprise and rapidity of attack.[590]

Habua Breica is of the opinion that during the war many Moroccan soldiers had nervous breakdowns from these types of assaults. This was made worse at Tifariti

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[586] Damis 1983: 83.
[587] Fadel, Interview.
[588] Fadel, Interview.
[589] Breica, Interview 2 November.
[590] Che Guevara 2007: 17.

when the Moroccans were cut off and could only receive air dropped supplies. This was in 1978, and presumably at the end of the year, since this supposedly went on for at least two months culminating in a Moroccan withdrawal in March 1979, after a substantial SPLA attack. In the assault, Tifariti was attacked from three sides – the east, south and west – and the Morrocans had an avenue of escape to the north.[591]

When investing Tifariti, Muhammed Fadel emphasised that the SPLA first attacked the outlying Moroccan defences – the outer limits of the Tifariti box (the 'wings' as he described them to me).[592] The need for the Moroccans to bolster the outer perimeter, or 'wings', in response to the threat of SPLA attacks, is perhaps illustrated by the fact that many of the outer dugout fighting positions, especially in the south, were grouped in clusters linked by trenches. This made each group of around five to more than 10 dugouts a mini-strongpoint (see Figs. 6.49 and 6.50). Also, some of these southern positions included protective approach trenches, as did many of the fighting positions on the outer perimeter on the high ground north of the Wadi Legtaf (see Fig. 6.66). Here too, there were many built up positions (sangar-like features), perhaps testifying to the need for more solidly constructed fighting positions, or illustrating that the ground was simply too rocky for digging into easily (see Fig. 6.67). The southern perimeter of the Tifariti box was also supported by artillery, since there were many gun positions dispersed within the flatter ground behind the outermost perimeter. These included small gun pits, presumably for mortars, and larger pits (more than four metres wide) which could also include associated dugouts and/or built up features, plus vehicular slots large enough to accommodate tanks and/or self propelled artillery (see Figs. 6.68 and 6.69). It is interesting to note that there is no clear preference to the siting of artillery positions west of the Wadi Tifariti, as maintained by Muhammed Fadel. The archaeology, as mapped, obviously shows otherwise.

Polisario tactics proved successful, especially once the guerrillas were able to prevent airplanes from landing and bringing in supplies. Without air support, the Moroccans eventually withdrew into the centre of Tifariti, and also, according to Muhammed Fadel, the protective wadis and high ground west to west-northwest (from 400m to 1.7

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[591] Breica, Interview 2 November.
[592] Fadel, Interview.

kilometres) of the old Spanish fort (all well within the inner Tifariti box).[593] The approximate extent of this 'redoubt', so to speak, is shown in Fig. 6.73 (and a Google Earth close-up of its central part is shown in Fig. 6.74). It was obviously chosen for its survivability (its 'cover and concealment') value, and from its higher elevations (its 'key terrain') a very good view (or 'observation' through viewshed) could be had over much of the ground as far out as the original, outer Tifariti box. The hilly nature of the terrain in which this redoubt was situated was obstructive to access (with 'obstacles' to movement caused by constrictive 'avenues of approach'), so the Moroccans must have thought that this was a reasonably occupiable pocket of defence.[594] It is also possible, that the gun pits and large vehicular slots in and around the centre of Tifariti date to the contraction of the defences, when artillery would have been pulled in from the outer defensive box. Nevertheless, from these positions, they could still rain accurate fire on SPLA attackers.

Habua Breica maintained that the Moroccan infantry stationed at Tifariti were a mobile force, mainly employing armed Jeeps and Land Rovers to counter the mobility of the small motorised Polisario units. The troops, he additionally maintained, were around 1200 in number,[595] though in 1979, Polisario claimed that there were 6000 Moroccan troops in Tifariti.[596] Nevertheless, those soldiers occupying the redoubt, built rubble and mud shelters (bivouacs), and numerous vehicular slots that could only have been constructed for jeeps or trucks since their remains indicate that they were too small for tanks or self propelled guns (on average they are 2.5m wide by well under six metres long). Fig. 6.75 shows a captured Moroccan jeep with a 105mm direct fire recoilless gun mounted on it. According to Habua Breica, these were the mainstay of Morocco's mobile infantry.[597] Some of the vehicular slots at Tifariti are positioned such that they could have a view over the surrounding terrain, thereby facilitating the use of direct fire guns that could have been mounted on the jeeps positioned in them (see Fig. 6.76). Other slots are situated in lower lying areas suggesting that these were simply protective parking places (see Figs. 6.56 and 6.77).

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[593] Fadel, Interview.
[594] In this instance, 'pockets are formed as the result of operations in which the attacker entirely surrounds a large number of the opposing forces' (U.S. Department of the Army 1952: 1).
[595] Breica, Interview 2 November.
[596] Knight 1979.
[597] Breica, Interview 2 November.

All of the vehicular slots were also situated in such a way as to make driving in and out of them easy.

As already described, the shelters, or bivouacs, could be multi-celled or single room huts, constructed of random rubble in mud mortar, and partly dug into the ground. They could be single, free-standing cells or a complex of rooms. Some had windows, really lights, framed by large re-used tin cans with their bases cut out, or wooden crates, also without bottoms. Their roofs, now missing and with no evident remnants nearby, were probably flat, as in Figs. 4.38, 4.52, 4.60, 4.77, 4.79, 4.84 and 4.86. One three celled structure was pointed out by Muhammed Fadel as being a mortar position in the Tifariti redoubt.[598] If this was a mortar post then it was the only one of its kind since fortified mortar positions were usually dug-in with a circular parapet of earth, and there are apt examples of these along the northern edge of the redoubt. Instead, the structure was probably a makeshift mortar position, taking advantage of the relatively high sheltering walls of a previously built up stone shelter, and maybe even occupied only in the lattermost stages of the fighting at Tifariti as part of 'last ditch' efforts by the garrison to defend itself. Examples of some of the shelters are shown in Figs. 6.51 to 6.53 and 6.78. The Moroccans also built some structures into the odd ancient stone tumulus. One in particular, with adjacent areas of cleared of stones as a kind of assembly area, is shown in Fig. 6.79. Nearby was also the laid out stone inscription (already referred to) proclaiming 'God, The Nation, The King', along with the stones spelling out 'ALTEA'. Both would have been visible from the air, with the former still visible on Google Earth (see Fig. 6.80).

After repeated harassment attacks, and by becoming more and more isolated, the Moroccan garrison at Tifariti was in an untenable position by the end of 1978. With at least two months of concentrated assaults by Polisario/SPLA forces, culminating in one big Polisario push from the southern quarters of the compass, the Moroccans have been described as leaving Tifariti in disarray.[599] However, the precipitousness of the Moroccan departure can be looked at in a different light. When Richard Knight, then working for the American Committee on Africa, visited Western Sahara in 1979, he had this to say:

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[598] Fadel, Interview.
[599] Fadel, Interview and Breica, Interview 2 November.

I actually saw part of a battle near Tifariti. It was getting dark, but we could see the mortar explosions. In fact our guides pulled us back when a mortar exploded about 90 feet away. I later learned from POLISARIO that by March 12 the 6,000 Moroccans who had occupied Tifariti had retreated and been sent to reinforce Semara [Smara], a town closer to the coast which is also under attack by POLISARIO.[600]

It is interesting that Polisario did not tell Knight that they had routed the Moroccans. Here was an ample opportunity for letting the word out (to a sympathetic American activist) that the SPLA was able to siege an occupied town and re-take it by force of arms. Instead, from whatever Knight was told, he got the impression that yes, the Moroccans retreated from Tifariti, but also, they were sent to reinforce Smara. It is undoubtedly the case that Moroccan troops could no longer hold positions in the *badiya*, and that Morocco was changing its strategy to one of defending Smara, Bou Craa and El-Ayoun – the so called 'useful triangle'. It is possible, therefore, that the Moroccans did not leave Tifariti because they were pushed out in a decisive assault, but instead, were ordered to withdraw to defend Smara, when the Moroccans realised that all of their positions in the *badiya* were unsustainable. In support of the notion that the Moroccans did not leave Tifariti too precipitously, Muhammed Fadel made it clear to me that when the Moroccans withdrew from the settlement they destroyed the colonia which they had occupied, and they laid mines all around the town.[601] Bahia Awah saw the colonia in a ruinous, destroyed condition, when he arrived in Tifariti in 1986,[602] but LMA/AOAV, and Minurso, have found no evidence for extensive minefields around the settlement.

With the Moroccans leaving Tifariti on 12 March 1979, the Polisario/SPLA was free to re-occupy the settlement. This heralded a new phase in the archaeology of Tifariti – one of re-appropriation. Still, constructive attempts at re-settling only started after 1991 when the United Nations brokered the present ceasefire between the SADR and Morocco.

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[600] Knight 1979.
[601] Fadel, Interview.
[602] Awah, Interview.

The Archaeology of Post War Tifariti

With the construction of the Moroccan berms completed in 1988, Tifariti was securely located within a defacto, Polisario controlled liberated zone. From camps within the zone, as well as from the Tindouf region, SPLA units were still conducting harassment attacks on the Moroccan berms. For all intents and purposes, Tifariti was still in a war zone and this was made very clear when Moroccan planes attacked the settlement in August 1991, just before the United Nations ceasefire came into effect on the 6th of September. It has been recorded in Tifariti that the remnants of the community facilities were destroyed at that time,[603] including parts of the old Spanish fort, part of the adjacent infirmary, and according to Bahia Awah, the school.[604]

The exodus of refugees at the start of the conflict, and the continuance of hostilities throughout the *badiya* really did depopulate the territory. The open desert became a dedicated arena for battle, and in the Western Sahara panhandle, that was solely between Polisario and Morocco. According to Kalthoum Salma – a Bedouin woman who lived in the Tifariti area before the war and has since returned – after the defacto partition of the country, and even after the mid 1980s, there was a trickle of some Saharawis returning to the liberated territories under the protection of the SPLA. At this time, Polisario was trying to increase livestock in the region,[605] but this really only developed after the ceasefire with the development of a new cash economy in the refugee camps. This was, and still is, contributed to by Spanish pensions to Saharawi veterans of the colonial military, the development of internal and regional trade, donations from Spanish families supporting the families of children they have fostered, solidarity tourism (and NGO workers and the like) and remittances from Saharawis working abroad. The increase in such available money has resulted in the revival of mobile pastoralism, with many families grazing herds of camels and goats in, for example, the greener pastures of the Zemmour region in the free zone. Some families do this seasonally, others send out only some members of their family to tend

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[603] See Appendix 1: the Tifariti History Plaque records that during the attacks on Tifariti two Moroccan planes were shot down – on the 4th and 26th of August 1991. The first plane was a French Mirage while the second was an American F5E. Both pilots were captured.
[604] Awah, Interview.
[605] Salma, Interview.

the animals, while others have de-camped totally to the liberated *badiya*. Also, since the ceasefire, and since the resettlement of Bedouin families with their herds, many Saharawis enjoy visiting their relations in the *badiya* – in their homeland – and in an environment that is very different from the stark *hamada* of the camps.[606] As a Saharawi guide told the researcher Pablo San Martin:

> Some of these Saharawis whom we're seeing going to Bir Lehlu, Tiris… don't go because they have animals there; they go to visit relatives and friends. Well, in fact, they go on holidays! We like the desert… and we also like to go on holidays…[607]

The Tifariti area is seen as being very inviting, and it has a special resonance for the Saharawi people. To use Hirsch's words, it is a place that 'is a source of restorative power'.[608] In fact, it is restorative on a variety of levels – from the practical and concrete to the ideational. Since the ceasefire, the SADR government has inaugurated infrastructural developments with the aim of repopulating the Tifariti area. For instance, (and with the assistance of NGOs and some Spanish municipalities) a new well was dug in 1991, and a new water pump was fitted in 1998. A school and hospital were constructed in 1999, while a regional museum was also established. A small experimental/model farm was created and provided with farm equipment. In 2005 a new housing development was started, called the 'Solidarity District', and in the same year, the first telephone and Internet link was made with the settlement. Tifariti is seen as a future Saharawi capital within the liberated territories, and the foundation stone for a Saharawi National Council headquarters building was laid in 2005. Also, assemblies of the Polisario 'Congress of the Popular Front' have been held in the settlement every four years since October 2003.[609] United Nations' ceasefire observers (MINURSO) have a base and airfield in Tifariti,[610] while LMA/AOAV land mine clearance operations are based in the settlement.[611] In 2009 it was even proposed that a 'University of the Desert' be based in Tifariti, but that

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[606] San Martin 2010: 157-164.
[607] San Martin 2010: 164, citing a conversation with a Saharawi guide in the Free Zone, November 2005.
[608] Hirsch 1995: 5.
[609] See Appendix 1.
[610] See the MINURSO website at http://minurso.unmissions.org/ and http://www.un.org/en/peacekeeping/missions/minurso/index.shtml.
[611] AOAV 2008.

initiative has evolved, in the first instance, into an art school based in the refugee camps in Tindouf, Algeria.[612] For a plan of contemporary Tifariti, see Fig. 6.81.

The weather of the Tifariti region is considered very clement indeed.[613] It is cooler than the *hamada* at Tindouf, and the air is considered very fresh, much fresher and clearer than in the camps. Because of this, people have re-settled in the Tifariti area for their health, encouraged by Polisario programmes for the sick and the elderly. This was the reason why one Saharawi woman I spoke to, Lamat Brahim, came to Tifariti – her mother was suffering from asthma.[614] Kalthoum Salma also has asthma, and her renewed semi-pastoral life in the open spaces of Tifariti suits her.[615] Rains occasionally fall in the Zemmour region, and as Fig. 6.3 shows, the Wadi Tifariti is relatively verdant. Westerners from temperate climes might view the Tifariti area as dry and harsh, with just a little bit of scrub vegetation, but Saharawis like Lamat Brahim, think that the region is 'beautiful'. In the mornings she would go out for pleasurable walks if she has little to do, and in all, she feels very attached to the place.[616] The Saharawi poet. Sidi Brahim Salama J'Dud summed up such sentiments in a few lines from a very impromptu composition he recited for me in 2011:

> You are very dear my country,
> And you know it is true,
> You are beautiful with your verdancy
> And with your good weather… [617]

At present, Lamat Brahim only has goats, but she would like to increase their number, and acquire camels.[618] Kalthoum Salma's family grazes both goats and camels. She commented on how families used to have hundreds of camels before the war, while now they may only have as many as ten.[619] This small number of animals might be true for some families, but I and other members of the WSP, when travelling between

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[612] Rigg 2009. The Saharawi School of Art was inaugurated in the Bojdour refugee camp in Tindouf, Algeria, in November 2013. See http://artifariti.blogspot.co.uk/2013/11/inaugurada-la-primera-escuela-de-arte-y.html accessed 28 March 2014.
[613] Deya, Interview.
[614] Brahim, Interview.
[615] Salma, Interview.
[616] Brahim, Interview.
[617] Salama J'Dud, Interview.
[618] Brahim, Interview.
[619] Salma, Interview.

Tindouf and Tifariti, have seen camel herds probably numbering more than a hundred. Also such a high number of animals in any given herd makes it worthwhile, and necessary, to follow the rains across a broad range, as Kalthoum has additionally maintained. In the past, such ranges from Tifariti extended in a northerly direction to Mahbes and Echdeiria, but because of the berm, they now extend to the south (see Fig. 6.82). Much of the livestock in the *badiya* was supposedly killed off by the Moroccan military in their invasion of the country, in an attempt to drive the Bedouin into the towns. As a consequence, the animals seen today around Tifariti have been brought out by trucks from the Tindouf area and Mauritania.[620] In all, Polisario has been relatively successful in getting Saharawis to start resettling the Tifariti area. Undoubtedly, the development of facilities such as the regional infirmary and the digging of new wells in the wadis,[621] and the presence of a school,[622] along with land mine clearance by LMA/AOAV, have had a positive effect on increased pastoralism in and around the clement, naturally inviting Wadi Tifariti.

Recent Pastoral Settlement at Tifariti

The evidence of post 1991 pastoral settlement at Tifariti constitutes some of the latest strata of contemporary archaeology that has impressed itself onto the Tifariti palimpsest. It shares space with the remains of war, the colonial past and the prehistoric past. Although pastoralism has been on the increase since 1991, its present spread in and around Tifariti (in the Tifariti Study Area) can be observed and mapped for the years 2006 to 2008 using Google Earth.[623] The dated satellite imagery available on Google Earth makes it possible to map the sites of Bedouin tents that were occupied, theoretically at least, from 1991 up to 14 May 2008. These are:

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[620] Salma, Interview.

[621] In 2011, I saw small sheds in open locations in the Wadi Tifariti and its tributaries. According to Malainin Larkhal, who was with me at the time, these were shelters for new well diggings. I can also affirm that there were very few of these in 2007 when I first worked in the Tifariti area, so their numbers have obviously increased.

[622] Brahim, Interview. She told me in 2011 that she was very happy with the school and its teachers. For her, it was a contributing reason for living close to Tifariti.

[623] During the later phases of writing this dissertation, in early 2014, Google Earth released new satellite imagery dated to 2013. However, because this imagery was released at such a late date, it has not been included in this research.

- The imprints of tent encampments that existed prior to 21 February 2006 (see Fig. 6.83).

- Tent sites, occupied and visible on 21 February 2006 (see Fig. 6.84).

- The imprints of tent sites that were set up after 21 February 2006 but were deserted by 14 May 2008 (see Fig. 6.85), and finally,

- Tent sites, occupied and visible on 14 May 2008 (see Fig. 6.86).

Modern Saharawi tents are very different from the traditional tents of the Maghreb and the western Sahara. The traditional tent was usually made of goat and camel hair, and it had a low wind resistant profile with a central peak.[624] On the other hand, the modern tent is square or rectangular, made of canvas, and tall enough for an adult to stand up in. In plan, modern tents can measure anywhere from five to seven metres along a side, while the traditional tent would have measured, on average, seven metres in width by five metres in depth.[625] The two types of tents are shown in Fig. 6.87, and the relatively square and uniform footprint of a modern canvas tent can be easily seen on Google Earth (see Fig. 6.88). Contemporary tented sites in the Tifariti area can consist of one or more tents, while some campsites might include domestic mud brick structures.[626]

The distribution of tent sites that were occupied, presumably since 1991 and up to 21 February 2006 is shown in Fig. 6.83. There were 305 individual tent 'footprints' (impressions) including three sites that were probably the remains of built structures. Unfortunately, since these cannot be broken down into individual years, then the growth in numbers and the movement of tents within the study area, over time, cannot be enumerated. Nevertheless, the figure shows that tent sites stayed relatively clear of those areas in which there are many intrusive igneous ridges. Tents were positioned close to wadis and wadi tributaries, on lower ground where there is good pasture, with an increasing density towards the Wadi Legtaf, westwards from the Wadi Tifariti.

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[624] Andrews 1971.

[625] Modern tent dimensions have come from measurements I took in the field while dimensions for the traditional Maghrebi tent are from Andrews 1971: 141.

[626] When I interviewed Kalthoum Salma, for instance, I was taken into a mud brick building which was white washed and well maintained. It served as a *majlis* – a room (or space) for meeting visitors. However, when I visited the semi permanent camp of Muhammed Deya, the Mayor of Tifariti, the tent served as a *majlis*, in which I and other guests had a meal. This latter use of the tent is also more in keeping with the domestic arrangements of Saharawi households in the refugee camps.

Unsurprisingly there were few tent sites in the open *hamada* desert to the south, though apparently, the wadis cutting through the *hamada* obviously gave shelter to some tent sites.

Google Earth imagery, dated 21 February 2006, provides a snapshot view of the disposition and spread of occupied Bedouin tent sites in and around Tifariti on that specific day. The plotted tents are shown in Fig. 6.84. Here, there are 130 sites of individual, newly set up and occupied tents, which include three possible built structures and four associated enclosures or *zaribas*. The majority of the tent sites are within the shallow basin in which Tifariti is situated, and they are in sheltered locations either on, or next to, wadis or wadi tributaries. Only one group of tents is north of the Wadi Legtaf, while seven groups of tents are located amidst the wadis and tributaries southeast of the Tifariti basin, in the more open *hamada* desert.

According to Google Earth imagery, in the two years between 21 February 2006 and up to 14 May 2008, 139 newly sited tents were set up in and around Tifariti, including one built structure. As Fig. 6.85 shows, the preference was to site tents and tent groups within the shallow Tifariti basin, south and southeast of the Wadi Legtaf and east of the Wadi Tifariti. The tent sites in the *hamada* to the southeast diminished, while tent sites increased northeast of Tifariti along the tributaries draining from the east. The area of intrusive igneous ridges north of the Wadi Legtaf and west of the Wadi Tifariti was still a deterrent to tent site placement, but beyond this area, tent sites were established in the far northwest of the study area. Again, the preference for tent sites was still on the lower ground, usually close to or on wadis and their tributaries. This distribution changes in the Google Earth image of the settlement taken on 14 May 2008. The distribution of occupied tent sites on that day is shown in Fig. 6.86. The number of newly set up and occupied tents has risen from 139 for the previous two years to 169 (including two compounds and two possible built structures). Their distribution has altered distinctly in that there are now very few along the Wadi Legtaf and there has been a concentration of tent sites closer in to the centre of Tifariti. There has also been an increase of sites amidst the tributaries to the Wadi Tifariti in the northeast of the study area. Overall, if looking only at the Google Earth snapshots of 21 February 2006 and 14 may 2008, since they represent single moments in the

occupation of the settlement, there has been a marked movement of tent sites towards the northeast. This is illustrated in Fig. 6.89.

Movement of tent sites and camps should be expected of people who rely on having good grazing for their animals. The movement of tents and camps around Tifariti, and the overall increase in numbers, can only reinforce the notion that people have a positive attitude to Tifariti, be it the good weather, the pasture along the wadis, or the provision of facilities such as a school and infirmary. The increase of tent sites as illustrated on 14 May 2008, can also reflect that the potential hazards of UXOs has been extensively diminished – through the efforts of LMA/AOAV – and as a consequence, Saharawis are increasingly more willing to occupy the *badiya* in and around the settlement.

Sites of Political Re-Appropriation

There are other 'footprints' of tents around Tifariti, which are visible in the satellite imagery from Google Earth (see Fig. 6.90). These are modern, square Saharawi tents that have been set up in neat rows as accommodation for the delegates and visitors (and additional SPLA soldiers) who come to Tifariti for the Polisario National Congresses that have been held every four years at the settlement. These are very much acts of re-appropriation by the SADR government, aiming to show that there is a tangible link between the government of the refugees and their territory – their country. That is why, as already mentioned, there is a SADR government building under construction in the centre of Tifariti, with the aim being to develop Tifariti into a Saharawi capital in the Liberated Territory.

Polisario National Congresses have been held at Tifariti since 2003, when previously, they were held in the Tindouf refugee camps. The 11th Congress was held on 12-19 October 2003, the 12th Congress was held on 15-21 December 2007 while the 13th Congress was held on 15-21 December 2011. When these occur, Tifariti has a great influx of people, more than a thousand in number (almost 2000), and made up of Saharawis from the camps and the Saharawi Diaspora, foreign visitors and dignitaries, Polisario/SADR workers and officials, and members of the SPLA. Tents are set up to

accommodate the influx, all aligned in neat rows. There is a 'festival' feel to the gatherings, with the flying of flags and bunting. A view of Tifariti during one of the congresses is shown in Fig. 6.91. Google Earth imagery can actually indicate the change in size of the congresses based on the spread of tent footprints. The imagery dated to 21 February 2006 shows that the area occupied by orderly rows of tents, presumably for the 2003 congress, were only set up close to the eastern entrance to the settlement and the old colonia, and the building complex which houses the school and museum – where large meetings could be accommodated. Fig. 6.92 shows the disposition of the tents from the 2003 and 2007 congresses. During the latter congress, many additional tents were set up to the west of the Spanish airstrip, and this undoubtedly reflected an increase in attendance at the congress.

The old Spanish airstrip is a large, compacted area at a uniform level. It measures approximately 1.25 kilometres long by 42 metres wide, and is aligned 17 degrees west of due north. It is used for the assembling of SPLA troops in parades, which are an integral part of the National Congresses. There is a spectator stand positioned along the eastern edge of the airstrip, with two flanking platforms for viewing parades and displays, and in 2011, there were the visible remains of associated ancillary structures behind the stand and platforms. Opposite is a flagpole, and decorative walls (see Fig. 6.93). There are concrete podiums north and south of the stands, and one concrete disc with a map of Western Sahara rendered on it (see Fig. 6.94). This space is unique to Tifariti. Along with the SADR building under construction, the infirmary and school, and the new housing under construction, the people of Western Sahara are asserting their rights to ownership to, and their right of self-determination within, the territory of Western Sahara. These acts are deliberately political, and because of this, the archaeology of contemporary Tifariti is not just a social archaeology, but a political one as well.

There is one other feature, inscribed on the ground that is visible to all who visit Tifariti, and it is clearly visible on Google Earth. It too has a political presence. It is a large pavement of stones, rectangular in shape (measuring around 30 metres uphill by 12 metres or so in width) and painted as a representation of the Saharawi flag (see Fig. 6.95). Beneath it, also laid out in painted stones at 12 metres high, and also visible on Google Earth, are the letters RASD (for the SADR), and Libertad, 'Liberty' in

Spanish. It is situated on a northeast facing slope, around 670 metres west-northwest of the old Spanish fort. It is at the approximate southeast limit of the Tifariti redoubt, but also, only 300 metres east of the Moroccan inscribed hillside slogan, 'God, The Nation, The King', already noted.

A Multiplicity of Layers – a Multiplicity of Meanings

There is a diversity and continuity of archaeological strata in the Tifariti area. This is undoubtedly true for all places on the globe, but Tifariti and Western Sahara are the focus of study here. These strata, from the prehistoric to the contemporary, have each had different meanings for the social groupings that inhabited the space making up the area of study, and there have been ideational and sensorial phenomena unique, and not so unique, to the inhabitants of each archaeological 'period'. These periods, these strata, as I prefer to describe them, are all juxtaposed one with each other, on top of, alongside and interdigitated. Because of the nature of my fieldwork, and the nature of field survey as something akin to wandering,[627] they are surficial. The materiality present on the ground is an assemblage[628] and a collage of the things visible, as only seen by an observer on the ground, and additionally for me, in my own face-to-face interaction with Saharawis telling me their 'stories' – both official and unofficial.[629] There is a distinct horizontality to this archaeology since things from the past are only percolations up to the surface,[630] and these include the thoughts and memories (and imaginings) of my informants as well as the evidence of material remains on the ground – which can also include the imaginings of 'the archaeologist' when contemplating what those, and any, remains are.

The contemporary archaeology of Tifariti does not end here, however, and an additional stratum of materiality and meaning has been added to the Tifariti palimpsest. This is the ARTifariti art festival, and this addition to the collage is the subject of the next chapter.

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[627] Graves-Brown 2012.
[628] Harrison 2011 and 2013.
[629] Yaron 2006: 10.
[630] Witmore 2006.

CHAPTER 7

ARTifariti

Soon after it went online, the panopticon view provided by Google Earth had a singular, reverse panopticon effect on an artist from Seville in Spain. Fernando Peraita had been a conscript in the Spanish Army in Western (Spanish) Sahara during 1975-76, and as a result of the events of that winter he, as with many other Spaniards, has had a continuing, positive predisposition towards the Saharawi people and their cause. In 2005 he found himself looking at Google Earth imagery over Western Sahara and was astounded at the land art quality of the Moroccan berms. To borrow from Roland Barthes, he experienced a punctum, it could be said that he felt 'pierced' by the image, 'bruised' even.[631] Here was a design etched upon the surface of the earth, extensive and bold, and as Peraita expressed it: 'the berm is a piece of [land] art tied to death, to suffering, and to separate the people, terrible, no? Culture [art] is usually used for peace, for good things'.[632] With this in mind, he set upon gathering together a group of Spanish artists who could create a piece of land art in the Saharawi liberated zone, situated opposite the berm. But this was impractical, so Peraita and his colleagues changed tack:

> Instead of making one [work of] land art we (were) going to create a centre of contemporary art (dedicated) to peace and human rights that can be a weapon (against the wall), in the middle of the desert, in a no-man's land. We can create a centre of art in a city that has been bombed by Moroccan planes, and where a lot of fighting has taken place, but nobody in the world knows about it, and, near the archaeological rock art sites of Rekeiz.[633]

The 'city' that had been bombed was Tifariti, and so ARTifariti was inaugurated in 2007. For two weeks every October to November, up to 2010, groups of artists

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[631] Barthes 2000.
[632] Peraita, Interview.
[633] Peraita, Interview.

(mainly from the Spanish speaking world, plus Saharawi artists and a mix of other foreign artists) would descend on the town of Tifariti adding an expanding stratum of contemporary archaeology in the form of art interventions on top of the strata of earlier occupations and archaeological periods. On the ARTifariti blog, the festival describes itself as

> a Festival of Art and Human Rights which aims to give visibility and voice to the Saharawi people, a community that survives between occupation and exile claiming through artistic practices the right of individuals and peoples to their land, their culture, their roots and their freedom.[634]

This message is at the core of ARTifariti's ethos, believing that Art can be a tool in developing a people's international presence and domestic well being just as much as those NGOs that provide material and infrastructural aid.[635] As the 2012 open call for participants to the 6th ARTifariti festival presented it:

> ARTifariti is a working context in which artistic practices play a provocative, reflective and transformative role. The focus is the Sahara conflict, but from here expands into other territories, questioning any situation where individual and collective human rights are violated.

> …ARTifariti is an appointment with artistic practices as a tool to vindicate Human Rights; the right of the people to their land, their culture, their roots and their freedom. It is an annual encounter of public art to reflect on creation, politics and society, and a point of contact for artists interested in the capacity of art to question and transform reality. ARTifariti also aims to promote intercultural relations, fomenting the interchange of experiences and skills between local artists and artists from other parts of the world in order to contribute to the international widespread coverage of the Sahrawi reality. It provides a reflection point from the world of Art and Culture through direct knowledge and promotes the development of the Saharawi people through their Cultural Heritage.[636]

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[634] ARTifariti n.d.
[635] GraDCAM 2012.
[636] ARTifariti 2012

The festival is also seen by Saharawis as an assertion of their sovereignty over their country: it is a means of re-appropriation, even if it is undertaken mainly by foreign artists, as a kind or re-appropriation by proxy. ARTifariti is also seen as reinforcing a Hispanic-Arab culture that undoubtedly makes Saharawis unique, and feel unique, within the Arab world. As the Commander of the SPLA in the Tifariti region put it:

> ARTifariti is a means of exercising sovereignty over our territory [and] the liberated territory, besides contributing to the preservation of our national identity and our Spanish-Arabic culture. It is the foundation stone of a road that can only lead to freedom.[637]

ARTifariti is more than just a collection of artists creating works of art in Western Sahara. Fernando Peraita has described it as a tree with many branches.[638] The branches are projects that have extended the original purpose of the festival and some have developed lives of their own. It is the purpose in this chapter to deal only with art within the context of the landscape of Tifariti; but briefly, examples of some of the extended projects of ARTifariti include:

- Exhibitions in numerous locations throughout Europe and the Americas.
- 'Disappeared Saharawis' – this is a project whereby artists working with Saharawi families produce 'psychological portraits' of family members who have 'disappeared' in Moroccan-occupied Western Sahara, and whose families never had photographs of them.
- ARTifariti artists have spent time with Saharawi families in the occupied zone, recording evidence of physical maltreatment in conjunction with medical examinations of torture victims. It is planned that this work will be compiled into a book for presentation to the United Nations.
- The production of audio and video records of the experiences of Saharawi people.
- ARTifariti has already worked with the school in Tifariti, but they have set up a school of art in the refugee camps as part of the 'University of Tifariti'.

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[637] Brahim Ahmed Mahmud, Head of the 2nd SADR Military Region, quoted in ARTifariti 2007: 5.
[638] GraDCAM 2012.

ARTifariti artists will give master classes at this new 'University of the Desert'.[639]

- ARTifariti runs a parallel programme to its main festival aimed at international art students, giving them the opportunity to live and work with Saharawis in the refugee camps, learning from the experience and producing original art.
- *Sahara Libre Wear* – this is a fashion project producing hand printed and manufactured clothing in the Refugee camps for sale abroad. Every year, ARTifariti, includes a *Sahara Libre* fashion show.

These examples give only an indication of the range of projects undertaken by ARTifariti, while the annual catalogues produced by the festival describe even more undertakings.[640] Nevertheless, the festival started out as a meeting of artists and Saharawis in the desert landscape of Tifariti – an encounter between peoples, and also an encounter between the visiting artists and the Western Sahara *badiya*. That context had a bearing on the artists and the art they produced.

Art on the Land

In all, the range of art produced at Tifariti between 2007 and 2010 consisted of indoor and outdoor works – three dimensional works and constructions (installations and sculptures), and more traditional flat surface – painted – artworks, and photography (besides other types of art activities and interventions, such as the work of Francis Gomila and Bettina Semmer in 2009, described below). The bulk of the art created by Saharawi artists (making up, for instance, around a third of the artists in 2010) has been in flat painted works, or small scale three dimensional pieces, and much of it is on show in the Tifariti Museum. In fact, there are only a handful of pieces created by Saharawi artists that have been painted out-of-doors. These have not been sizable, though exceptionally, there is one large painting that has been executed on a substantial rock outcrop, which will be described and discussed below. With almost

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[639] The Saharawi School of Art, founded through the initiatives of ARTifariti, was opened in November 2013 in the Bojdour Camp, one of the Saharawi refugee camps in Tindouf, Algeria. This was the result of the efforts to create a 'University of the Desert', started in 2009. See Rigg 2009 and ARTifariti n.d.: http://artifariti.blogspot.co.uk/2013/11/inaugurada-la-primera-escuela-de-arte-y.html accessed 28 March 2014.

[640] Electronic versions of the catalogues can be viewed and downloaded from ARTifariti n.d.

no Saharawi artists producing art on the land, and because this research is essentially a landscape study, it is the outdoor installations in open spaces which will be explored here, and as a result, this account will be biased in favour of the foreign artists who have attended the ARTifariti festivals. In the four years in which the festival was held at Tifariti, the numbers of artists per year ranged from 25 to almost 50 and they hailed from at least 16 countries.[641] Out of these, the work of only 18 artists will be discussed in detail here, and it is the emplacement of their work in the landscape (though two of the works were carried out virtually, employing Google Earth), and their recorded experiences at Tifariti, which is just as important as the content of their creations. But first, the setting of Tifariti as a place for out-of-doors art will be addressed.

The basic topography of the Tifariti basin has been described in Chapter 6. When I undertook fieldwork in Tifariti in the Autumn of 2011, besides exploring the conflict landscape around the settlement, I also recorded as many of the remaining art installations as could be easily located out of doors. In all, I noted up to 24 locations of individual, or groups of, artworks (all given alphanumeric descriptors of AR1 to AR24), but this number should not be viewed as exhaustive. For instance, some outdoor installations have undoubtedly been removed (judging from the ARTifariti catalogues, they were portable), while there are others that quite simply could not be located. Since there is no obvious curation of the art produced at Tifariti, many of the installations are in poor condition and they have not fared well in the harsh desert climate. And since no map of any kind exists, indicating the location of the artworks, I had to depend solely on finding them by simply looking over the landscape, and walking over it as in any standard archaeological landscape survey. A gazetteer of the artworks recorded in the field is in Appendix 3.

A plot of the locations of the artworks recorded in 2011 is shown in Fig. 7.1. The location of the south-most intervention, however, has been taken from satellite imagery dated to 2013, available on Google Earth. I was not able to find the artwork in 2011 because of the very shallow profile of its remains, but it is a notable piece so it has been included in the work of the 18 artists discussed here (and it has been given

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[641] The countries are (in alphabetical order): Algeria, Argentina, Columbia, Finland, Germany, Ireland, Mexico, Portugal, Senegal, South, Africa, Spain, Switzerland, United States, Uraguay, and Western Sahara.

the alphanumeric descriptor of AR25). With the artists resident and based in the Tifariti school and museum complex during their stays in the settlement, it appears that no individual pieces were created more than around 1.1 kilometres from their base. In all, the artist's works have been created over an area extending about 1.4 kilometres (northwest to southeast) by one kilometre (northeast to southwest), with the outermost northern installations positioned on the threshold of the rockier, and enfolding landscape that extends from Tifariti northwards. Also, there was a marked shift in the disposition of the recorded out-of-doors artworks, or installations, moving from west to east across the landscape.

ARTifariti 2007

In 2007,[642] most of the festival's artists (Saharawi, Spanish and Portuguese at that time) were working in and around the compound of the Tifariti School, where the festival was always based. However, the expansiveness of the desert and the open spaces around Tifariti, apparently led to the creation of three pieces of art, of which two could be described as 'land art' while one could be termed 'trench art'[643] (and their distribution is shown in Fig. 7.2). It is possible that at this stage, the artists were trying to fulfil the original idea of Fernando Peraita by creating land art that could be seen, like the Moroccan berms, from space, and they succeeded in doing so with at least one piece. This was the large inscription: *Breakfast at Tifariti* (AR22), laid out in stones painted pink, and extending over an area of around 37 metres by 15 metres.

It is an undeniably whimsical artwork (see Fig. 7.3), quite out of keeping with the profound sense of purpose as originally espoused by Peraita, but its irony is purposeful. By being positioned close to the Moroccan military dugouts nearby, it was intended as an 'absurd invitation' to be visible on Google Earth (see Fig. 7.4). According to its creator, the artist Fernando Pinteño, its purpose was to compare the plight of the Saharawi people – who feel forgotten by the international community and lead a subsistence existence – with the 'effeminacy' and 'luxury' of the well known film *Breakfast at Tiffany's*.[644] This is clearly a socio-political play on words, literally pasted (like a protest poster) on the surface of the earth to be visible on Google Earth,

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[642] ARTifariti 2007 was held on the 10th to 17th of October 2007.
[643] Saunders 2003.
[644] ARTifariti 2007: 50-51.

close to the SADR flag which is similarly delineated by painted stones and equally visible on Google Earth, and only some 90 odd metres to the northwest.

The other piece of land art is the *Camino del Retorno* or *The Way to Return* (AR21) shown in Fig. 7.5. This was seen as a work in progress, and indeed, it was extended in 2008 and re-titled *Camino del Aaiún* or *The Way to El-Ayoun*. Its form as of 2008 (and recorded by me in 2011) essentially consisted of a linear routeway of stones laid out as two kerbs meandering from the southeast (where a stela was raised as a starting point) to the northwest (see Fig. 7.6). This was a cooperative work by all of the ARTifariti participants, and they each laid stones and other objects within the kerbs, including messages in many instances. The objects included the detritus of war including, for example, metal fragments and shrapnel, pieces of tank treads, a child's shoe and animal bones. The work was conceived as something hopeful, with the SADR Premier commenting about the work, as '… the first step of a thousand steps we take to Aiun'.[645]

A third piece of art was created only 100 metres north of *The Way to El-Ayoun*. This was *Proyecto de Eliminación – 2,* or *Removal Project – 2*, by Carlos de Gredos (AR24).[646] This artwork, like two others, which will be discussed below, is a piece that has its roots outside of Western Sahara. Carlos de Gredos, like the other foreign participating artists is a link between Western Sahara, its people, and the outside world. His artwork too, is a similar link. It is trans-national in nature since a sister artwork, *Removal Project – 1*, was created in Spain on the *Cerro Gallinaro* headland near Hoyocasero, Avila, Spain, in March 2007.[647]

Removal Project – 1 was not a piece of land art *per se*, instead it was conceived as an 'ephemeral' artwork, disposed on the land, and based on the burnt out and rusted wreck of a car that the artist found in the countryside on the *Cerro Gallinaro*. Here, the artist painted in red, the word *FUEGO* on the side of the car, but the *'FU'*, though in capitals, was painted at a smaller scale. *Fuego* means 'fire', and the artist has

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[645] ARTifariti 2007: 58-59 and ARTifariti 2008: 102-103.
[646] ARTifariti 2007: 28-29.
[647] This became part of a larger land art project, started and coordinated by Carlos de Gredo in 2008, creating a centre for art and nature on the Cerro Gallinero headland in Spain. See http://cerrogallinero.com/ accessed 1 May 2013.

written that he deliberately wanted to create 'a pun' on the word, emphasising that our egos – painted in larger letters as *'EGO'* – can have as great, if not a greater destructive capability than fire. This wreck, which was to be left in the countryside as a piece of outdoor art, eventually went through its own destructive transformation which the artist could not foresee. Between March 2007 and May 2011 Carlos de Gredos photographed the car and during that time, its position changed – it was even set upright (see Fig. 7.7), and eventually it was robbed of body and chassis parts until it was left as an unrecognisable fraction of itself. Indeed, the destructiveness of its original fire, making it a wreck, made it vulnerable to near obliteration. The work of vandals made the destruction of the *'EGO'* complete.[648]

Seven months later, in October 2007, Carlos de Gredos was in Tifariti, and there he found the wrecked hulk of a Moroccan army tank, and he decided to paint it exactly as he had painted the burnt out car in Spain, with the word *FUEGO* ('fire') on its side. This piece of military hardware is situated on rising ground, amidst the Tifariti redoubt, less than a kilometre northwest of the old Spanish fort. It has presumably been in its present location since the Moroccans left the settlement in 1979, and it has been robbed of all of its removable parts. It is a medium sized Russian T54 tank, produced by the Soviet Union from 1947 to 1963.[649] According to the SPLA the tank was originally in Egyptian service, but given, presumably with other material, to Morocco after the October War of 1973 between Egypt and Syria, and Israel.[650] This gives the tank, as an artefact, a very distinctive biography. In short, it was produced some time before 1963 in a Russian factory; it saw service with the Egyptian army; it was acquired by Morocco some time after 1973, eventually ending up in the war zone of Western Sahara; and it was obviously disabled at Tifariti where the Moroccans left it in 1979. It was subsequently cannibalised by the SPLA with its impotent, unmovable hulk left in the desert amidst the abandoned dugouts of the Moroccan occupiers of Tifariti.

Just as with *Removal Project – 1*, Carlos de Gredos obviously played with the concept of 'fire'. He painted *FUEGO* on the turret of the tank, with the *'EGO'* larger than the

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[648] De Gredos 2007-2011.
[649] Milsom 1970: 112-115.
[650] Breica, additional conversation, when interviewed 2 November 2011.

'FU', in red, and in the same manner in which he painted the car in Spain. The tank is a destructive machine, just as destructive as fire, and the tank 'fires' its weapon. Above all, a human decision is involved – a decision of the ego – to be violent, to fire an armament, to unleash fire and death. But the bringer of such destruction – the tank – is now a dead carcass, and only saved from rusting away by the dry climate of the desert. Nevertheless, the tank had already been diminished by being robbed for parts, and perhaps it would be diminished more so. So in keeping with his earlier work, Carlos de Gredos called his painted tank, *Removal Project – 2* (see Fig. 7.8)*,* and by appropriating an object of war material and transforming it, especially with a new meaning that goes beyond the Western Sahara conflict, and as a reflection on the human condition, it can be considered a rather large piece of 'trench art'.

ARTifariti 2008

In 2008,[651] the number of ARTifariti participating artists increased to 47. In this year they did not stray very far from their base in the Tifariti school complex, and the furthest they went away was only around half a kilometre. I recorded artworks created in 2008 at six locations, shown on Fig. 7.9, though the selected works discussed below include one piece which I could not locate (though as already noted, its location was made evident on 2013 Google Earth satellite imagery). Also, as already noted, the *The Way to El-Ayoun* was extended in this year too.

Of the outdoor artworks created during the 2008 festival, there were two large and distinctive works that were also good examples of trench art. One is the *Caballo de Troya Saharaui* or the *Saharawi Trojan Horse* (AR13),[652] by the Mexican sculptor Rolando De la Rosa (with the Mexican journalist Susana Cato).[653] Shown in Fig. 7.10, this was a five metre long by 7.5m high, three metre wide sculpture of a horse mainly made from oil drums and fragments of exploded ordnance, metal rods, steel girders, and empty cartridge cases. Upon arriving in Tifariti, De la Rosa was told about a goatherd who lost his right arm from a bomb during a Moroccan air strike in the Tifariti area. Upon finding the herder, the artist was taken to the site of the bomb

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[651] ARTifariti 2008, was held on the 22nd of November to the 6th of December 2008.
[652] ARTifariti n.d.: http://artifariti.blogspot.co.uk/2008/12/el-caballo-de-troya.html accessed 1 May 2013.
[653] De la Rosa n.d.: http://www.rolandodelarosa.com/RolandodelaRosa/Escultor_Mexicano.html accessed 3 April 2014.

strike, and there he retrieved shrapnel from the explosion to use in his sculpture, and specifically, in the Trojan Horse's skull (see Fig. 7.11). The distorted shrapnel gave the skull a deformed appearance, as if exploded. Fragmentation grenades were used for the eyes, and spent cartridges for the teeth. An improvised spear was put in the mouth of the skull, emulating the sharp tongue of the agonised horse in Picasso's Guernica, and the artwork was made eerie by the whistling sound of wind through the spent cartridges used to make up the horse's mane. The body of the horse was made up of oil drums painted red, with black, white and grey abstract designs, representing the wounding of the goatherd and the death of a child, and with skulls, according to the artist, denouncing the indiscriminate bombing of civilians that took place during the sixteen year war.

The piece was constructed facing eastwards, on a platform of large stone slabs set within a ring of black and red stones. On the 11th of December, just five days after the official end of ARTifariti 2008, this 'Trojan Horse' was transported by truck, in what De la Rosa called a 'White March of Peace' (in opposition to King Hassan's Green March of 1975), to the Moroccan berm closest to Tifariti to stand sentinel over it. There, a placard was placed in front of it with a picture of the 19th century President of Mexico, Benito Juárez,[654] with a quote of his in Arabic, Spanish, English and French declaring: 'Among individuals as well as among nations, to respect other people's rights is Peace'. The artist also placed inside the sculpture, United Nations resolutions issued in favour of the Saharawi people.[655]

As with Removal Project – 2, this sculpture is a trans-national piece of art. In fact, in a recorded interview in 2008 De la Rosa said that this was his seventh 'Trojan Horse'.[656] His first horse was constructed in 2005[657] and his ninth 'Trojan Horse' was

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[654] Benito Juárez was President of Mexico in 1862 when France invaded the country and installed the Hapsburg, Maximillian, as France's Emperor of Mexico. Juárez led the revolt against the French who were expelled by 1867.
[655] ARTifariti 2008: 24-25 & 117.
[656] Puerco Radio 2008.
[657] De la Rosa n.d.:
http://www.rolandodelarosa.com/RolandodelaRosa/El_caballo_de_Troya_Mexicano.html accessed 3 April 2014.

made in 2010-2011.[658] All, except the Saharawi horse, were made in Mexico, though the ninth was destined to take part in a march in Buenos Aires on the 35th anniversary of the 1976 military coup in Argentina. It, like the Saharawi horse, carried content, but in this instance it was books, papers, videos and testimonies of Argentinian exiles who lived and died in Mexico – their adopted country – during the period of the Argentinian dictatorship. So, around the globe, De la Rosa has installed 'Trojan Horses' in Mexico, Western Sahara and Argentina, and all as public art with a sense of social advocacy, resistance to injustice, and people's struggles for freedom.[659] To De la Rosa, his 'Trojan Horses' are 'a symbol of victory over Walled power',[660] and in Western Sahara it is the Moroccan Wall that is the symbol of a foreign and illegal occupation of one country by another.

The Mexican made horses were constructed from wooden crates, the common types that can be found in market places throughout the world. They have all been painted with patterns and images, and slogans, as in the case of the Saharawi horse. In fact, in 2010 De la Rosa commemorated Aminatou Haidar, the most high profile woman activist in the Saharawi cause, and Lubna Masarwa, a leading feminist Palestinian activist, with such a 'Trojan Horse of Crates'. It was painted with motifs reminiscent of pre-Columbian Mexican art, and with a portrait of Emiliano Zapata (an important Mexican revolutionary leader in the early 20th century), and most importantly in this instance, images of armed, revolutionary women fighters.[661] Symbolism in art is very important to De la Rosa, and to quote the artist from the ARTifariti 2008 catalogue:

> For me, in times of uncertainty, redefinition and [new] paradigms, there is something that endures from remote times: the strength of symbols. The use of symbols in art is able [sic] to penetrate people's deepest heartstrings.[662]

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[658] De la Rosa collaborated with another artist, Real Yamina, on this work: see De la Rosa n.d.: http://www.rolandodelarosa.com/RolandodelaRosa/Caballo_de_Troya_en_Argentina.html accessed 3 April 2014.

[659] De la Rosa n.d.: http://www.rolandodelarosa.com/RolandodelaRosa/Caballo_de_Troya_Argen-Mex.html accessed 3 April 2014.

[660] De la Rosa n.d.: http://www.rolandodelarosa.com/RolandodelaRosa/RolandodelaRosa.html accessed 3 April 2014.

[661] De la Rosa n.d.: http://www.rolandodelarosa.com/RolandodelaRosa/Photos.html#grid accessed 3 April 2014.

[662] ARTifariti 2008: 24-25 & p. 117.

The second piece of trench art in 2008 was an outdoor installation created by the Spanish artist Federico Guzman, called El Muro de la Vergüenza, or the Wall of Shame (AR10), a common epithet for the Moroccan berms. As already noted, the charity Action on Armed Violence, formerly Land Mine Action (LMA/AOAV), has its Western Sahara headquarters in Tifariti, and in their offices they have a small museum displaying the range of lethal ordnance that can be found across the landscape of Western Sahara as a result of the war. They use these to educate local people to the dangers of unexploded ordnance (UXOs) – though now the Tifariti area is free of UXOs. But when Guzman saw the display of armaments and became aware of the accounts of accidents and fatalities caused by the then uncleared ordnance he gladly agreed, when asked by LMA/AOAV, to create a sculpture outside their offices in Tifariti.[663]

His first idea was 'to make a tree with all the mines, bombs and grenades hanging from it, as if to transform death into life'.[664] But he had little time, so he chose to create a short wall out of sheet metal, shaped like a simple explosion. On it he welded a grid of rods, and onto these he welded many decommissioned examples of the types of ordnance that can be found in the open desert, from gun shells, to mortar rounds, bombs, bomblets and grenades. All to hammer home the reality of UXOs and their dangers, or as Guzman has noted, to create a catalogue of 'objects that… only belong in a museum as the vestiges of history's senseless violence'. The sculpture stands outside the LMA/AOAV offices in Tifariti (see Fig. 7.12), and the blatant display of ordnance serves as a stark reminder of the conflict. And as Guzman thought at the time, 'it really looks like a "wall of shame"'.[665]

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[663] ARTifariti 2008: 86-87 & 123, and Guzmán n.d.

[664] Guzmán n.d. Both De La Rosa's and Guzman's artworks resonate with the sculptures made out of decommissioned weapons and ordnance by Mozambiquen artists through the 'Transforming Arms into Tools' project, established by the Christian Council of Mozambique and Christian Aid in the 1990s. In the U.K., this resulted in an exhibition at the OXO Gallery in London, and with the British Museum acquiring (in 2002) an iconic sculpture: the 'Throne of Weapons' (British Museum 2006), and commissioning a new sculpture in 2005, called the 'Tree of Life'. Like Guznam's original idea, ths latter work is a tree, representing life and its longevity, yet it has been constructed out of the residue of weapons of war, materials that exist to end life. See the British Museum website at http://www.britishmuseum.org/explore/highlights/highlight_objects/aoa/t/throne_of_weapons.aspx and http://www.britishmuseum.org/research/collection_online/collection_object_details.aspx?objectId=1579948&partId=1&searchText=tree+of+life&page=1

[665] Guzmán n.d.

Both Guzman's and de la Rosa's installations, and Carlos de Gredos' appropriated and painted tank (from 2007), are undoubtedly works of trench art reusing 'industrial scrap' and war material, and as Saunders has succinctly put it:

> Whether recycled from the metals of war, scraps of wood, bone or textile, the majority of trench art is a reworking of both matter and material worlds to make something new… It is bricolage – the making of something new and single from a plethora of old things, something of peace from war, something harmless from objects designed to kill, something from the battlefield brought into the home and the museum, and therefore both dramatically 'out of context' and recontextalized at the same time.[666]

This clearly presented appraisal of trench art can extend to some outdoor, painted artworks at Tifariti too. The ruined Spanish fort and the old infirmary nearby have been appropriated as canvases for new painted pieces. Here, martial buildings have been ruined through the violent actions of war – by bombing – and have been left in a ruinous state, but it has still been possible through artistic intervention for them to be redefined as 'something of peace from war'.

A delegation of nine Algerian artists took part in ARTifariti in 2008. Most of them set themselves the task of painting and working on the ruins of the Spanish Foreign Legion fort and the post's old infirmary, now the Tifariti mayor's office just to the west. In effect, the result has been the transmutation of ruined and jaggedly broken buildings into colourful derelicts that would not be out of place on an urban demolition site where graffiti artists have had access. Their work, in places, is mischievous and child like, while in other instances they have transformed the ruined parts of the fort and infirmary with weighty imagery. Unfortunately, their paintings were all quite faded by 2011 when I recorded them, and they no longer possessed the vibrancy reproduced in the 2008 ARTifariti Catalogue. Nevertheless, these interventions are the latest phase in the archaeological biography of these Spanish period buildings.

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[666] Saunders 2003: 184.

The north and east sides of the old Spanish infirmary were hit during the Moroccan air strikes of 1991, and a part of its roof collapsed. The collapse on the eastern end of the building was consolidated, and the resultant sloping roof with its black bitumen surface became a surface for the Algerian artist, Karim Sergoua, to paint a mural (around 6.5 metres wide) simply entitled *Victimas Inocentes* or *Innocent Victims* (AR8). Fig. 7.13 shows the finished work as it looked in 2011. It is primarily black and white with additional motifs sprayed on in purple. The artist painted in white, as if in negative, on the black bitumen base, and this created a series of black and white, shadowy silhouettes: standing human figures and portraits, and abstract designs. A number of the portraits are also presented like 'mug shots', or the portrait photographs or drawings, of missing Saharawis.[667] Though painted onto a solid background, these anonymous vignettes appear like posters or 'paste-ups', and this is a real link with graffiti, or street art as manifest today.

> Poster or paste-ups are amongst the more recent instances of graffiti/art production. They are predominantly black ink on white paper with a contrasting graphic appearance… They fade and easily tear or peel away. The weathered affect may well be a sought after aesthetic or it may be a direct reposte to the much-maligned advertising posters… The paste-up's fragility reiterates the ephemerality of graffiti/art or the specific content of the graffiti artist's message…[668]

In fact, the artist's message is that the 'innocent victims' of the Western Sahara war are fragile. In effect, they are ephemeral – 'traces, torn bodies of children, women [and] combatants' who were 'rained' upon by bombs from the sky.[669] Additional motifs were added in purple to the work, sprayed over and around the black outlines, and many of these were applied with stencils – another link between this artwork and graffiti.[670]

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[667] These are like the photographs of missing persons that are often presented by the relations of people who have 'disappeared' in authoritarian regimes throughout the world. In 2010, a number of ARTifariti artists applied themselves to the issue of missing, or 'disappeared' Saharawis in the Moroccan occupied zone. See ARTifariti 2010: 109-133.
[668] Frederick 2009: 217.
[669] ARTifariti 2008: 45 & 118.
[670] Frederick 2009: 217.

Further pieces of graffiti type art, executed on the ruins of the Foreign Legion fort include a piece entitled *Gritos bajo los escombros de Tifariti* or *Cries under the ruins of Tifariti* (AR23), by the Algerian Abd el Kader Belhorissat (see Fig. 7.14). This is similar to *Innocent Victims*, since it too has been painted onto a collapsed roof – the remains of the roof of the fort's blockhouse at its southwest corner – but it is visually more complex. It is polychromatic as compared to the near monochrome of *Innocent Victims*. It is also three dimensional, since the roof has fallen and broken unevenly, and fragments of broken parapets lay on the roof's surface. As many surfaces as possible have been painted, and there is a mix of abstract designs and stylised human figures culminating in a work that is very cluttered and chaotic. It is perhaps this apparent chaos that reflects the artist's intention to 'describe the continuous cry… of being [in] a place of crime'.[671]

Just around the corner from *Cries under the ruins of Tifariti*, along the western range of the Spanish fort, is a further graffiti-like intervention. Here the Algerian artist Djeffal Adlane has painted a piece, entitled *El renacimiento de un pueblo* or *The rebirth of a nation* (AR23a). The piece (see Fig. 7.15) has sculptural elements added to it in the guise of a figure outlined by wire and freestanding in front of the painted wall, with spent gun cartridges and a projectile container set into concrete at its base. The piece incorporates into its design, the metal ladder grips that are built into the wall and gave access to the roof of the fort. The artist also painted the window shutters with the silhouettes of people, and added his own mock window. The colours were bright and brash but they were extremely faded in 2011. There are plant-like motifs and a schematic human figure holding a gun. Slogans in French, English and Arabic were also painted onto the wall espousing peace and liberty, and stating that the real beast which a man has to fear is himself.[672] In summary, the artist has written this about the piece:

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[671] ARTifariti 2008: 46 & 119.

[672] 'Homme sait tu il n'ya pas pire bete a craindre a l'homme que l'homme lui meme.' Translated as: 'Man[kind], you know there is no worse beast for a man to fear than Man himself.' This can be made out from photographs taken by myself in 2011, and from a photo of the artwork in ARTifariti 2008: 47.

In the ruins of a house, the colours that symbolize… life, …writing that marks [out] peace and a metal silhouette that straightens up towards the sky that testifies [to] the strength of [the] survival of a whole nation.[673]

Another graffiti-like artwork that shares the western range of the Spanish fort with *The rebirth of a nation* is *Un orden estblecido* or *An established order* (AR23b) by Barris Syphax, another Algerian artist.[674] This is an apparently unfinished, black and white intervention on fragments of collapsed roof (see Fig. 7.16). It includes three 'paste-up' like portraits which, according to the artist, represent a Saharawi family from when 'Tifariti was free', and a three point proclamation stating: 'An established order: …of a power that claims others' land. An escape: …of a nation that was expelled from his land. A search: …of a cry that rises against injustice [*sic*]'.[675]

Another Algerian artist worked on the remains of the south facing wall of the southeast corner of the Spanish fort, creating further graffiti-like artwork. This was Azzouz Seïf El Islem who painted a piece he entitled *S/T* (AR23c).[676] Here, shown in Fig. 7.17, he painted the partial silhouette of a person above the door in the later mud brick corner infill, and he painted a shadowy person, upside down on the door itself. To the immediate left, he painted false loopholes and extended two of the real ones. Beneath these, a cluster of people was painted in red, yellow and black, with additional abstract patterns and text, which in effect, proclaims that through the intervention of ordinary people, the 'murderers', presumably Morocco, can no longer occupy Western Sahara.[677]

The most striking artwork applied to the crumbling walls of the old fort, however, has been carried out by the Algerian artist, Bessaï Zineddine (though he signed the work: T-Kharbishíne). This is a salient piece of anti-war graffiti art painted in a right angle of walls (the original southern wall of the Spanish fort, and a later wall abutting it) entitled, *No me muevo hacia atrás* or *I do not move backwards* (AR3).[678] The intent of

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[673] ARTifariti 2008: 47 & p. 119.
[674] ARTifariti 2008: 49 & p. 119.
[675] ARTifariti 2008: 119. The three point proclamation can also be made out from a photograph taken by myself in 2011.
[676] ARTifariti 2008: 51 & p. 119.
[677] The text (in French) can be made out in a photograph in ARTifariti 2008: 51.
[678] ARTifariti 2008: 50 & 119.

the piece has been encapsulated by the artist as: 'they came, they saw, we expelled them and we defeated them'.[679]

It was originally a very colourful piece (see Fig. 7.18), though now it is very faded. The central feature of the painting is a stylised human figure with elongated arms stretching horizontally to either side. The figure is black, with colourful faces and circular patterns painted within it. The arms have dots extending within, and along them, and they end bulbously as opposed to having hands. The entire figure is outlined with protruding red nibs, which are reminiscent of tank treads. In fact, the heads and other circular motifs painted within the figure brings to mind gears, or the wheels of a tank. There is the hint of a bluish sky with black rectilinear outlines delineating the possible outlines of yellow to buff buildings. However, the possible building outlines have numerous short cross-bars, that suggest that they might be machine-cranks, or cam-shafts. The arms of the figure have long drips of black paint extending from them reinforcing the idea that this is a human machine, perhaps bleeding. Though it cannot be discerned whether or not the figure (or 'machine man') is Moroccan or Saharawi. Slogans have been painted on the piece in Spanish and French: 'not me', 'walking', and 'move back'.[680]

There are fragments of collapsed walling from the fort lying in front of the piece, and on these, abstract outlines have been drawn (AR5). They appear to have been done by different hands, presumably all from the Algerian delegation, and the patterns include green and blue sprayed circles with dots, a face, and other linear patterns. Also, an arrangement of painted stones was laid on the foundation of the turret that existed at the western end of the collapsed southern wall of the fort (AR6). On the north side of that part of the southern wall still standing, Lalidji Walid painted a group portrait of all of the Algerian artists who took part in ARTifariti 2008. Called *El Grupo* or *The Group* (AR3a), this was not a conventional group portrait, instead, all of the artists stood up against the wall and had their outlines marked out and infilled with black spray paint (see Fig. 7.19). All of their names where spray-painted above their painted silhouettes, and the piece had an element of jolliness about it. This was made

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[679] ARTifariti 2008: 119. The quote is an obvious play on 'I came, I saw, I conquered'.
[680] *NO ME* (Spanish): NOT ME; *MUEVO PARA ATRÁS* (Spanish): MOVE BACK, or MOVE TO THE BACK; *MAKENCHE* (unknown), and *MARCHE* (French): WALKING.

especially obvious in a photograph of the artists standing in front of the piece in the 2008 ARTifariti catalogue.[681] Further graffiti-like painting (AR23d) was applied to the north and east walls of the fort's courtyard (see Fig. 7.20). These mainly consisted of sprayed on geometric motifs and the painting of some stone infill along with the painting of a wooden door. Unfortunately, half of the painting on the door was missing when I recorded it in 2011.

The Algerian artists expressed a sincere desire to create a statement that would illustrate their sympathy for the Saharawi people and their cause. They believed that their

> works tell a story from the past. It is the history of a nation that has not decided his fate. They reflect, in a virtual way, the traces of the past, a fresco, a portrait or a collective signature to immortalize the moment of a whole group that sympathize and feel [a] friend of the Saharan people [*sic*].[682]

Approximately 225 metres to the east-southeast of the old fort is a building that has been constructed on top of the foundation platform of a former Spanish *colonia* building. On the easterly facing wall of the building, a mural was painted in 2008 by the Spanish artist María Ortega Estepa,[683] and it was called *Viajando al Paraíso* or *Travelling Paradise*[684] (AR11). This painting, like the interventions of Carlos de Gredos, and Rolando de la Rosa, already described, is a trans-national artwork. Estepa is obviously intrigued by woodland trees and flora, and she has painted companion murals in Barcelona, Madrid and Córdoba, and according to the *Arte Sostenible* website she had plans, as of 2010, to undertake similar paintings in Alicante, Huelva, and in other cities in Spain, and in Zacatecas, Mexico.[685] Estepa is not a protest artist and she combines her creative work with art education and therapy. In an art workshop presented on YouTube she said '… there is no big theoretical foundation behind my work, nothing like that, only my relationships and connections and my way of looking at the world; how I see the world, how I see other people and how I see life

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[681] ARTifariti 2008: 44 & 118.
[682] ARTifariti 2008: 118.
[683] Ortega Estepa n.d.: http://www.mariaortegaestepa.com/obramenu.html accessed 14 May 2013.
[684] ARTifariti 2008: 64-65 & 120 and Ortega Estepa n.d.: http://www.mariaortegaestepa.com/obra_viajandoelparaiso.html accessed 14 May 2013.
[685] *Asociación Arte Sostenible* 2008-2013.

in general'.[686] In *Travelling Paradise* she explores our close and intimate relationship with nature and landscapes, and in particular, as at Tifariti, in an environment far removed from that which she has painted. She sees this as a kind of dialogue with the environment that is renewed in every place that she has created a companion piece of art.[687]

Travelling Paradise is 7.6 metres wide by 3.2 metres high (see Fig. 7.21). It is a painted forest scene out of place in the arid desert of Western Sahara. Only the trunks of trees are visible with a horizon line high up near the top of the painting. The trees, apparently, have no canopy so the only shadows evident are those of the trunks. The colours move from pale yellows to greens and blues, and in all, they are very soothing – cooling even. They suggest grass in a wooded glade. There are flowers and prickly pears. The artist even created free-standing flowers placed in front of the mural as well as a tree trunk, leaning up against the artwork, extending above it, and painted in an identical way to the trees painted onto the wall. Trees, other types of plants and flowers are an inspiration to Estepa, they are her starting point,[688] and apparently, they are a part of what she thinks of as paradise. In Estepa's words:

> I wanted to bring what I consider to be my own kind of paradise; therefore I've worked with colour to paint a forest, so that a person here, can dream and forget a little about the reality in which they are living in. Well, I believe that paradise can be anything that you want it to be, a moment that you lived with someone, and I leave with that sensation, with the conclusion that this country – the people who inhabit the whole Sahrawi Nation – is, for me, a paradise.[689]

The last piece of art from 2008, which will be discussed here, is one which was not found in 2011, and its position on Fig. 7.9 has been derived from Google Earth imagery dated to 2013. It is an interesting intervention since it harks back to the prehistoric remains that abound in the Tifariti region, but the artist, judging from the 2008 ARTifariti catalogue and his own web site,[690] has not consciously made the link.

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[686] *Olivares 2010.*

[687] Ortega Estepa n.d.: http://www.mariaortegaestepa.com/bio.html accessed 14 May 2013.
[688] Olivares 2010.
[689] ARTifariti 2009b.
[690] Roiz de la Parra 2008.

The artwork is a political piece of land art entitled *La sombra del gnomon* or *The shadow of the gnomon* (AR25) by Guillermo Roiz. It is spread out over an area of at least 35 metres, and it consists of a gnomon in the shape of a hand, painted red and representing Morocco, with two eight metre wide rings of stone on either side (see Fig. 7.22). One ring was made of quartz, representing salt, which was traded along the caravan routes that went through Western Sahara, and also by extension, representing a traditional, nomadic way of life. The other ring was made of red stones symbolizing the Saharawi people's land. At dawn, the shadow of the gnomon – the shadow of the occupying Moroccans – would be cast over the white circle: cast over traditional Saharawi lifeways. At sunset it would be cast over the red circle: cast over the land of Western Sahara itself.[691]

It is probable that the hand-shaped gnomen has fallen down or been removed, leaving only the stone rings, which, with their lack of height could not be easily located three years after the piece was created. Nevertheless, and unbeknown to the artist, he has created stone rings that would not be out of place amidst the ancient monuments in the vicinity, and would only stand out as anomalies because of his selective use of coloured stones. This anomalousness, however, might very well lessen when the stones undoubtedly sustain future erosion by motor and foot traffic, and even acquire a venerable patina of age. Guillermo Roiz, through this modern intervention, has unwittingly created a physical link between Tifariti's pre-Islamic past and the present. He has imbued his rings with meaning, just as the stone monuments of prehistory would similarly have been meaningful to those who created them millennia ago.

ARTifariti 2009

ARTifariti 2009 was held in the settlement from the 17th to the 31st of October of that year. There were 45 contributing artists from ten countries (eight of which were Saharawi), and as in 2008, and judging from the artworks that I could record in 2011, out-of-doors interventions were created at a maximum of around 600 metres from the artist's base in the Tifariti school. Fig. 7.23 shows the location of ARTifariti 2009 artworks recorded in 2011. However, during the 2009 festival some artists undertook landscape works based on the digital globe of Google Earth, and since Google Earth

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[691] ARTifariti 2008: 62-63 & 120.

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has been an important tool in this research, it is appropriate to briefly describe them here. These were 'virtual' inscriptions on the land, in effect, taking Fernando Peraita's original intention and attempting to realise it in digital space. One work in particular was Francis Gomila's video,[692] posted on the internet (see Fig. 7.24) entitled *Muro de la Vergüenza 'F Word' Tour 2010* or *Wall of Shame 'F Word' Tour*. In it,

> Gomila travels close to the northern end of the… wall erected by Morocco to keep the Saharawi people from returning to their homeland. As Saharawi activists protest, under the surveillance of the Moroccan army guarding the wall, Gomila traces a GPS track forming the words 'FUCK OFF'. The GPS data drawing was uploaded to Google Earth as a protest to the continuing occupation of the Western Sahara.[693]

Gomila and another artist, Bettina Semmer from Germany, undertook another similar piece entitled *Fósforo: Piss for peace* or *PHOSPHOR: Piss for peace*. This intervention was created as a protest against phosphate extraction by Morocco, in the occupied territories. It was carried out in two parts. First, Gomila and Semmer collected urine from people in Tifariti and they proposed to do some kind of phosphate test on it – unfortunately, the description of their 'experiment' is unclear in the 2009 ARTifariti catalogue. From the point of view of digital landscapes, however, they did 'etch' onto the digital globe of Google Earth the ancient alchemist's symbol for phosphorus by creating a 130 metre long 'in-situ GPS earth drawing' at Tifariti. A photo record of the intervention was uploaded onto the Internet, along with a Google Maps plot of the 'virtual' piece of landscape art (see Fig. 7.25).[694] This kind of work explores our relationship with digital globes, topography and geography. It adds a 'virtual' layer of landscape features onto the stratum of contemporary archaeology as it has been defined so far. It has very great potential, especially since it can actually facilitate the kind of aspiration that was the very impetus for ARTifariti.

At a more terrestrial level, an Algerian artist, Kenza Mebarak added the words 'THE END', painted white on black onto the south wall of the old Spanish infirmary, now the office of the Mayor of Tifariti. The piece is called *Ficción o realidad* or *Fiction or reality* (AR8a) and the style of the painting clearly mimics a film frame with white

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[692] Francis Gomila is an artist based in Gibraltar and Germany.
[693] ARTifariti 2009: 76 & 94, and Gomila and Semmer 2009.
[694] ARTifariti 2009: 77 & 94, and Gomila and Semmer 2010.

sprocket holes painted vertically along both side edges. At the time, the artist also created a temporary installation in front of the wall painting (see Fig. 7.26), using the fence already there and covering it with fragments of cloth and clothing, and by adding animal bones picked up from the desert and blanched by the sun. Some of the fence posts had tins, and even an apparent helmet placed on top of them, and tins or canisters with their tops painted white were lined up in front of the fence. The artist wanted to point out that although a film might include horrible things, it will always end, punctuated with the words, 'The End'. But the horrors of a real war are different, they can linger on, and by juxtaposing this filmic trope with the reality of contestation in Western Sahara, the artist hoped that his work would remind people 'never [to] get used to violence and injustice'.[695]

ARTifariti 2010

The year 2010 was the last in which the ARTifariti festival was held at Tifariti. There were 41 participating artists from ten countries, of which 13 were Saharawi, and the festival took place from the 16th to the 30th of October 2010. In that year, judging from the artworks that could be located in 2011, there was a shift of outdoor interventions to the north and east of the Tifariti school (see Fig. 7.27), even going into an area which was previously deemed unsafe by LMA/AOAV but was by then cleared of UXOs. The old Spanish fort had one new intervention painted onto it. This was a portrait of the 14 year old, Nayem El Garhi who was shot dead by Moroccan security forces at the Saharawi Gdeim Izik protest camp outside El-Ayoun in the occupied territories on October 24th 2010. The camp was set up on October 9th and it was violently dismantled by Moroccan police on November 8th. When the death of the teenager was made known, it had an immediate effect on the ARTifariti participants. They prepared a letter of protest for Ban Ki-Moon, the U.N. General Secretary, and presented it to the Commander of the United Nations' MINURSO base at Tifariti, and on their last full day in Tifariti, Federico Guzman painted the portrait on the remnant of the old Spanish fort's south facing wall.[696] The work (AR4) is monochrome and

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[695] ARTifariti 2009: 71 & 93.
[696] ARTifariti 2010: 148 & 152.

apparently based on a photograph of the teenager released at the time (see Fig. 7.28).[697]

The last art intervention that will be singled out in this chapter is *U'm Dreiga* or *Oum Dreiga* (AR18), by the Saharawi artist Mohamed Moulud Yeslam. This is a very distinctive artwork, painted on the south facing side of a sizable outcrop of boulders almost half a kilometre east-northeast of the old Spanish fort (see Fig. 7.29). It is bold in colour, composition and size, measuring at least 10 metres long by 4.25 metres high. The artist has described it as a 'Guernica of the desert',[698] 'dedicated to the memory of the civilians killed in the bombings of Tifariti and Um Draiga where, during the Moroccan invasion… the Saharawi people who fled from the cities… were bombed in the desert with napalm and white phosphorous'.[699]

The rock outcrop that the piece was painted on was naturally fractured into at least five pinnacles, presenting an irregular front with some of the rock faces set back from their neighbours. This gave depth to the piece with alternating backgrounds and foregrounds. In the foreground, there are crouching figures painted with traditional black tents behind them. In places they are presented as if they are just squatting on the ground carrying out daily activities (see Fig. 7.30), but in other parts of the piece they have agitated faces and at least one figure has arms in a distorted pose. A camel looms, and beneath it a mother holds a baby while a man stands alongside with his head downcast. All of the figures have streaks of red paint running down them, like blood (see Fig. 7.31). There are two large faces on either side of the outcrop (a detail of one is shown in Fig. 7.32), while in the left third of the work, there is a large raven, or crow, holding a baby in its claws (see Fig. 7.33). The baby is kicking and screaming, and judging by a painting that the artist made later, entitled *The Massacre of Gdaeim Izik*, the crow or raven represents Morocco. In the latter painting Yeslam shows the birds eating Saharawi children (see Fig. 7.34).[700]

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[697] The painting was based on a photo of the teenager, available from the Spanish *El Mundo* newspaper at the time, and released on their website:
http://www.elmundo.es/elmundo/2010/10/24/internacional/1287956073.html accessed 17 May 2013.
[698] ARTifariti 2010: 69.
[699] ARTifariti 2010: 147.
[700] Yeslem 2012.

When I recorded the piece in 2011, the colours were faded a good deal, and the colour pink, which the artist says he used to represent exploding phosphorus (shown in the artwork as raining from the sky and clearly visible in Fig. 7.29) was barely visible. He also employed fluorescent paint so that it would glow at night, but that effect was lost after the passing of a year. At the base of the work, Yeslem also placed items he collected locally, such as old shoe fragments, bleached bones, pieces of shrapnel and a part of a tank tread, all the detritus of war and the leftovers of people who passed through Tifariti.[701] In all, the work has a narrative; there are refugees, at Oum Dreiga and Tifariti, and they have set up tents and are carrying on with their lives; they are attacked from the air with phosphorous and napalm and they suffer and agonise; innocents die at the hands of the Moroccan invaders. To Yeslem, the aerial bombing of Saharawi refugees in 1976, in their makeshift transit camps, was a 'forgotten Guernica', and these rocks were a silent witness to those attacks. They could now 'speak' through his art.[702]

A Landscape of Solidarity, Commemoration and Protest

It is not necessarily the artworks produced at Tifariti that are important in this study; instead, it is the sentiments of the artists and what they feel about Western Sahara and its people, and about their realising their art in the territory. For the artists, it is an act of solidarity with the Saharawi cause, engendered through the personal production of art, and in the belief that art can further that cause. Their work is not high art, and by the very nature of the interventions described herein it is highly ephemeral. In particular, the out-of-doors works do not fare well, exposed to the extreme weather conditions of the Sahara. Nevertheless, the art produced during the ARTifariti festivals can, undoubtedly, be viewed as war art (including war specific protest art), trench art, and solidarity art.

Laura Brandon summed up the meaning of 'war art' as 'art shaped by war. …war inspires permanent and impermanent art that may be propaganda, memorial, protest, and/or record'.[703] Saunders is of the opinion that traditional war art and memorials are

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[701] Yeslem 2012.
[702] Yeslem 2012.
[703] Brandon 2009: 3.

impressionistic, representing war from a distance in time and place. In contrast, trench art has a sensuousness and 'tactile immediacy… particularly [those] items made from the metal waste of war', incorporating the very 'agents of death and mutilation directly'.[704] Solidarity art has been defined by Jacqueline Adams as 'a little-studied subset of resistance art',[705] which in particular 'is art that individuals buy or help sell or export in large part so as to help a group of people'.[706] Notwithstanding this, solidarity art, like the art of social and political movements is employed symbolically, 'to frame the message, to attract resources, to communicate information, and foster emotions'.[707] And it is in this broader, symbolic sense – especially from the position of the foreign artists who have taken part in ARTifariti – that the term 'solidarity art' is applicable here.

It is the sense of solidarity with the Saharawi people, as expressed by the foreign artists in their art and sentiments that is so striking. They have invested emotion and physical work into creating a landscape of solidarity. As already noted, the bulk of art produced by Saharawi artists have been traditional paintings, produced indoors. But since many of the foreign artists work in three dimensions in the first place, their work lends itself to being created out-of-doors. These artistic interventions are 'one small but significant dimension to an ever-expanding archaeological record'.[708] They have created an archaeological stratum with their personal handiwork as features, as markers. This marking the land in the support of a cause, as a protest and an affirmation, and as a re-appropriation of a locale by, or for, its former inhabitants who were driven away by conflict, can also be seen at District Six in Cape Town, South Africa.

District Six, South Africa

District Six was a distinctively mixed race, working class area that prospered in Cape Town until the South African, apartheid regime declared it a 'whites only' area under the Group Areas Act of 1966. As a result, the entire community was removed by

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[704] Saunders 2003: 14.
[705] Adams 2009: 1.
[706] Adams 2009: 3-4.
[707] Ferrer 2009: 41.
[708] Schofield 2011: 187.

1984, and the townscape that existed was razed to the ground, leaving only the outlines of streets and churches standing.[709] The rich mix of peoples living in District Six from the colonial period to its erasure inevitably resulted in contestation, 'struggles' and at times, 'fierce battles'. However, these have been seen as

> generative ones which have ploughed deep furrows into the South African landscape, and from which have grown authentic cultural and social practices and formations. A surprising diversity of South African experiences take their roots or have been fertilized by these struggles. In looking at the emergence of a new single South African identity an awareness of this aspect of District Six history is not an insignificant fact. The mission… is, therefore, to emphasise the symbolic importance of this small patch of ground in that much grander [South African] endeavour.[710]

This sense of national and cultural resonance ascribed to a specific location, and born out of adversity is something that District Six shares with Tifariti. They are both places where the narratives of people have been 'arrested' and have therefore become laden with emotion, and in the case of District Six, even seen as an area of 'salted earth'.[711] With such a strength of feeling, the District Six Sculpture Festival opened on September 24th 1997 for six weeks. As at Tifariti, though running as a single event, outdoor art interventions were created by 62 artists ranging from sculptures to paintings and with performances and interactions. This outdoor sculpture garden was meant to be short lived. The artworks, as at Tifariti, were mainly made of cheap or locally found materials, and many works were made on the day.[712]

> The notion of permanent fixtures gave way to the idea of monuments which can be anti-monumental, existing as transient markers and triggers of recognition, association and memory, and the physically vulnerable structures are indicative of the fragilities that they infer/recall. They do not have to exist as towering statuesque monoliths, resisting questions regarding their suitability. Many are offerings rather than dogmas.[713]

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[709] Schofield 2011: 35.
[710] Layne n.d.: 5.
[711] Bedford and Murinik n.d.: 13. Additionally, for a discussion of District Six, as embodying an 'archaeology of memory' see Coombes 2003.
[712] Bedford and Murinik n.d.: 22.
[713] Bedford and Murinik n.d.: 13.

Both the *ARTifariti* festivals and the District Six Public Sculpture Project have brought in artists with a strong sense of solidarity and empathy to 'declare worth' to lands and people who were victims of governments that wanted them to 'vanish' and to pay homage to their sufferings 'during... [their] forced removals'.[714] With reference to District Six, but also applicable to Tifariti and Western Sahara:

> Through their various works, artists drew our attention not only to District Six as a place, a physical landscape once densely populated and now scarred and barren, but as a metaphor for a range of displacements. The wholeness of the place and the totality of its meanings were vividly contrasted with the lost and broken: fragments indicating the break-up and fracturing of society and the loss of things precious to the soul. The project should be approached in a similar way; understanding it as an attempt by a group of artists to gather the many fragments, both physical and narrative, that commemorate both an era and its people… Many sought to re-invest spaces, revaluing not only the physical land and its social and cultural traditions, but also the place it holds in the psyche of South Africans.[715]

In fact, the above quote also holds true for archaeology – it illustrates how art can explore the past, and the contemporary past, and present new and parallel insights for archaeologists and the formation of archaeological knowledge.[716]

Being seen as an ephemeral project from the start, the sculpture park at District Six has been deteriorating since its inception, and the sense of it being an archaeological site of the contemporary past was remarked upon by John Schofield when he matter-of-factly stated: 'the archaeology of some of these interventions remained when I visited [District Six] in 2001'.[717] 'Some' of the interventions 'remained' and they remained as 'archaeology' – this is undeniably the same at Tifariti. This is also the same across the Atlantic, in the Nevada desert, where there are the remains of a Cold War era protest camp outside the United States government's nuclear arms, Nevada Test Site.

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[714] Bedford and Murinik n.d.: 13.
[715] Bedford & Murinik n.d.: 13-14.
[716] Renfrew 2003: 8 & 103-106.
[717] Schofield 2011: 187.

Peace Camp, Nevada

As at Tifariti and District Six, similar land art, though not necessarily created by artists, has also been created within a landscape of protest adjacent to the United States' nuclear weapons Nevada Test Site, around 65 miles northwest of Las Vegas. Starting in the 1950s and continuing into the present day, a series of three protest camps now referred to as the Peace Camp, were set up outside the entrance to the Nuclear Test Site, and served as a locus for thousands of anti-nuclear activists and demonstrators. Here, a distinctive 'archaeology of opposition'[718] has materialised in a desert area not that different from Tifariti – rocky and with scrub vegetation. A camp and place of congregation has come into being for individuals, and

> over 200 groups with different and coeval environmental and social interests, including pacifists, anti-war groups, anti-nuclear coalitions, environmentalists, and the Western Shoshone tribe – the traditional [land] owners in the area.[719]

The protesters have come from different backgrounds, and at the camp they would coalesce into short-lived, loosely organised social groups expressing their opposition to nuclear arms testing and proliferation around the world. 'The nature of the camp reflects their short-term social activities, and to some extent, their marginalized relationship to society as a whole'.[720]

Beck, Drollinger and Schofield carried out two archaeological field seasons at the Peace Camp in 2002. The Camp covered an area of 240 hectares, and 771 cultural features were recorded. Most of these were built with local stones, though some were brought in for specific pieces of art. The stone features included cairns, rock caches, stone circles (rings), foundations for sculptures and the like, geoglyphs, path outlines, 'gardens' with stone outlines, hearths and low stacks of stones. Areas cleared of stones were occasionally found close to stone features, probably for a tent or open-air sleeping place. Wood and metal artefacts were rare, and logs were imported for fires and for building, along with wooden crates. Other features ranged from concrete

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[718] Schofield , Beck and Drollinger 2003: 47-49.
[719] Schofield , Beck and Drollinger 2011: 77.
[720] Schofield , Beck and Drollinger 2011: 77.

statuary foundations to fencing materials, paths and tracks, statues and sculptures, willow branch structures, laid out symbols, prayer poles, masks, graffiti (in drainage tunnels), and a porta-loo.[721]

The Camp has a great deal of 'symbolic art'. Such artworks were usually laid out on flat ground and were made from locally collected rocks. The works consisted of peace symbols, stone spirals and stone platforms. Large stone circles were created with objects (for instance, ceramic and metal masks) placed at the cardinal points. There was even a relatively large abstract flower design and a group of sculptures of children, called 'the shadow children'. The word 'peace' was laid out in stone on one low ridge and written in English, French, Russian and Japanese, representing the countries with nuclear capabilities in the 1980s.[722]

Summary

As with the artists of ARTifariti and those that took part in the District Six Sculpture Projects, the protestors at the Peace Camp put a good deal of energy into expressing their aspirations through art. At Tifariti the goal has been to forward the cause of self-determination and human rights for the Saharawi people. At District Six it was to commemorate, and to seek justice for the displacement and ruin of a thriving community, which once again, could be representative of a way forward for post-apartheid South Africa. At the Nevada Peace Camp, the goal has been to rid the earth of nuclear weapons, and to aim for a just world – a world at peace and in harmony with 'Mother Earth'.

> The Peace Camp was and continues to be active concurrently with the government power structure that is the focus of the dissent. Instead of engaging in acts of destruction to express their desires, the people at the Peace Camp have put their efforts into creating symbols in the desert as testimony to their intent and hopes, establishing their own, separate permanent cultural legacy.[723]

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[721] Schofield , Beck and Drollinger 2011: 77 -78.
[722] Schofield , Beck and Drollinger 2011: 82-83.
[723] Schofield , Beck and Drollinger 2011: 86.

However, the sculptures and artworks created in Nevada are, just like those at Tifariti and District Six, anti-monuments. There is no ostentation and they speak in a language which their creators (and hopefully other people) understand. The fact that they are created on the land and heavily laden with meaning (and in the case of the Peace Camp) by non-artists, makes them analogous in the broadest of terms, with the prehistoric petroforms and other stone monument types that populate, for instance, the Tifariti region. The archaeology of recent conflict has been described as being similar to prehistoric archaeology, since documentation for such very recent contestations is often deemed 'classified' by the countries or parties involved, and their own accounts of their actions can be unreliable, since often they would wish to keep unclear their aims and goals.[724] The enquiring archaeologist, therefore, has to rely on traditional fieldwork and the inherently forensic qualities of archaeological interpretation. This specifically methodological, and evidential affinity with prehistoric archaeology, conceptually links the strata of archaeology at Tifariti, from 1975-76 up to the very present, with the archaeology of those pre-Islamic peoples who populated the Tifariti region some 5000 years ago.

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[724] Schofield 2005: 39-40.

CHAPTER 8

CONCLUSION AND FUTURE DIRECTIONS

Introduction

As the preceding chapters illustrate, this dissertation has tried to tell what could best be described as a 'big story'. The much-used analogies of weaving a rich tapestry, or painting a large canvas, are not inappropriate in describing it. The core of the project has been the materiality of the Western Sahara conflict from late 1975 to 1991, and its aftermath. However, to successfully describe, characterise, and contextualise that materiality, forays have been taken into Saharan prehistory and pastoralism, Saharan trade, European colonialism, modern era warfare (for both conventional and unconventional wars, and ranging from Asia to Africa and the Americas), the geo-politics of the Maghreb, land art, protest and war art – including trench art – contemporary interactions on the internet (including websites, blogs, videos and online archives), oral testimony/history, neo-geography, and even satellite imagery activism. As a whole, these all accentuate the breadth of the story to tell. Open source and/or free GISs have been employed, and Google Earth has been utilized as a primary visual and topographic source for archaeological survey (both virtual and on the ground).

This research has been multidisciplinary, multi-vocal and multidimensional, and its aim has been to explore and give presence to the overwhelming reality of an entire territory (Western Sahara) transformed by the 'works' of modern war in the last quarter of the 20th century and well into the 21st. The way in which this has been done has of necessity been selective, and the resources drawn upon have been incomplete. Therefore, it is appropriate to say that the results are collage-like – and as an archaeological study of the materiality of a contemporary conflict, this project has undoubtedly been singular.

Recapitulation of Content

As an archaeological landscape study, this dissertation is grounded in the idea that landscapes are a palimpsest, and that within any place or landscape the materiality of the past and present can exist and be visible side by side. My view, as expressed in Chapter 1, is that the best way of studying a landscape, especially one of modern conflict – with all of its complexities – is not to give preference to any specific type of knowledge or data, but to include a variety of relevant sources and avenues of approach. Essentially, this has been accomplished through combining the practical and forensic skills of traditional landscape archaeology with oral testimony and historical accounts (in all the various forms noted in Chapter 2). This connects the past and the present, and brings into being, as Rodney Harrison would put it, an archaeology '*of* and *in* the present'. This is poignant in the context of Western Sahara since the conflict is still unresolved, and the country is partitioned by Morocco's monumental and fortified berms. As a result, the conflict and its materiality persists into the present day, becoming something new for every generation of Saharawis. This conceptual approach has given presence and voice to the materiality of the Western Sahara conflict in a public – or forensic – way (as would be expressed by Eyal Weizman), through the very medium of this dissertation: and this is very much in keeping with the idea of forensics within archaeology as being something much more than meticulous note taking.

The issue of colonialism, with its concomitance of conflict, has been fundamental to this research. The power imbalance between the coloniser and the colonised has been expressed at a macro (national) scale, through the carving out of the desert sands (through mechanical earth-moving) of the territory-wide matrix of earthen barriers – the berms. These are a physical embodiment of exclusion, dividing the territory and separating the majority of the indigenous Saharawi population (mainly in Algerian refugee camps) from around four fifths of their national territory, as appropriated by Morocco. Such a barrier system, made up of almost 4000 kilometres of earth and stone banks, and fully fortified (with nearly 2000 military installations, landmines, and barbed wire), can only be appreciated and studied through satellite imagery, and in this dissertation, that has been successfully done through the employment of Google

Earth. The centrality of this online tool to this research cannot be overstated, and it is probable that this has been the first time that a war-work as monumental as the berms, has been studied through the application. But Google Earth has also been instrumental in studying Western Sahara's conflict landscape at a regional (meso) scale, where, in and around the settlement of Tifariti, it has successfully made visible a palimpsest of archaeology that ranges from the prehistoric to the contemporary.

This unique use of Google Earth has not only been instrumental in undertaking this study – recording and analysing a range of archaeological phenomena – but by being used in conjunction with the other resources employed in this research, it has created an archaeology, or better still, it has brought *into being* an archaeology of the conflict in Western Sahara. As with all archaeological endeavours, what is examined is partial – fragments of a past reality – and by being mediated through satellite imagery, a concrete reality on the ground has been transformed into pixellated re-presentations on a computer screen. Conjoined with this are the actions of the archaeologist who, with human senses and fore-knowledge, also mediates and translates the material under investigation into new data and interpretations, reconstituting it through a creative act, yet never being certain of the authenticity of the final confection. To mitigate this, this research has taken a very catholic approach. It has situated the interdisciplinary and multidimensional nature of the archaeology of modern conflict within the overall 'craft' of archaeology – with its naturally heuristic approaches – and through utilising the resources and 'tool kit' elaborated upon in Chapter 2, it has foregrounded, and given presence to, the materiality of conflict and contestation in Western Sahara.

That materiality, however, has not appeared in a vacuum. The Western Sahara conflict is but one episode (though one that started forty years ago and is still unresolved) in the history of the region. The narrative presented in Chapter 3 contextualises this. It gives a relatively compact overview of the land and people, and the history of Western Sahara. It has shown that the materiality of the territory as a place on the globe is a recent invention, jointly marked out by Spain and France after a series of negotiations, and only settled in 1912. The inhabitants of the region had no say in the matter. They were embedded in the land – they were a part of it – so they too were partitioned along with the landscape itself. This started a chain of events that, with the hostile invasions carried out by Morocco and Mauritania in the winter of 1975-76 (though the latter

relinquished its territorial claims in 1979), would turn the territory into a unique landscape of colonialism and imperialism, late 20th century conflict, and partition and exclusion, forging what the country of Western Sahara has become today. Additionally, Chapter 3 situates the Moroccan means of partition and exclusion – the berms – amidst some of the salient barrier systems of the 20th century. From European inter-world war defensive barriers, to barriers in Asia, the Middle East and North Africa, it illustrates how countries can be delimited, carved up, and shaped by the will of nations, armies and individuals.

The Moroccan berms are probably the largest appropriation of land by bulldozer that has ever occurred on the planet, and the mapping and collated data presented in Chapter 4 clearly illustrates the excessive, indeed, super modern extent that a modern nation will go to, to appropriate another, and confine it. These earthen, and mined, defences have been described by numerous commentators, but they have all been sketchy with conflicting details and statistics, and as a result, the material presence of the berms has never been appropriately explained to any audience. The berms have been a 'taken for granted', and as such, they have not received detailed attention since there have been other humanitarian and geo-political factors in the Western Sahara conflict that have understandably required greater attention. However, this 'taken for granted-ness' is exactly why the materiality of the berms has been elaborated on, and archaeologically characterised here for the first time. Without this, and through the employment of Google Earth (and other freely accessible Internet resources), their composition and make-up, and disposition, would be little known. In short, by applying the acute sensitivity to material remains that is the hallmark of modern archaeology, even through remote observation, and (in Chapter 5) by incorporating interviews with individuals who have crossed the berms, along with the commentaries of journalists who have confronted the barriers, and accounts of Polisario fighters and Moroccan soldiers at war (adding a distinctly human and experiential element to the archaeological description of the barriers), the Moroccan berms have now been given a presence they would otherwise not have had. They would have remained un-constituted in the vague descriptions composed by the majority of writers and analysts on the Western Sahara conflict.

This dissertation moves from the macro (national) scale to the meso, or regional scale, in Chapter 6. Here, there is a sequence of archaeological periods, or overarching strata, in and around the settlement of Tifariti that is clearly evident. This sequence includes the distribution of numerous funerary monuments that probably range in date from around 3000 B.C to A.D. 1000, followed by the remains of the Spanish colonial period, and the subsequent remains of the occupation of Tifariti by Moroccan forces and its investment by Polisario in 1977-1979. These are made up of a defensive 'box' with inner and outer defences, and with up to 7000 individual foxholes, sangars, gun pits, defensive bulwarks, and troop accommodations covering an area of roughly 90 square kilometres. In turn, these are surmounted by the physical manifestations of the various ways in which the Saharawi people are presently re-appropriating their patrimony in the liberated zone, especially at Tifariti – through new building works, Bedouin resettlement, and through the holding of Polisario/SADR national events. Overall, this materiality makes up a vast single stratum of features inscribed on the land, juxtaposed with each other and interdigitated. They are essentially an assemblage, and when enhanced by oral testimony (both official and unofficial) and the results of archaeological fieldwork, they make up a narrative that is akin to a collage.

In Chapter 7, the archaeology of the Tifariti region moves from the meso to the micro scale. The term 'micro' has been used to indicate that at this juncture, this dissertation has directed its gaze at specific artefacts on the land – artworks – limited in number and extent, and created episodically over four years, all as part of the ARTifariti art festivals that were held in Tifariti from 2007 until 2010. This chapter caps the archaeology of Tifariti as described in Chapter 6, and the artworks are viewed as a part of the continuum of the settlement's archaeology, from prehistoric times to the present day. The artworks examined in this chapter are all out of doors, as mainly free-standing sculptures or installations, and as murals. They are an expression of sentiment on the part of their creators – almost all foreign artists – in solidarity with the Saharawi people in their struggle for self-determination and recognition as an independent nation. Much of the artwork created has been made with cast off materials and the remains of unexploded ordnance. Many fall within the category of trench art, and/or protest art, though none are portable. They have been created in a contested territory, and one that is technically still in a state of war, since only a

United Nations brokered cease-fire keeps the peace. These are war art, but also memorial art, and to the artists they are solidarity art. The founders of ARTifariti, and the participating artists, see their creations as agents that can mediate change, and as positive, contributing additions – weapons even – to the arsenal of the Saharawi people in their struggle over the fate of their nation. The artworks are manifestations of the collective sub-culture, or community, that the artists belong to (at least while they are in Western Sahara). They work together as an aggregate and their creations are a manifestation of their individual and group sentiments. To borrow from Alfred Gell, the ARTifariti artworks are 'enculturated beings' and examples of 'distributed personhood'. And this enculturated entity, consisting of artefacts imbued with the sentiments of their creators, individually and as a group, make up the latest stratum of archaeology in and of the present – amidst the vestiges of Spanish colonialism, and of Moroccan occupation and late 20th century war – at the settlement of Tifariti.

Archaeological Consequences

There are two research questions around which this dissertation rotates. (1) How has the landscape of Western Sahara been transformed by the 1975-1991 war, as manifested by the material remains of conflict? And (2), how are the Saharawi people manifesting the re-appropriation of their land, in particular, at the settlement of Tifariti, which has a special resonance for them? These questions have been situated throughout this dissertation within the themes of colonialism, conflict and exclusion – and they have been viewed through three scales of resolution: the national, or macro, the regional, or meso, and the micro, being locus and episode specific. These are not hierarchical but, essentially, different aspects from which to view the profound materiality of conflict on the landscape of Western Sahara.

The Material Remains of Conflict
By employing the strategic methodology and resources described in Chapter 2, this research has undoubtedly shown how 20th century conflict has literally transfigured the landscape of Western Sahara through the material manifestations of war and contestation. It has charted the initial enclosure of the territory through the establishment of Spanish colonial outposts along its Atlantic coast, and through the

creation of the French (Mauritanian) *limes* of the *Piste Imperiale*, with its six forts on a front facing westwards into Western Sahara. It has shown how a place – Tifariti – known only for having a well, was transformed in the 1960s into a Spanish military outpost, though one which also served as a locus for the Bedouin in the region. It has also presented, for the first time, an archaeological survey of a Spanish Foreign Legion fort situated in the deep desert.

The crux of this research, however, are the works of war from the conflict of 1975-1991, and in particular, the six territorial barriers – the Moroccan berms – constructed in waves across the territory between 1980 and 1987. The mappings, illustrations, statistics, and descriptions that make up Chapter 4 (based on a comprehensive use of Google Earth) show how the landscape of Western Sahara has been transformed by this modern conflict. Although an overwhelming majority of Saharawis evacuated the territory in the wake of the Moroccan and Mauritanian invasions of 1975-1976, those who stayed in the territory, and those who still clung to a traditional nomadic existence in the *badiya*, had their pastoral way of life irreparably disrupted. The berms, with their forts, barbed wire and minefields cut off traditional route-ways and pastures, and confined a sizable proportion of Saharawis behind the barriers (in what has been described as the largest prison on the planet), while excluding an even greater number without. Additionally, the land near the barriers is still unsafe due to minefields and unexploded ordnance, and this is also the case along stretches of redundant barriers within the Moroccan occupied zone.

With the berms transfiguring Western Sahara at a national scale, the hostilities between Polisario and Morocco (and Mauritania) also caused the territory to be transformed at the regional level. The Tifariti region was one such locus, being occupied by Moroccan forces from 1977 to 1979. As a result, Polisario/SPLA invested the settlement through long-term attritional guerrilla tactics, and to defend themselves, the Moroccans turned the settlement into a fortress. Through the use of Google Earth, oral testimony, and traditional archaeological survey, this research has been able to present, for the first time, an archaeological analysis of this deep desert battlescape, and this is probably the first study of its kind of any such battlespace from the latter twentieth century.

As with the berms, the archaeological data, analyses, mappings and illustrations generated for Chapter 6 clearly show how the Tifariti landscape was transformed by war. When coupled with oral testimony on how the war was fought, this dissertation has been able to present a holistic view of modern asymmetrical war. By situating Polisario tactics within the overall history of guerrilla warfare (and the history of the traditional Arab raid – the *ghazi*) this dissertation has shown how the attritional, mainly small scale, raiding tactics of Polisario was a way in which the Saharawi fighters could draw upon their intimate knowledge of the Sahara, as the so called 'children of the clouds', and be at home in the vast, 'in between' desert spaces – the voids – between the 'dug in' Moroccan garrisons and strong points, for which Polisario/SPLA still showed (in 2011) a marked degree of contempt. The multi-faceted archaeology of the Tifariti warscape shows that the defended settlement, even with its modern armaments, was not immune to the multiple and unpredictable, small scale and lightning raids of Polisario/SPLA, and that defences without continuous barriers could be easily over run by committed, well trained and experienced guerrilla fighters (even drawing upon techniques of warfare that harked back to pre-modern times). However, as pointed out in Chapter 5, when formidable barriers, such as the berms are constructed, highly mobile raiders can undoubtedly attack and disrupt the garrisons manning them, but in real terms, the barriers will continue to check the insurgents unless the will of the defenders is totally broken, or the guerrilla fighters turn to conventional warfare. From interviews carried out for this research, Polisario/SPLA does not seem to cling to the *ghazi*-like raid as its only offensive strategy. They have at times deployed large columns with tanks and mobile artillery, and they believe that they can truly breach the berms in a future war. This might be wishful thinking, since the Saharawis have no air force (a crucial arm in modern warfare), but when I visited Polisario/SPLA garrisons northeast of Tifariti in 2007, there were vehicle parks with numerous tanks and self-propelled artillery, clearly indicating that Polisario does not shy away from the conventional weapons of war.

Territorial Re-appropriation

The berms have created two Western Saharas. One cleansed of Polisario fighters and occupied by Morocco, and another, the hostile desert populated by a small number of Bedouin and the SPLA under Polisario/SADR control. The second Western Sahara can be interpreted as a liminal zone. It is the threshold in front of a curtain – the berm*s*

– that cannot be passed through, and additionally, it is confined by further borders with Mauritania and Algeria. It is a self-contained geographical unit, though its eastern frontier is permeable. This in-between-land, if Malainin Larkhal's interpretation is correct, symbolizes potentialities.[725] It represents the fact that it is possible for the Saharawis to confront the Moroccan military, and to liberate a part of their country – so why not the rest of it? The very existence of a liberated zone (even with a small population and little infrastructure) also impresses upon the Saharawi people the fact that their land is occupied, and that it still has to be wrested free from its unwelcome occupiers. This clearly reflects the persistence of the materiality of the Western Sahara conflict into the present day.

The archaeology of Tifariti, as brought to light through the examination of Google Earth imagery, and through targeted fieldwork and interviews in 2011, has clearly illustrated some of the ways in which the Saharawi people are re-appropriating their country in and around the settlement. The place is seen as a potential capital for the Liberated Zone. It too is a liminal locus, floating, cut off by the berms from the routes that used to connect it to the settlements now in Moroccan territory, and only linked umbilically by desert tracks to the Saharawi refugee camps in Algeria. As such, it serves as a kind of vestibule into the Liberated Zone. It is also liminal in that it is at the juncture of an undulating and rocky terrain that extends northwards, and the flat *hamada* desert that extends to the south. And as its archaeology indicates, this distinct situation puts it at the southern limit of an area rich in prehistoric funerary remains.

Tifariti is a quiet settlement and it is very underdeveloped, but its archaeology (elaborated on in Chapter 6) clearly shows how a new and growing population of Bedouin pastoralists, have been inhabiting the wadis in and around the settlement in numerous familial tent encampments since the ceasefire of 1991. These new settlers have a strong and positive feeling towards the place. Its weather is clement, and Tifariti serves as a service centre with a water supply, a school, infirmary, new housing, a municipality office, an office for the regional SPLA commander, and a SADR government building under construction. Tifariti is a place poised to become something else – it is in the process of becoming actualised – and importantly, it is a

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[725] Larkhal, Interview.

meeting place for National Polisario/SADR celebratory events like the Polisario National Congresses that have been held there since 2003. When these occur, Tifariti swells by the addition of tent encampments for the delegates and soldiers visiting, and taking part in the event. These usually occupy the eastern part of the settlement and the area close to the old Spanish airstrip, where martial parades and associated cultural gatherings occur. In fact, the airstrip has become a central ceremonial space for the SADR. Here, fixed viewing stands have been built, with podiums, decorative delimiting walls, and flagpoles. The re-appropriation of this barren patch of desert has a clear materiality visible on the ground, and its archaeology has been clearly charted in this research.

As a settlement that experienced the violence of war, Tifariti has acquired a special resonance for the Saharawi people. Because of this – and its location not far from the Rekeiz prehistoric rock art sites – it became the focus of the ARTifariti art festivals dealt with in Chapter 7. As with the providing of services for local Bedouin, along with housing, and national SADR events at Tifariti, the ARTifariti festivals have been a definite form of re-appropriation of this liminal Saharawi locus. From the politically charged artworks that have been recorded in this research, and from the oral and published testimony of the artists involved, the festivals have been a statement of intent that Western Sahara will one day be undivided and governed by the Saharawi people, and that there would be no exclusion of the two thirds, or so, of the Saharawi population on the eastern side of the berms. Strikingly, however, since nearly all of the outdoor interventions have been carried out by foreign (mainly Hispanic) artists, in solidarity with the Saharawi people, their sincere efforts can only be described as an attempt at territorial re-appropriation by proxy.

Applications

Wars cover great expanses of ground. Studying them by commercially available satellite imagery can be financially prohibitive. In consequence, therefore, this dissertation and the archaeological examples cited in Chapter 2 illustrate how virtual globes (in particular, Google Earth) can be successfully employed in studying past and contemporary landscapes. This research also illustrates how blogs and personal websites can be used in studying the materiality of modern wars, along with user generated online videos. At this very moment, satellite imagery activists and

neogeographers are harnessing such readily available internet tools and resources, to record and make known a multiplicity of crises across the planet. By working in this vein conflict archaeology can become an applied archaeology, and as such, it would sit well with the humanitarian focused satellite research that is being undertaken on conflict zones by, for instance, the Satellite Sentinel Project[726] and the American Association for the Advancement of Science.[727]

The use of publicly available internet resources, as in this research, tells us that conflicts, and the scarred landscapes of conflicts, do not have to be unknown to us. We can cast our gaze over them, and we can study, analyse and characterise them as and when we want. We can even chart the progress of present day wars if our resources (both graphic and otherwise) are up to date. This tells us that the nature of conflict can be understood in geographic space in an accessible way, and that wars can be undisclosed. Just as audio-visual news coverage can bring us face-to face with conflict – with a sense of immediacy unknown in the past – seeing a conflict from space, spread over 1000s of square kilometres in area, and understanding how it has literally moved across a country, a territory, can indicate hitherto unknown aspects of modern war. In particular, and as this dissertation shows, these can include, the nature of power imbalances, the nature and character of battlespaces, degrees of destruction, and the means by which an army can 'dig in' and be sieged. The partitioning of a nation can be readily visualised, and the relationship between people (as both combatants and non-combatants) with the terrain and built environments in which they act out their lives can be characterised. Such geographies of militarised landscapes and frontiers, and battlespaces, though specific to each and every conflict, can, to an extent, be made bare. Wars – armed conflicts – have 'big' stories to tell, and the insights acquired, and the methods employed in carrying out this research, are applicable to other modern conflict landscapes, especially those that are relatively recent, and in regions where there are dangers to life through unexploded ordnance and/or hostile parties, and with very limited access.

The hostilities of the Western Sahara conflict ended almost a quarter of a century ago. Since then, many other wars have erupted across the globe, and the material remains

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[726] At http://www.satsentinel.org/ accessed on 28 November 2013.
[727] AAAS 2014.

of those conflicts, along with the remains of even earlier wars, are now visible on virtual globes. Of course, the type of terrain in which a given conflict took place dictates how well its various remains will have been preserved, and how easily they can be seen through publicly available satellite imagery. Nevertheless, the works of war, and the landscapes transfigured by war, can be readily studied in many instances, especially in the arid regions of the world where ground cover is very limited. Some examples of such conflict landscapes, from within the third quarter of the twentieth century until now, can be found in Southwest Africa (Angola and Namibia), Ethiopia and South Sudan, Iran and Iraq, Afghanistan, and of course, in Palestine. Conflicts like these have been long term and devastating in their effects. They have histories of real and imagined pasts, and materialities that will linger for a very long time – some of which will never be erased. Their study deserves an archaeological sensitivity that is concerned with both the living and the dead, and an approach that is not piecemeal, but longitudinal in scope. By applying the conceptual and strategic tools elaborated upon, and fruitfully employed in this research, this dissertation can lead the way, indeed be a template, for further similar archaeological studies of conflicts, and contested territories, in the twentieth and twenty-first centuries.

Future Directions

This research has undoubtedly opened up a broad arena of research for the archaeological study of modern and contemporary conflict. As already made clear, the Moroccan territorial berms cannot be studied at close quarters, but their make-up and operational mechanisms, and the militarised geography of which they are a part can undoubtedly be explored in much greater detail by further survey through remote sensing. Such research, expanding upon what this dissertation has covered, can only add to the story of Western Sahara, and the issues of land contestation and partition that is occurring in the world today.

At a more regional level, with the ancient archaeology within the Liberated Zone sitting in many places amidst a landscape of modern conflict, this latter period of momentous activity should to be included in any further landscape studies carried out in Western Sahara. This would be in keeping with the basic tenets of contemporary

landscape archaeology where a holistic approach is taken and no preference is given to any specific period. Besides contextualising the more ancient landscape within the present day geography of the country, it would contribute to the historical narrative of the Saharawi people.

The colonial period should also be explored further, especially since the Saharawis view their relationship with the Hispanic world as part of their heritage. They see themselves as having a unique Arabic-Spanish culture, which sets them apart from the former colonies of the French imperial project in Western Africa. This heritage has come under attack in Dakhla (Villa Cisneros) where, for instance, the original Spanish fort dating back to 1884 has been demolished by the Moroccan authorities. Other Spanish period remains in the occupied zone are ruinous, and luckily, the Spanish archaeologist Luis Blanco is surveying and recording some of them.[728] In the Liberated Zone, however, much further work can be carried out in Tifariti. This could include more detailed architectural surveys of the fort, infirmary, and bake house, with the latter including excavation. To get further information on the day-to-day lives of the Spanish garrison, the rubbish dump northwest of the fort could be excavated. There is also scope for colonial period archaeology in the south of the country, at Zug, where the probable French fort could be surveyed and excavated. This would provide valuable insights into early French military activity in the region, just as fieldwork at Tifariti would contribute to our knowledge of the later Spanish occupation of the *badiya*. It is also possible that surveys could be undertaken in the Wadi Tagliat, northeast of Tifariti, to see if it is possible to identify the site of the French-Saharawi battle that took place there in 1912, after the sacking of Smara. The materiality of the European colonial period is a lacuna in our knowledge of the history of this part of the Sahara. Little, if any, of such research is being undertaken in other parts of the Sahara, therefore, such fieldwork would be a real contribution to colonial period studies.

The Moroccan defences around Tifariti should also be investigated in greater detail. Here, there is the opportunity to explore a garrison – a whole martial community – under siege. Detailed surveys of selected areas of defences could be carried out along with excavations of selected groups of built structures, dug outs, trenches and artillery

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[728] Blanco Vázquez 2012.

gun pits. The open desert around Tifariti would be a perfect, and accessible, environment to study late 20th century field fortifications (and soldier's field accommodations) with implications for understanding the materiality of place of contemporary, and near contemporary war zones such as Vietnam, Southwest Africa, the Falklands, and the Middle East, not to mention Afghanistan.

There is also a great deal of targeted oral history work on the conduct of the war that can be undertaken. Much of the literature on Western Sahara has much to say on the plight of the refugees fleeing the territory in 1975-1976, and there are oral history projects looking at the Saharawi experience in its broadest sense, as in the case of the work of the University of Roehampton's Hispanic Research Centre.[729] However, it is the story of those people affected by the face of battle, the soldiers and veterans of the SPLA who, as yet, still have a story to tell.

Further, more detailed recording of the remaining ARTifariti interventions could be carried out, along with further interviews with the artists. If the festival were to return to Tifariti, then its new art interventions should be plotted and recorded as part of any future landscape archaeology project in the immediate region. These, like the remains of the war with Morocco and the colonial period, as well as the surrounding prehistoric landscape, are all part of the very 'big story' that is the archaeology of Western Sahara.

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[729] Hispanic Research Centre (n.d.).

GLOSSARY

On transliteration

Throughout this dissertation there are words, names and place-names transliterated from Arabic. For consistency, the spellings of these presented in Pazzanita 2006, *Historical Dictionary of Western Sahara* (3rd edition), have been used. For those words not found in the *Historical Dictionary,* then spellings (especially for place-names) from Servicio Geográfico del Ejército de España 1960, *Mapa de las Provincias de Ifni y Sahara y Archipielago de Canarias* have been used. Transliterations not used from these sources include: the Spanish 'h' sound for the Arabic 'kh' sound, and the French 'ch' for the English 'sh' sound, for instance, in the word sheikh (the latter transcriptions for both of these is preferred throughout this dissertation). Also, the western Saharan word, 'oued', for a dry watercourse or valley, has not been used, but instead, it has been replaced by the more commonly known 'wadi'.

Selected Glossary[730]

AOAV	Action on Armed Violence, formerly known as Lind Mine Action (LMA): often noted herein as LMA/AOAV
Badiya	(Arabic) The open desert, which can include pasture-grounds: those regions outside of permanent settlement
Bedouin	Or Badouin (From Arabic): inhabitants of the *badiya*. Desert nomads, or pastoralists
Berm	In modern military usage, this is generically an earthen bank, or dyke: an earthen rampart or parapet
Bir	(Arabic) A deep well
Ghazi	(Arabic) The traditional Arab raid
Guelb	(Arabic) Igneous, plug-like rock outcrops and ridges
Guelta	(Arabic) Depressions or hollows of various sizes which collect

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[730] Most unfamiliar words and acronyms are defined when they initially appear in the text, but those listed here are repeated often, well after their initial explanation.

	rainwater
Hamada	(Arabic) Flat, open and stony desert: steppe-like
Hassi	Or Hasi (Arabic): a shallow well
Inselberg	Igneous outcrop of rocks: a 'tor', often ridge-like
Intifada	(Arabic) An uprising: a campaign of civil disobedience
LMA	Lind Mine Action, now known as Action on Armed Violence (AOAV): often noted herein as LMA/AOAV
Mahdi	(Arabic) A religious and temporal leader who will restore justice and religious observance
Marabout	(From Arabic) An Islamic hermit or monk-like holy man
Mehariste	(From Arabic) French term for camel mounted troops (Camel Corps): the Spanish term is Tropas Nómadas
MINURSO	Mission des Nations Unies pour l'organisation d'un referendum au Sahara Occidental (United Nations Mission for the Referendum in Western Sahara)
Polisario	Polisario Front: Frente Popular para la Liberación de Saguia el-Hamra y Río de Oro (Popular Front for the Liberation of the Saguia el-Hamra and the Rio de Oro)
Reg	(Arabic) Similar to hamada, but less steppe-like, being associated with land that has natural run-off: in Western Sahara, reg landscapes are closer to the coast
Regulares	Spanish colonial troops from Spanish Morocco
Sabkha	Or sebkha (Arabic): salt pans, though specific salt pan areas are referred to as sebkhat
SADR	Saharawi Arab Democratic Republic: also noted herein as SADR/Polisario
Saguia	(Arabic) In Western Sahara: a water course or river
SPLA	Saharawi People's Liberation Army: also noted herein as SPLA/Polisario
UXO	Unexploded ordnance
Wadi	(Arabic) A dry water course or valley
WSP	Western Sahara Project of the University of East Anglia
Zariba	(Arabic) An enclosure made of scrub, or thorn bushes

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Interviews

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Bachir, Salek Labaidi. [Saharawi journalist and activist.] Interview in English (at Rabuni, Tindouf). 19 October 2011.

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Breica, Habua. [Head of the 1st Artillery Regiment, SPLA, 2nd (Tifariti) Military Region.] Interview in Arabic, interpreter: Malainin Larkhal (at Tifariti). 2 November 2011.

Deya, Muhammed. [Mayor of Tifariti, and former SPLA soldier.] Interview in Arabic, interpreter: Malainin Larkhal (at Tifariti). 27 October 2011.

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Guzman, Federico. [Participating artist with ARTifariti since 2008.] Interview in English (at Smara Refugee Camp, Tindouf). 18 October 2011.

Larkhal, Malainin. [High profile Saharawi journalist and activist.] Interview in English (at Tifariti). 2 November 2011.

Peraita, Fernando. [Artist and founder of ARTifariti.] Interview in English (at 27th February Refugee Camp, Tindouf). 17 October 2011.

Salama J'dud, Sidi Brahim. [Poet and Saharawi war veteran.] Interview in Arabic, interpreter: Malainin Larkhal (at Tifariti). 23 October 2011.

Salma, Kalthoum. [Saharawi Bedouin resettled in the Tifariti area.] Interview in Arabic, interpreter: Malainin Larkhal (at Tifariti). 31 October 2011.

Touballi, Hamdi. [Saharawi journalist and activist.] Interview in English (at 27th February Refugee Camp, Tindouf). 15 October 2011.

An Archaeology of Colonialism, Conflict, and Exclusion:

Conflict Landscapes of Western Sahara

In Two Volumes:

Volume Two

Appendices and Figures

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Appendix 1:

The Tifariti History Plaque

The *Tifariti History Plaque* is located in Tifariti, in the dining room of the Polisario accommodation facility for visitors to the settlement.

بطاقة بلدة التفاريتي

للماء قيمة وأهمية في جميع بقاع العالم، وعبر كل العصور، وقد نشأت وتطورت معظم الحضارات حول منابع المياه، لاسيما في الصحراء حيث الماء، بمثابة الأوكسجين.

1912 — قبل حفر البئر كان آشتيق

1951.1952 — مغر حاسي التفاريتي الأول بتأسيس البدايات الأولى لبناء المرافق الحكومية والبلدة

17.5.1968 — بعد الاتفاقية الثلاثية وبداية الغزو المغربي للوطن تعرضت البلدة للقصف الجوي من طرف القوات الجوية الملكية

يناير 1976 — مستهدفا المدنيين العزل نساء وأطفالا وشيوخ

8.1977 — تم احتلاله من طرف القوات المغربية تم تحريره على يد مقاتلي جيش التحرير الشعبي الصحراوي

79.3 — خلال مفاوضات وقف اطلاق النار وقبيل مجيئ قوات حفظ السلام الأممية أعادت احتلال وتدمير ما تبقى من مرافق البلدة نهائية

غشت. 1991 — العدوان

91.8.4 — تم استقاط طائرتين من السلاح الجوي الملكي المغربي الدولي ميراج وأسر ملاحيها رتبة نقيب بتاريخ

91.8.26 — من السلاح الجوي الملكي المغربي رتبة ملازم أول بتاريخ FSE

03.10 — تم انعقاد المؤتمر العادي عشر للجبهة الشعبية يوم

05.5.18 — تم تركيب أول محطة اتصال هاتف، انترنت يوم

1991.8 — تم هضر المشروع الاعاقة بتاريخ

1998.05.8 — دربت له مضخة بتاريخ

1999.4.10 — بناء المدرسة بتاريخ

المستشفى — 1999.4

1999.06 — اقامة المتحف الجهوي

تجهيز المزرعة : معدات ووسائل العمل بها.

2005.05.21 — بدء انطلاقة حي التضامن

05.05.21 — وضع حجر أساس مقر المجلس الوطني الصحراوي

This framed board (shown above), measuring around one metre high by three quarter metre wide, and made of plywood with a plastic laminate surface, lists a number of key events in the history of Tifariti. These range in date from 1912 to 2005.

As can be seen in the photograph (taken in 2011), the inscription is hand written in Arabic, with dates in European Arabic numerals. There is more than one hand, and events have been added to it over time: presumably by people associated with the SADR or SPLA in Tifariti, and/or the Tifariti Mayor's office. In this research, therefore, this board is treated as a document representing 'local knowledge'. There is an outline of Western Sahara in the bottom two thirds of the plaque, and there are pale hand impressions that underlie the writing. Dr. Alexander Wasse has kindly translated the text, from the Arabic to English. It reads:

Water has been important and valued in all parts of the world throughout history. Most civilisations were established and developed around water sources, especially in the desert where water is equivalent to oxygen.

Before the well (BIR) was dug, there was water in a natural fissure [a spring] *1912.*

The first well (HAASI) of Tifariti was dug in 1951-1952.

The initial construction of government and community facilities 17.5.1968.

Following the Tripartite Agreement and start of the Moroccan invasion of the nation, the community was subjected to air bombardment by the Royal (Moroccan) Armed Forces, targeting defenceless civilians, including women, children and the elderly January 1976.

The community was occupied by Moroccan forces 1977-8.

It was liberated by fighters of the Saharawi People's Liberation Army 3.79.

During ceasefire negotiations and before the arrival of foreign peace-keeping forces, it was reoccupied [by Polisario/SADR] *and what remained of the community facilities*

were destroyed at the end of August 1991. During these hostilities, two aircraft of the Royal Moroccan Air Force were shot down.

The first was a Mirage and its pilot, with the rank of Captain, was captured on 4.8.91 The second was a F5E and its pilot, with the rank of Lieutenant, was captured on 26.8.91.

The eleventh conference of the Popular Front [Polisario] *was held on 12 to 19 October 2003.*

The first telephone and internet office was erected 18.5.05.

The well (BIR) was dug deeper in 8.1991.

A pump was fitted to the well (BIR) on 8.05.1998.

Construction of the school 4.1999.

Construction of the hospital 10.4.1999.

The regional museum was established 06.1999.

The farm was equipped with machinery.

Commencement of the 'Solidarity' district [housing] *development 21.05.2005.*

Placement of the foundation stone of the [Tifariti] Saharawi National Council headquarters 21.05.05.

Appendix 2:

Summary gazetteer of berm installations located within (or near) the 'snapshot' sampling rectangles described in Chapter 4

There is a single table for each of the Moroccan berms – from No. 1 to No. 6. The fields include the 'Name', being the number applied to each installation during the digitisation process; the 'Type' of installation, as described in Fig. 4.5; the 'Shape', or generalised, descriptive morphological category (see Chapter 4, Part 2); the 'Terrain', or lie of the land; 'FB Guns', indicating the presence and number of artillery in fire support bases (firebases), as either 'pits' (gun pits) or 'slots' (vehicular slots that could house self-propelled artillery and/or tanks); the 'Area' of each installation (in square metres); 'Rect', or the sampling rectangle in which each installation is located (when an installation is just outside a rectangle, then its position is additionally noted with the indication of a cardinal point). The last two fields are for decimal longitude ('Lon') and latitude ('Lat'). When some data has not been noted during the digitisation process, this is indicated by 'n/n', for 'not noted'.

Table: Berm No. 1 - Summary data of installations located in sampled rectangles								
NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
14	comp	Polygonal	Low relief		45991	215	-14.29331	26.05893
23	comp	Polygonal	Flat desert		41296	215	-14.20124	26.12223
30	comp	Polygonal	Flat desert		5373	215	-14.11954	26.16177
31	comp	Polygonal	Flat desert		2861	182	-14.11936	26.1636
256	comp	Polygonal	Dissected		1858	157	-11.71488	26.54882
257	comp	Polygonal	Dissected		2207	157	-11.71543	26.54791
124	comp?	Complex	Flat desert		10861	221	-12.77264	26.13621
377	comp?	Polygonal	Dissected		9677	157	-11.64347	26.58682
8	flt	Polygonal	Flat desert		4968	215	-14.3331	26.01102
10	flt	Polygonal	Flat desert		3993	215	-14.30327	26.04328
15	flt	Polygonal	Flat desert		2904	215	-14.27232	26.06934
17	flt	Polygonal	Flat desert		4934	215	-14.24099	26.08431
21	flt	Polygonal	Flat desert		3731	215	-14.21316	26.1067
25	flt	Polygonal	Flat desert		3017	215	-14.18465	26.13885
28	flt	Polygonal	Flat desert		2455	215	-14.15216	26.15149
128	flt	Polygonal	Flat desert		7978	221	-12.71291	26.16424
130	flt	Polygonal	Flat desert		6842	187	-12.69757	26.1936
131	flt	Irregular	Flat desert		1229	187	-12.70167	26.21793

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
				Table: Berm No. 1 - Summary data of installations located in sampled rectangles				
243	flt	Polygonal	Low relief		8369	157	-11.77374	26.56121
248	flt	Irregular	Low relief		4901	157	-11.77403	26.53408
291	flt	Polygonal	Low relief		3572	124	-11.5635	26.84264
388	flt	Polygonal	Flat desert		5938	248	-14.481	25.88408
389	flt	Polygonal	Flat desert		7401	248	-14.46393	25.88574
393	flt	Polygonal	Flat desert		6026	248	-14.40706	25.9152
19	fsb	Polygonal	Low relief	3 pits	38811	215	-14.22477	26.09598
121	fsb	Circular	Flat desert	4 pits	137091	221	-12.83013	26.15034
134	fsb	Complex	Low relief	5 pits	208701	187	-12.67399	26.27722
237	fsb	Complex	Dissected	11 pits	32305	157	-11.84645	26.54688
239	fsb	Complex	Dissected	6 pits; 3 slots	63275	157	-11.81566	26.55834
241	fsb	Polygonal	Dissected	1 pit; 9 slots	90146	157	-11.72231	26.63239
254	fsb	No perimeter	Dissected	5 pits; multiple slots	341137	157	-11.71962	26.57289
266	fsb	Irregular	Dissected	13 slots	79485	157	-11.64012	26.57437
270	fsb	Circular	Dissected	1 pit; 5 slots	95174	157	-11.61101	26.63872
271	fsb	Irregular	Dissected	4 pits	1113383	124	-11.54899	26.7111
375	fsb	Polygonal	Dissected	7 pits; multiple slots	220241	157	-11.65581	26.5989
387	fsb	Polygonal	Flat desert	3 pits	30725	248	-14.50791	25.88343
392	fsb	Irregular	Flat desert	5 pits	91701	248	-14.43629	25.88959
24	fsb?	Irregular	Flat desert		59498	215	-14.20312	26.1236
9	ft	Irregular	Flat desert		93355	215	-14.32178	26.02247
18	ft	Polygonal	Flat desert		25496	215	-14.22364	26.09484
22	ft	Polygonal	Flat desert		32170	215	-14.19977	26.12105
29	ft	Irregular	Crest top		37992	215	-14.11765	26.1618
122	ft	Polygonal	Flat desert		14659	221	-12.80712	26.14204
123	ft	Polygonal	Flat desert		46912	221	-12.77288	26.13432
129	ft	Irregular	Flat desert		93556	187	-12.69629	26.17937
135	ft	Circular	Low relief		66114	187	-12.65624	26.25802
136	ft	Irregular	Flat desert		111313	187	-12.62361	26.27139
138	ft	Complex	Low relief		318871	187	-12.60957	26.29882
145	ft	Complex	Low relief		34001	187; E	-12.53162	26.38712
163	ft	Polygonal	Flat desert		75608	187; E	-12.55907	26.42548
150	ft	Polygonal	Flat desert		14433	221	-12.8289	26.14659
238	ft	Irregular	Dissected		39727	157	-11.83602	26.53806
240	ft	Irregular	Dissected		322755	157	-11.8034	26.54625
242	ft	Irregular	Dissected		146552	157	-11.7788	26.5531
244	ft	Polygonal	Low relief		250316	157	-11.75599	26.58405
245	ft	Circular	Low relief		16440	157	-11.73838	26.5979
246	ft	Polygonal	Low relief		56171	157	-11.72447	26.60901
247	ft	Irregular	Dissected		99368	157	-11.71475	26.61621

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT

Table: Berm No. 1 - Summary data of installations located in sampled rectangles								
NAME	**TYPE**	**SHAPE**	**TERRAIN**	**FB GUNS**	**AREA**	**RECT**	**LON**	**LAT**
249	ft	Irregular	Low relief		124658	157	-11.76774	26.53578
250	ft	Irregular	Low relief		27193	157	-11.7339	26.54222
253	ft	Polygonal	Low relief		66069	157	-11.72612	26.54078
255	ft	Circular	Low relief		24581	157	-11.71528	26.53749
260	ft	Irregular	Dissected		35572	157	-11.69124	26.53761
262	ft	Polygonal	Dissected		10931	157	-11.6778	26.54517
263	ft	Polygonal	Dissected		47502	157	-11.67228	26.54936
265	ft	Polygonal	Dissected		19905	157	-11.65534	26.55325
267	ft	Irregular	Dissected		152341	157	-11.6413	26.56025
268	ft	Irregular	Dissected		103812	157	-11.61411	26.57199
278	ft	Irregular	Dissected		156406	124	-11.54177	26.67401
279	ft	Irregular	Dissected		50377	124	-11.53099	26.68495
280	ft	Irregular	Dissected		98079	124	-11.51124	26.69484
281	ft	Irregular	Dissected		79321	124	-11.5012	26.72746
283	ft	Polygonal	Dissected		20010	124	-11.50114	26.73623
284	ft	Irregular	Dissected		168727	124	-11.49836	26.74352
285	ft	Irregular	Dissected		32939	124	-11.50669	26.75854
286	ft	Polygonal	Dissected		59103	124	-11.51696	26.77134
287	ft	Irregular	Dissected		304428	124	-11.52035	26.78652
288	ft	Polygonal	Dissected		47101	124	-11.52537	26.80126
289	ft	Polygonal	Dissected		41482	124	-11.54044	26.81347
290	ft	Irregular	Dissected		205581	124	-11.55191	26.83417
292	ft	Circular	Low relief		17361	124	-11.58367	26.85007
293	ft	Polygonal	Low relief		271217	124	-11.59792	26.85381
385	ft	Polygonal	Coastal		44158	248	-14.54294	25.87516
386	ft	Polygonal	Flat desert		45921	248	-14.50905	25.88054
391	ft	Polygonal	Flat desert		36361	248	-14.43706	25.8861
133	ftfb	Complex	Low relief	4 pits; 5 slots	311703	187	-12.68915	26.23992
16	ftfba	Polygonal	Flat desert	4 pits	60339	215	-14.25848	26.07632
26	ftfba	Polygonal	Flat desert	5? pits	39749	215	-14.16697	26.14528
120	ftfba	Complex	Flat desert	4 pits; 5 slots	132430	221	-12.85141	26.1494
127	ftfba	Complex	Flat desert	3 pits	175840	221	-12.72212	26.14892
13	ftfba?	Complex	Flat desert	n/n	94816	215	-14.29301	26.0556
125	lz	Polygonal	Flat desert		2082	221	-12.77376	26.14025
126	lz	Polygonal	Flat desert		2131	221	-12.82634	26.15094
258	lz	Polygonal	Dissected		3776	157	-11.69483	26.54395
264	lz	Polygonal	Dissected		3645	157	-11.65754	26.55501
376	lz	Polygonal	Dissected		4383	157	-11.66053	26.58289
378	lz	Polygonal	Dissected		4867	124	-11.52781	26.71259
27	lz?	Polygonal	Flat desert		10018	215	-14.16871	26.14768

Table: Berm No. 1 - Summary data of installations located in sampled rectangles

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
148	lz?	Polygonal	Flat desert		2436	215	-14.22601	26.09751
251	mcomp	Polygonal	Low relief		9673	157	-11.73067	26.54163
252	mcomp	Polygonal	Low relief		5795	157	-11.72881	26.54115
390	mcomp?	Polygonal	Flat desert		5986	248	-14.45372	25.88626
132	pcomp	Irregular	Flat desert		14176	187	-12.69856	26.22535
137	pcomp	Polygonal	Flat desert		8047	187	-12.61589	26.28423
151	pcomp	Polygonal	Flat desert		3595	187	-12.61924	26.27724
20	rft	Circular	Low relief		13622	215	-14.22883	26.09562
236	rft	Polygonal	Dissected		27465	157	-11.85088	26.53959
259	rft	Polygonal	Dissected		3689	157	-11.69223	26.54813
261	rft	Polygonal	Dissected		3547	157	-11.69231	26.5392
282	rft	Irregular	Dissected		115184	124	-11.5053	26.7306

Table: Berm No. 2 – Summary data of installations located in sampled rectangles

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
400	fsb	Polygonal	Low relief	4 pits	129172	LR; 221	-12.62743	26.10525
610	fsb	Irregular	Dissected	4 pits	52441	LR; 124	-11.39751	26.87576
397	ft	Polygonal	Flat desert		65140	LR; 221	-12.67239	26.11697
398	ft	Polygonal	Flat desert		12777	LR; 221	-12.64552	26.11266
399	ft	Irregular	Low relief		150479	LR; 221	-12.63256	26.10285
401	ft	Circular	Low relief		55141	LR; 221	-12.6146	26.09155
402	ft	Polygonal	Low relief		139327	LR; 221	-12.60319	26.07159
608	ft	Polygonal	Dissected		45041	LR; 124	-11.35243	26.81285
609	ft	Irregular	Dissected		119188	LR; 124	-11.35979	26.83995
611	ft	Irregular	Dissected		29290	LR; 124	-11.36102	26.8615
612	ft	Irregular	Dissected		189847	LR; 124	-11.36872	26.87943
613	ft	Irregular	Dissected		197860	LR; 124	-11.3846	26.90089
396	pcomp?	Polygonal	Flat desert		27311	HR; 221	-12.69326	26.13432
606	rft	Circular	Dissected		18460	LR; 124	-11.36663	26.79427
586	rft?	Complex	Low relief		150261	LR; 124	-11.38836	26.67545

Table: Berm No. 3 - Summary data of installations located in sampled rectangles

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
679	flt	Polygonal	Escarpment		4,464	126	-10.98637	26.91582
675	fsb	Circular	Dissected	3 pits; multiple slots	182,645	92	-11.02469	26.94995
682	fsb	No perimeter	Dissected	3 pits	36,693	92	-10.96404	26.92815
683	fsb	Polygonal	Dissected	multiple slots	154,926	92	-10.94358	26.96133
684	fsb	Circular	Dissected	4 pits	46,253	92	-10.9385	26.92773
697	fsb	Circular	Dissected	9 pits; multiple slots	250,782	92	-10.91797	26.97574

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
				Table: Berm No. 3 - Summary data of installations located in sampled rectangles				
703	fsb	Circular	Dissected	4 slots	47,596	92	-10.89334	27.04147
704	fsb	No perimeter	Dissected	1 pit; 6 slots	35,627	92	-10.91361	26.99591
711	fsb	Polygonal	Low relief	2 pits?; 4 slots?	12,802	92	-10.84423	27.08017
712	fsb	Irregular	Dissected	5 pits?; multiple slots	278,298	92	-10.85368	27.09428
778	fsb	Complex	Low relief	4 pits	44,476	62	-9.96653	27.41491
674	ft	Irregular	Escarpment		98,645	126	-11.03178	26.90965
677	ft	Polygonal	Escarpment		37,043	126	-10.99195	26.91134
681	ft	Irregular	Escarpment		62,564	126	-10.9704	26.91615
685	ft	Polygonal	Escarpment		22,826	126	-10.93892	26.91665
687	ft	Irregular	Escarpment		60,089	92	-10.91892	26.92149
689	ft	Polygonal	Dissected		28,744	92	-10.91445	26.93011
695	ft	Polygonal	Dissected		22,974	92	-10.9071	26.96206
698	ft	Polygonal	Dissected		47,273	92	-10.89788	26.98111
700	ft	Irregular	Crest top		41,197	92	-10.89349	27.00669
702	ft	Irregular	Dissected		51,242	92	-10.89277	27.02869
705	ft	Polygonal	Dissected		86,417	92	-10.86639	27.05235
710	ft	Irregular	Crest top		35,790	92	-10.83834	27.07012
775	ft	Polygonal	Low relief		86,707	62	-10.01125	27.36055
776	ft	Polygonal	Low relief		107,474	62	-9.99509	27.38041
777	ft	Circular	Low relief		39,651	62	-9.97857	27.38894
779	ft	Polygonal	Low relief		103,927	62	-9.95615	27.40503
780	ft	Polygonal	Low relief		58,679	28	-9.93468	27.4274
781	ft	Polygonal	Low relief		104,054	28	-9.9214	27.441
784	ft	Polygonal	Low relief		13,110	28	-9.905	27.45694
694	ftfb	Complex	Dissected	4 pits	54,137	92	-10.90931	26.94909
676	gar	No perimeter	Dissected			92	-10.99215	26.94798
692	gar	No perimeter	Dissected			92	-10.91516	26.95969
699	gar	No perimeter	Dissected			92	-10.90445	26.99891
678	lz	Polygonal	Escarpment		3,968	126	-10.99345	26.91275
680	lz	Polygonal	Escarpment		4,686	92	-10.97192	26.92278
686	lz	Polygonal	Dissected		3,327	92	-10.93726	26.91915
688	lz	Polygonal	Escarpment		6,497	92	-10.91927	26.92343
693	lz	Polygonal	Dissected		5,728	92	-10.91216	26.95443
701	lz	Polygonal	Dissected		11,692	92	-10.8985	27.01956
690	pcomp	Polygonal	Escarpment		7,182	92	-10.9123	26.93765
691	pcomp	Polygonal	Escarpment		4,320	92	-10.91083	26.94354
696	pcomp	Circular	Dissected		19,835	92	-10.90377	26.96903
706	rft	Complex	Low relief		97,070	92	-10.88948	27.07991
707	rft	Circular	Low relief		15,339	92	-10.89243	27.08337
708	rft	Irregular	Low relief		9,260	92	-10.89609	27.08244
709	rft	Polygonal	Low relief		15,440	92	-10.89337	27.07855

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
855	comp	Polygonal	Escarpment		9,656	126	-10.8716	26.91672
1093	flt	Circular	Escarpment		1,308	100	-9.04033	27.00996
1252	flt	Circular	Flat desert		7,250	952	-8.84457	28.03263
1262	flt	Circular	Flat desert		4,285	952	-8.83152	28.05885
1264	flt	Circular	Flat desert		3,028	952	-8.82256	28.07612
1268	flt	Circular	Flat desert		5,895	952	-8.80913	28.14449
1270	flt	Circular	Low relief		2,812	952	-8.80335	28.16802
1272	flt	Circular	Low relief		9,004	952	-8.78603	28.20481
1273	flt	Circular	Low relief		4,354	952	-8.79176	28.21899
1275	flt	Circular	Low relief		3,000	952	-8.79749	28.23616
2078	flt	n/n	n/n		n/n	952	n/n	n/n
2094	flt	n/n	n/n		n/n	952	n/n	n/n
2099	flt	n/n	n/n		n/n	952	n/n	n/n
2101	flt	n/n	n/n		n/n	952	n/n	n/n
2122	flt	n/n	n/n		n/n	952	n/n	n/n
2123	flt	n/n	n/n		n/n	952	n/n	n/n
2124	flt	n/n	n/n		n/n	952	n/n	n/n
2125	flt	n/n	n/n		n/n	952	n/n	n/n
2128	flt	n/n	n/n		n/n	952	n/n	n/n
2129	flt	n/n	n/n		n/n	952	n/n	n/n
1084	fsb	Polygonal	Low relief	5 pits; 4 slots	27,863	100	-9.0711	27.02284
1091	fsb	Polygonal	Low relief	8 slots	11,440	100	-9.02585	27.02123
1108	fsb	Polygonal	Low relief	3 pits	33,416	100	-8.87518	27.02659
1249	fsb	Circular	Flat desert	3 pits; 5 slots	112,286	952	-8.86695	28.01647
1255	fsb	Complex	Flat desert	4 pits	70,008	952	-8.86947	28.10058
1257	fsb	Irregular	Flat desert	5 pits	67,737	952	-8.84991	28.09075
1261	fsb	Polygonal	Flat desert	4 pits	81,118	952	-8.86044	28.06733
1281	fsb	Circular	Low relief	5 pits	34,946	952	-8.82234	28.23105
1282	fsb	Polygonal	Low relief	3 pits	77,288	952	-8.86085	28.21948
847	ft	Irregular	Escarpment		69,831	92	-10.91036	26.92082
851	ft	Irregular	Escarpment		18,840	92	-10.89128	26.91702
853	ft	Irregular	Escarpment		43,046	126	-10.87061	26.91268
1080	ft	Irregular	Dissected		14,110	100	-9.08115	26.99912
1081	ft	Irregular	Dissected		23,007	100	-9.08039	27.00814
1089	ft	Polygonal	Escarpment		20,315	100	-9.05137	27.01232
1094	ft	Irregular	Escarpment		33,998	100	-9.02839	27.00702
1095	ft	Irregular	Escarpment		12,976	100	-9.00241	27.00922
1099	ft	Polygonal	Escarpment		41,332	100	-8.97863	27.00884
1102	ft	Irregular	Dissected; wadi		16,351	100	-8.95085	27.00925
1104	ft	Irregular	Escarpment		68,758	100	-8.92663	27.0063

Table: Berm No. 4 - Summary data of installations located in sampled rectangles

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
**Table: Berm No. 4 - Summary data of installations located in sampled rectangles**
1106	ft	Irregular	Escarpment		17,097	100	-8.89713	26.99952
1107	ft	Irregular	Escarpment		41,730	100	-8.86691	27.00065
1250	ft	Circular	Flat desert		45,964	952	-8.83421	28.00052
1251	ft	Circular	Flat desert		95,189	952	-8.84761	28.02158
1253	ft	Irregular	Flat desert		351,653	952	-8.83848	28.04382
1263	ft	Irregular	Flat desert		53,916	952	-8.82575	28.06828
1265	ft	Circular	Flat desert		88,446	952	-8.81864	28.08587
1266	ft	Irregular	Flat desert		97,995	952	-8.81051	28.11505
1267	ft	Circular	Flat desert		102,844	952	-8.81402	28.13427
1269	ft	Irregular	Low relief		24,365	952	-8.80161	28.159
1274	ft	Complex	Low relief		50,789	952	-8.79559	28.22865
1271	ftfba	Complex	Low relief	Multiple slots	79,689	952	-8.80587	28.17908
1105	gar	No perimeter	Low relief			100	-8.93226	27.02774
1111	gar	Circular	Low relief		256,693	100	-8.88588	27.04073
1112	gar	No perimeter	Low relief			100	-8.94308	27.08674
1260	gar	Polygonal	Flat desert		74,621	952	-8.86925	28.07467
1085	gar?	No perimeter	Low relief			100	-9.08123	27.02401
1086	gar?	No perimeter	Low relief			100	-9.06983	27.02037
1113	gar?	Complex	Low relief		36,675	100	-8.90467	27.07712
1115	gar?	No perimeter	Low relief			100	-8.92198	27.07506
848	lz	Polygonal	Escarpment		3,349	92	-10.91032	26.92212
852	lz	Polygonal	Escarpment		3,328	92	-10.89149	26.91884
854	lz	Polygonal	Escarpment		3,037	126	-10.87209	26.91488
1083	lz	Polygonal	Dissected		5,922	100	-9.08191	27.01155
1109	lz	Polygonal	Low relief		4,171	100	-8.87673	27.02623
1114	lz	Polygonal	Low relief		8,734	100	-8.92685	27.07573
849	rft	Circular	Dissected		306,675	92	-10.88655	26.93779
850	rft	Irregular	Dissected		151,611	92	-10.87548	26.95075
1110	rft	Complex	Low relief		71,998	100	-8.89053	27.02675
1254	rft	Circular	Flat desert		141,926	952	-8.90596	28.10529
1256	rft	Circular	Flat desert		248,604	952	-8.87155	28.09192
1258	rft	Circular	Flat desert		4,942	952	-8.88548	28.08002
1259	rft	Complex	Flat desert		77,577	952	-8.8759	28.07346
1280	rft	Polygonal	Low relief		65,781	952	-8.8391	28.23359
2068	sop	Circular	n/n		n/n	952	n/n	n/n
2069	sop	Circular	n/n		n/n	952	n/n	n/n
2070	sop	Circular	n/n		n/n	952	n/n	n/n
2071	sop	Circular	n/n		n/n	952	n/n	n/n
2072	sop	Circular	n/n		n/n	952	n/n	n/n
2073	sop	Circular	n/n		n/n	952	n/n	n/n
2074	sop	Circular	n/n		n/n	952	n/n	n/n
**Table: Berm No. 4 - Summary data of installations located in sampled rectangles**

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
2075	sop	Circular	n/n		n/n	952	n/n	n/n
2076	sop	Circular	n/n		n/n	952	n/n	n/n
2077	sop	Circular	n/n		n/n	952	n/n	n/n
2079	sop	Circular	n/n		n/n	952	n/n	n/n
2080	sop	Circular	n/n		n/n	952	n/n	n/n
2081	sop	Circular	n/n		n/n	952	n/n	n/n
2082	sop	Circular	n/n		n/n	952	n/n	n/n
2083	sop	Circular	n/n		n/n	952	n/n	n/n
2084	sop	Circular	n/n		n/n	952	n/n	n/n
2085	sop	Circular	n/n		n/n	952	n/n	n/n
2086	sop	Circular	n/n		n/n	952	n/n	n/n
2087	sop	Circular	n/n		n/n	952	n/n	n/n
2088	sop	Circular	n/n		n/n	952	n/n	n/n
2089	sop	Circular	n/n		n/n	952	n/n	n/n
2090	sop	Circular	n/n		n/n	952	n/n	n/n
2091	sop	Circular	n/n		n/n	952	n/n	n/n
2092	sop	Circular	n/n		n/n	952	n/n	n/n
2093	sop	Circular	n/n		n/n	952	n/n	n/n
2095	sop	Circular	n/n		n/n	952	n/n	n/n
2096	sop	Circular	n/n		n/n	952	n/n	n/n
2097	sop	Circular	n/n		n/n	952	n/n	n/n
2098	sop	Circular	n/n		n/n	952	n/n	n/n
2100	sop	Circular	n/n		n/n	952	n/n	n/n
2102	sop	Circular	n/n		n/n	952	n/n	n/n
2103	sop	Circular	n/n		n/n	952	n/n	n/n
2104	sop	Circular	n/n		n/n	952	n/n	n/n
2105	sop	Circular	n/n		n/n	952	n/n	n/n
2106	sop	Circular	n/n		n/n	952	n/n	n/n
2107	sop	Circular	n/n		n/n	952	n/n	n/n
2108	sop	Circular	n/n		n/n	952	n/n	n/n
2109	sop	Circular	n/n		n/n	952	n/n	n/n
2110	sop	Circular	n/n		n/n	952	n/n	n/n
2111	sop	Circular	n/n		n/n	952	n/n	n/n
2112	sop	Circular	n/n		n/n	952	n/n	n/n
2113	sop	Circular	n/n		n/n	952	n/n	n/n
2114	sop	Circular	n/n		n/n	952	n/n	n/n
2115	sop	Circular	n/n		n/n	952	n/n	n/n
2116	sop	Circular	n/n		n/n	952	n/n	n/n
2117	sop	Circular	n/n		n/n	952	n/n	n/n
2118	sop	Circular	n/n		n/n	952	n/n	n/n
2119	sop	Circular	n/n		n/n	952	n/n	n/n

Table: Berm No. 4 - Summary data of installations located in sampled rectangles

Table: Berm No. 4 - Summary data of installations located in sampled rectangles								
NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
2120	sop	Circular	n/n		n/n	952	n/n	n/n
2121	sop	Circular	n/n		n/n	952	n/n	n/n
2126	sop	Circular	n/n		n/n	952	n/n	n/n
2127	sop	Circular	n/n		n/n	952	n/n	n/n
2130	sop	Circular	n/n		n/n	952	n/n	n/n

Table: Berm No. 5 - Summary data of installations located in sampled rectangles								
NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
1414	flt	Circular	Flat desert		5,979	520 E	-14.34552	23.84089
1416	flt	Circular	Flat desert		9,300	520 E	-14.30974	23.85328
1471	flt	Circular	Low relief		3,191	491	-13.3372	23.94377
1472	flt	Circular	Low relief		1,978	491	-13.3281	23.9437
1473	flt	Circular	Low relief		2,555	491	-13.31355	23.95097
1482	flt	Irregular	Hill top		3,622	491	-13.24629	23.96734
1485	flt	Polygonal	Low relief		7,069	491	-13.1955	23.97604
1486	flt	Polygonal	Low relief		7,187	491	-13.18334	23.9813
1584	flt	Irregular	Hill slope		3,684	359	-12.32561	24.98408
1586	flt	Polygonal	Pediment		9,678	359	-12.26882	24.98786
1593	flt	Polygonal	Pediment		5,324	359	-12.24881	25.04387
1596	flt	Irregular	Hill slope		2,197	359	-12.3272	24.98516
1481	flt?	Polygonal	Dissected		2,413	491	-13.2562	24.02348
1318	fsb	Irregular	Low relief	3 pits; 1 slot	30,050	583	-15.84045	23.27661
1327	fsb	Circular	Low relief	4 pits	26,876	583	-15.65438	23.35037
1385	fsb	Circular	Flat desert	4 pits	84,917	553	-14.71523	23.65004
1386	fsb	Circular	Flat desert	4 pits?	62,891	553	-14.70314	23.63989
1390	fsb	Irregular	Low relief	2 pits	11,776	553	-14.65554	23.65547
1412	fsb	Polygonal	Low relief	5 pits	51,805	520 E	-14.38263	23.85222
1465	fsb	Polygonal	n/n	3 pits; 2? slots	129825	491 W	-13.39568	23.94036
1470	fsb	Polygonal	n/n	3 pits	103436	491 W	-13.39156	23.96637
1484	fsb	Polygonal	Low relief	5 pits?	54,765	491	-13.22533	24.00173
1488	fsb	Irregular	Pediment	4 slots	34,611	491	-13.11467	24.02134
1594	fsb	Polygonal	Pediment	3 pits	51,263	359	-12.2572	25.05312
1595	fsb	Circular	Pediment	3 pits	85,254	359	-12.26527	25.07296
1315	ft	Irregular	Escarpment		51,469	583	-15.83497	23.23885
1316	ft	Circular	Low relief		15,296	583	-15.81671	23.21952
1319	ft	Irregular	Escarpment		30,501	583	-15.79671	23.22439
1320	ft	Circular	Low relief		14,732	583	-15.78337	23.24706
1321	ft	n/n	Low relief		3,870	583	-15.7759	23.25159
1322	ft	Circular	Flat desert		27,326	583	-15.75448	23.26506
1329	ft	Circular	Flat desert		16,403	583	-15.73697	23.27708
1330	ft	Circular	Flat desert		42,409	583	-15.71003	23.29157

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
Table: Berm No. 5 - Summary data of installations located in sampled rectangles								
1332	ft	Circular	Low relief		13,811	583	-15.68265	23.29851
1333	ft	Circular	Flat desert		49,056	583	-15.65257	23.31171
1334	ft	Circular	Flat desert		19,622	583	-15.62731	23.31263
1335	ft	Polygonal	Low relief		69,109	583	-15.60954	23.31854
1381	ft	Circular	Flat desert		29,472	553	-14.76704	23.6326
1382	ft	Irregular	Flat desert		16,188	553	-14.73831	23.63049
1387	ft	Circular	Flat desert		45,646	553	-14.70854	23.63017
1388	ft	Circular	Flat desert		13,657	553	-14.68011	23.63149
1391	ft	Irregular	Low relief		122,201	553	-14.6626	23.63751
1392	ft	Irregular	Low relief		12,985	553	-14.63756	23.63479
1393	ft	Irregular	Hill top		45,570	553	-14.61798	23.61841
1409	ft	Irregular	Low relief		25,204	520 E	-14.42594	23.79216
1410	ft	Circular	Low relief		32,907	520 E	-14.41594	23.82331
1411	ft	Circular	Low relief		11,696	520 E	-14.39534	23.83296
1413	ft	Circular	Flat desert		36,314	520 E	-14.37348	23.83558
1415	ft	Irregular	Low relief		22,288	520 E	-14.33513	23.84714
1417	ft	Irregular	Hill top		43,279	520 E	-14.27746	23.86007
1463	ft	Irregular	n/n		14955	491 W	-13.44257	23.89267
1464	ft	Irregular	n/n		21492	491 W	-13.41367	23.89995
1466	ft	Complex	n/n		17001	491 W	-13.40283	23.90934
1467	ft	Irregular	n/n		125498	491 W	-13.3938	23.92746
1468	ft	Circular	n/n		8018	491 W	-13.37312	23.92855
1469	ft	Irregular	n/n		41796	491 W	-13.35616	23.94064
1475	ft	Irregular	Low relief		40,536	491	-13.31986	23.94734
1476	ft	Circular	Low relief		13,120	491	-13.30323	23.96099
1477	ft	Irregular	Low relief		53,996	491	-13.276	23.96772
1483	ft	Irregular	Low relief		106,670	491	-13.21835	23.96881
1487	ft	Irregular	Pediment		99,980	491	-13.17111	23.99048
1489	ft	Circular	Low relief		15,657	491	-13.13791	24.00298
1490	ft	Complex	Low relief		217,235	491	-13.11162	24.00947
1501	ft	Polygonal	Pediment		167,467	491	-13.11244	24.10976
1585	ft	Irregular	Crest top		12,256	359	-12.31773	24.97733
1590	ft	Irregular	Hill slope		34,451	359	-12.2592	25.0195
1591	ft	Complex	Low relief		29,277	359	-12.25082	25.02617
1597	ft	Circular	Low relief		35,184	359	-12.23349	25.0602
1598	ft	Polygonal	Hill top		19,547	359	-12.19721	25.10328
1389	gar	n/n	Low relief		n/n	553	-14.68144	23.66779
1474	gar	n/n	n/n		n/n	491	-13.32594	23.9628
1480	gar	No perimeter	Dissected		n/n	491	-13.27476	24.1046
1592	gar	No perimeter	Low relief		n/n	359	-12.2591	25.04533
1317	rft	Polygonal	Low relief		10,063	583	-15.81109	23.22926

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
1323	rft	Circular	Flat desert		12,922	583	-15.71907	23.32963
1324	rft	Circular	Flat desert		35,227	583	-15.70769	23.32821
1325	rft	Polygonal	Low relief		25,161	583	-15.66734	23.35831
1326	rft	Polygonal	Low relief		14,761	583	-15.66446	23.3573
1328	rft	Circular	Flat desert		33,954	583	-15.64857	23.35843
1331	rft	Polygonal	Flat desert		9,694	583	-15.71277	23.29602
1383	rft	Circular	Flat desert		3,040	553	-14.73424	23.63412
1384	rft	Circular	Flat desert		2,228	553	-14.72348	23.64237
1478	rft	Circular	Low relief		167,287	491	-13.30018	24.04247
1479	rft	Polygonal	Dissected		29,939	491	-13.32783	23.99091
1588	rft	Irregular	Hill slope		4,494	359	-12.2752	25.00591
1589	rft	Irregular	Hill slope		1,503	359	-12.26869	25.0136
1587	sop	Irregular	Low relief		403	359	-12.26695	25.00357

Table: Berm No. 5 - Summary data of installations located in sampled rectangles

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
1635	flt	Irregular	Low relief		4500	850	-17.02515	21.33831
1640	flt	Polygonal	Low relief		2924	850	-16.9792	21.3622
1641	flt	Irregular	Low relief		3182	850	-16.96496	21.36064
1643	flt	Circular	Low relief		2309	850	-16.93116	21.36318
1646	flt	Circular	Low relief		3064	850	-16.89326	21.36097
1679	flt	Circular	Flat desert		3666	853	-16.34059	21.36466
1680	flt	Circular	Flat desert		5308	853	-16.31973	21.35731
1682	flt	Circular	Flat desert		5336	853	-16.27585	21.34694
1683	flt	Circular	Flat desert		6603	853	-16.25038	21.34949
1686	flt	Circular	Flat desert		8275	853	-16.1878	21.34464
1904	flt	Circular	Low relief		4671	850	-16.94387	21.36295
1634	ft	Polygonal	Coastal		9509	850	-17.02845	21.34159
1636	ft	Irregular	Low relief		7939	850	-17.02207	21.33738
1637	ft	Polygonal	Low relief		2845	850	-17.01204	21.34959
1638	ft	Polygonal	Low relief		3458	850	-17.0024	21.35887
1639	ft	Circular	Low relief		6542	850	-16.99186	21.36363
1642	ft	Irregular	Low relief		5401	850	-16.9592	21.36227
1644	ft	Circular	Low relief		9286	850	-16.91408	21.36162
1647	ft	Polygonal	Low relief		3274	850	-16.88841	21.36247
1648	ft	Complex	Low relief		7554	850	-16.87057	21.36327
1681	ft	Circular	Flat desert		12489	853	-16.29495	21.3508
1684	ft	Circular	Flat desert		13251	853	-16.23047	21.35053
1685	ft	Circular	Flat desert		4152	853	-16.20346	21.34856
1687	ft	Circular	Flat desert		15094	853	-16.16153	21.34973

Table: Berm No. 6 - Summary data of installations located in sampled rectangles

NAME	TYPE	SHAPE	TERRAIN	FB GUNS	AREA	RECT	LON	LAT
Table: Berm No. 6 - Summary data of installations located in sampled rectangles								
1688	ft	Circular	Flat desert		8172	853	-16.13915	21.35125
1689	ft	Circular	Flat desert		8356	853	-16.11997	21.34877
1691	ft	Circular	Flat desert		16465	854	-16.1012	21.34638
1693	ft	Circular	Flat desert		7673	854	-16.08363	21.34356
1694	ft	Circular	Flat desert		7572	854	-16.06439	21.34358
1695	ft	Circular	Flat desert		20676	854	-16.04465	21.34611
1696	ft	Circular	Flat desert		9311	854	-16.02176	21.34378
1697	ft	Circular	Flat desert		10773	854	-16.00362	21.34131
1698	ft	Circular	Flat desert		22652	854	-15.97727	21.33891
1699	ft	n/n	n/n		10159	854	-15.95333	21.34113
1700	ft	Circular	Flat desert		8137	854	-15.93621	21.3424
1701	ft	Circular	Flat desert		15745	854	-15.90493	21.33495
1702	ft	Circular	Flat desert		11394	854	-15.87711	21.33216
1692	gar	No perimeter	Flat desert		n/n	853; N	-16.10452	21.43097
1674	rft	Polygonal	Flat desert		119763	853; N	-16.11091	21.43707

Appendix 3:

Gazetteer of ARTifariti out-of-door artworks recorded in 2011

The following are brief citations on the different ARTifariti artworks recorded in 2011. They include an alphanumeric descriptor for each artwork, or group of artworks; the location of each piece, in decimal degrees (north and west); the title of each, or most, artworks, followed by their creator; The ARTifariti season in which each piece was created; brief, descriptive notes (though, where an artwork has been discussed fully in Chapter 7, a reference is made to that chapter instead of providing an abridged description); and finally, a referral to the appropriate ARTifariti catalogue with page references (except in those instances where reference is made to Chapter 7).

AR1

26.15960 N / 10.56304 W

Flor en el Desierto or *Flower in the Desert (Panémona)* by Roberto Pajares (with Cruz Echagoyen)

ARTifariti 2009

Constructed in 2009, this installation is an all-metal sculpture made up of vertical rods supporting a ring of cut out, and open, metal oil drums suspended at the very top of the piece. The installation stands around 8.5 m high, and it is supported at its base by three arcing metal braces of differing heights. They cover a base area of around 5 m x 5 m x 5 m. According to the artist, this 'wind-mill' sculpture was supposed to be a practical installation, able to rotate and extract water from a well for the garden nearby. Looking at it in 2011, however, it seemed to have never been put to practical use.

Ref: ARTifariti 2009: 26-27 & 89.

AR2

26.15934 N / 10.56230 W

Mujer Saharaui or *Saharawi Woman* by Rosamar Corcuera

ARTifariti 2008

This sculpture of a Saharawi woman, is apparently made of thick cloth, wound and draped over an armitage of wood and wires, and standing approximately 1.6 m high.

Unfortunately, it has lost its head and some of its sculpted mud (possibly mixed with cement) render. The piece includes inlaid, coloured, broken glass; and a base of the same, with quartz fragments and decorative roundels that look as if they are glazed. The piece stands on a circular, mud brick and cement plinth close to the model farm at Tifariti. On the wall of the garden, in Spanish, and on the rear of the sculpture, in Arabic, the artist has inscribed a fragment of a poem written by her father, Arturo:

I write peace when the sun shows up,

I travel around lands and sands of life

Sowing a dove in each furrow.

Ref: ARTifariti 2008: 66-67 & 120

AR3

26.15946 N / 10.55992 W

No me muevo hacia atrás or *I do not move backwards* by Bessaï Zineddine

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

AR3a

26.15946 N / 10.55989 W

El Grupo or *The Group* by Lalidji Walid

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

AR4

26.15946 N / 10.55989 W

Portrait of Nayem El Garhi by Federico Guzman

ARTifariti 2010

See Chapter 7 where this artwork is fully discussed.

AR5 & AR6

26.15946 N / 10.55992 W

Untitled: fragmentary designs and stone alignments, by members of the 2008 Algerian delegation of artists. These appear to be *ad hoc* artworks.

ARTifariti 2008

See Chapter 7.

AR7

26.16053 N / 10.56020 W

Al Paso de la Puerta or *At [the] Door Step* by Nabila Kalache

ARTifariti 2009

This is a low level, rectilinear alignment of stones painted white, representing the outline (or foundations) of a house and its rooms. The outlines are a single stone thickness, and height, and they cover an area around 6.3 m x 7 m.

Ref: ARTifariti 2009: 67 & 93.

AR8

26.15943 N / 10.56033 W

Víctimas Inocentes or *Innocent Victims* by Karim Sergoua

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

AR8a

26.15943 N / 10.56033 W

Ficción o Realidad or *Fiction or Reality* by Kenza Mebarak

ARTifariti 2009

See Chapter 7 where this artwork is fully discussed.

AR9

26.16007 N / 10.55795

Unattributed, spray can painted patterns in red and green, with some black and white, on a low level rocky outcrop behind the infirmary in Tifariti. They extend for approximately 5 metres. These appear to be *ad hoc* designs. The outcrop is probably no higher than 1.7 m.

No ARTifariti reference.

AR10

26.15918 N / 10.55782 W

El Muro de la Vergüenza or *The Wall of Shame* by Federico Guzman

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

AR11

26.15872 N / 10.55766 W

Viajando al Paraíso or *Travelling Paradise* by Maria Ortega Estepa

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

AR12

26.15857 N / 10.55708 W

El Tikit de la Baraka or *The Tikit of Baraka* by Federico Guzman

ARTifariti 2009

This artwork is essentially a circular hut-like installation made up of steel reinforcing rods arcing inwards, and joining up to create a dome. The rods are welded together and the top of the dome is covered with palm fronds. Helping to support the dome is a central upright metal rod set in mud bricks, and radiating rods at the base.

The artist was inspired by the traditional Mauritanian hut, known as a *tikit*, representing a shelter that gives both light and shade. The artist placed within the structure, items which he made out of the waste of war. For instance, there is a teapot with a soldier's helmet for a lid, and with a spout made from a motor vehicle exhaust. Accompanying tea cups are made from car/truck oil filters and placed within a panel (perhaps from a truck) representing a tray. The piece looked forlorn in 2011, and it was surrounded by wire fencing material, presumably to protect it.

Ref: ARTifariti 2009: 22-23 & 89

AR13

26.15811 N / 10.55573 W

Caballo de Troya Saharaui or the *Saharawi Trojan Horse* by Rolando de la Rosa (with Susana Cato)

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

Additional: In 2011, however, with the sculpture (AR13) already moved to the berm north of Tifariti, all that could be recorded was its base. This consisted of an approximately 10 m wide circle of stones with a centrally placed plinth of large stone slabs and rubble, on which the 'Trojan Horse' was originally placed, facing east. The remains of the ring consisted, in places, of alternating cobble sized, red and black stones, interspersed with small boulders. There was also, for about two thirds of its inner circumference, a narrow spread of quartz fragments. The ring was no more than a single stone or small boulder in height and about 25 cm thick. Four small, free standing boulders were placed within the ring, while along its easternmost arc there were five short orthostats. On these were painted, either in red or blue the names of four of the refugee camps at Tindouf: Ausserd, Ayoun, Dakhla and 27th of February. The words, 'faith' and 'resistance' were also painted onto two of the stones. These were in Arabic, but translated for me by the Saharawi accompanying me at the time.

AR14

26.15747 N / 10.55524 W

Tear Down the Wall by Alexis Amador.

ARTifariti 2010

This artwork fell down sometime within a year after its creation. It was a single thickness, breeze block wall, with a jagged opening in it. It was painted to look like the wall from the Pink Floyd animated film, 'The Wall'. To the artist, this installation was an effigy of the Moroccan berm, which was, in his words, a '…wall that is not seen, that no one wants to see, which is not allowed to be seen, and that we must see.'

Ref: ARTifariti 2010: 100-101 & 155

AR15

26.16124 N / 10.55678 W

Unattributed 'daubings' of white paint on a boulder outcrop, about 18 m long and with Moroccan army shelters built up against it. The paint was relatively bright in 2011, so

the boulders were probably painted in the 2010 ARTifariti festival. They have been recorded since they represent a kind of land art, as does AR9.

ARTifariti ?

AR16

26.15765 N / 10.55562 W

A Standing Stone re-erected on a concrete plinth at the eastern entrance to Tifariti. This has not been raised as an ARTifariti artwork, therefore, it has probably been put in place by the Tifariti Town Council. Nevertheless, it has been included here as a piece of 'public art'. It is a tall, slender orthostat, approximately 3.5 m tall (not including the 0.8 m height of its plinth). It is broken nearly in half, and it has been repaired with metal plates held in place with bolts, and with reinforcing rods welded together. It is of apparent antiquity, but its provenance is not known.

AR17

26.15983 N / 10.55607 W

Diario Enterrado: 27th de Febrero or *Buried Journal: February 27th* by Miluca Sanz

This installation is a placard, in essence, a sign. It is a montage of metal panels, and items, with February 27th cut out of it (and also written in Arabic). The piece is up to 4 m high, but the panel, on supports, is up to 3 m high x 1.8 m wide. The artist wanted to celebrate the date of the founding of the SADR, on the 27th of February, by embedding it in the ground. By making a link between the very land of Western Sahara and the proclamation of the Saharawi Republic.

Ref: ARTifariti 2010: 80-81 & 160.

AR18

26.15994 N / 10.55497 W

U'm Dreiga or *Oum Dreiga* by Mohamed Moulud Yeslam

See Chapter 7 where this artwork is fully discussed.

AR19

26.15896 N / 10.55656 W

This is a generic designation for a number of freestanding, and mural artworks (including AR20) by a number of different artists, that are disposed out-of-doors within the building compound which was the base for ARTifariti in 2007-2010, and where the Tifariti Museum is located. Within the context of this research, they are not pieces of land art (nor have they been seen as art on the land), but they were briefly noted and photographed in 2011. Amongst them were, upright, single plane, geometric constructions of wood shaped as either rectangles or triangles. There was a mechanical man-like construction made out of war detritus, and very similar to the artworks created by Mozambique artists through the 'Transforming Arms into Tools' project. There was also a small tee-pee with an associated, well made, wire outline of a man and a camel.

Ref: ARTifariti 2009 and ARTifariti 2010.

AR20

26.15905 N / 10.55715 W

Egoismo or *Selfisness* by Djamel Agagnia

This mural is part of AR19, but it was noted separately in 2011. It is located at the end of the south colonnade of the building complex in which ARTifariti was based. The piece fills an arched niche, around 2.5 m high x 1.5 m wide. This is a compelling painting in which it shows Saharawis, with blacked out eyes, situated behind a barbed wire fence, staring out. The fence extends outwards, along the walls on either side of the niche in which the piece has been painted, and along it there are splatters of red paint representing blood. There was also similar red paint on the floor surface in front of the piece. There is a townscape behind the figures looking through and over the fence, and the sky is painted black. Lines of verse, by the Tunisian Poet Abulkasim Ashafi, were inscribed across the black sky:

> *If one day the people aspire to life*
> *the dark night will disappear*
> *and the chains will inevitably be broken* (as quoted by Bahia Awah in
> ARTifariti 2010: 157)

Ref: ARTifariti 2009: pp. 62-63 & 93

AR21

26.16136 N / 10.56543 W to 26.16261 N / 10.56731 W

Camino del Retorno or *The Way to Return* by all of the ARTifariti participants in 2007 and 2008.

See Chapter 7 where this artwork is fully discussed.

AR22

26.16038 N / 10.56583 W

Breakfast at Tifariti by Fernando Pinteño

ARTifariti 2007

See Chapter 7 where this artwork is fully discussed.

AR23

26.15950 N / 10.55998 W

This is a group of artworks, all painted on the walls and collapsed sections of the old Spanish fort at Tifariti. Their individual descriptors are AR23, AR23a, AR23b, Ar23c and AR23d.

ARTifariti 2008

See Chapter 7 where all these artworks are fully discussed.

AR24

26.16355 N / 10.56732 W

Proyecto de Eliminacón - 2 or *Removal Project - 2*, by Carlos de Gredos

ARTifariti 2007

See Chapter 7 where this artwork is fully discussed.

AR25

26.15366 N / 10.56166 W

La sombra del gnomon or *The shadow of the gnomon* by Guillermo Roiz

ARTifariti 2008

See Chapter 7 where this artwork is fully discussed.

Figures:
Accompanying text of Vol. 1
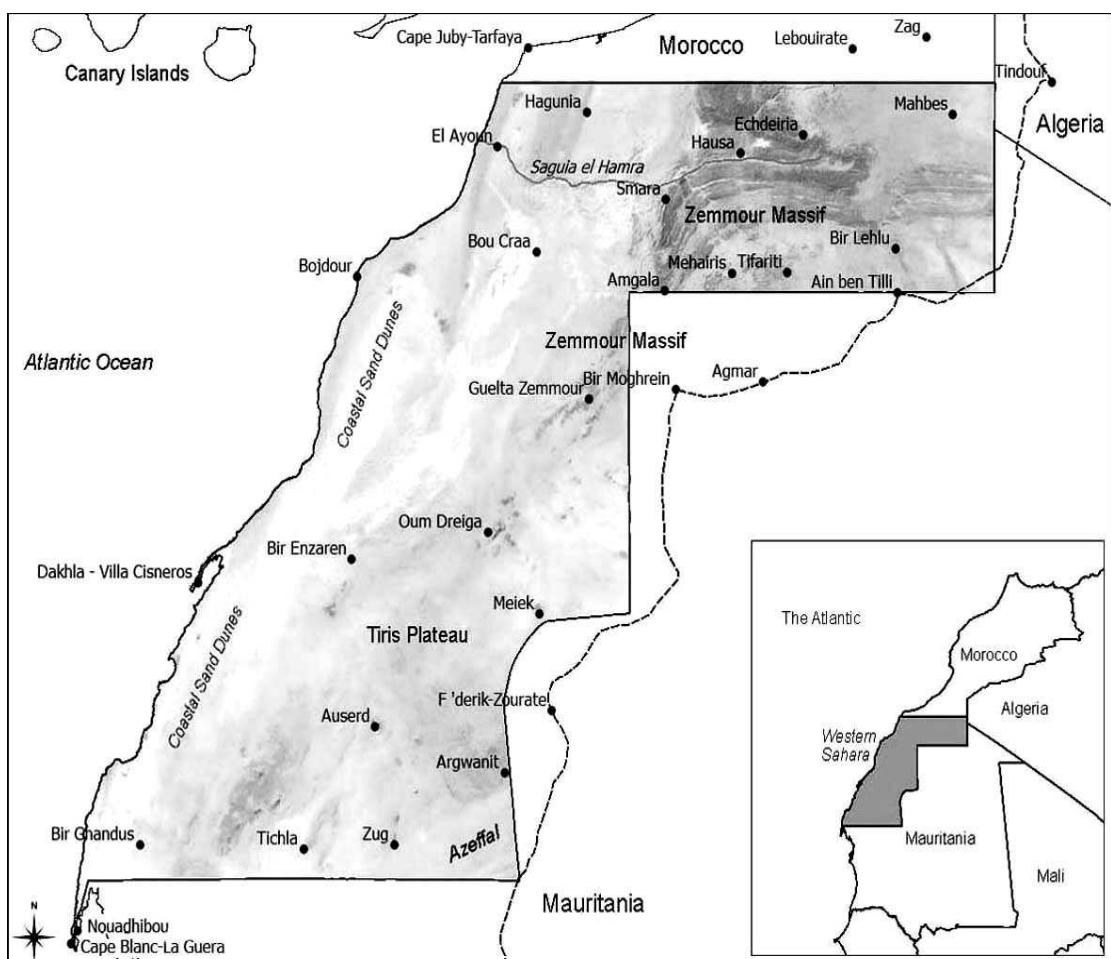
Fig. 3.1: General map of Western Sahara.
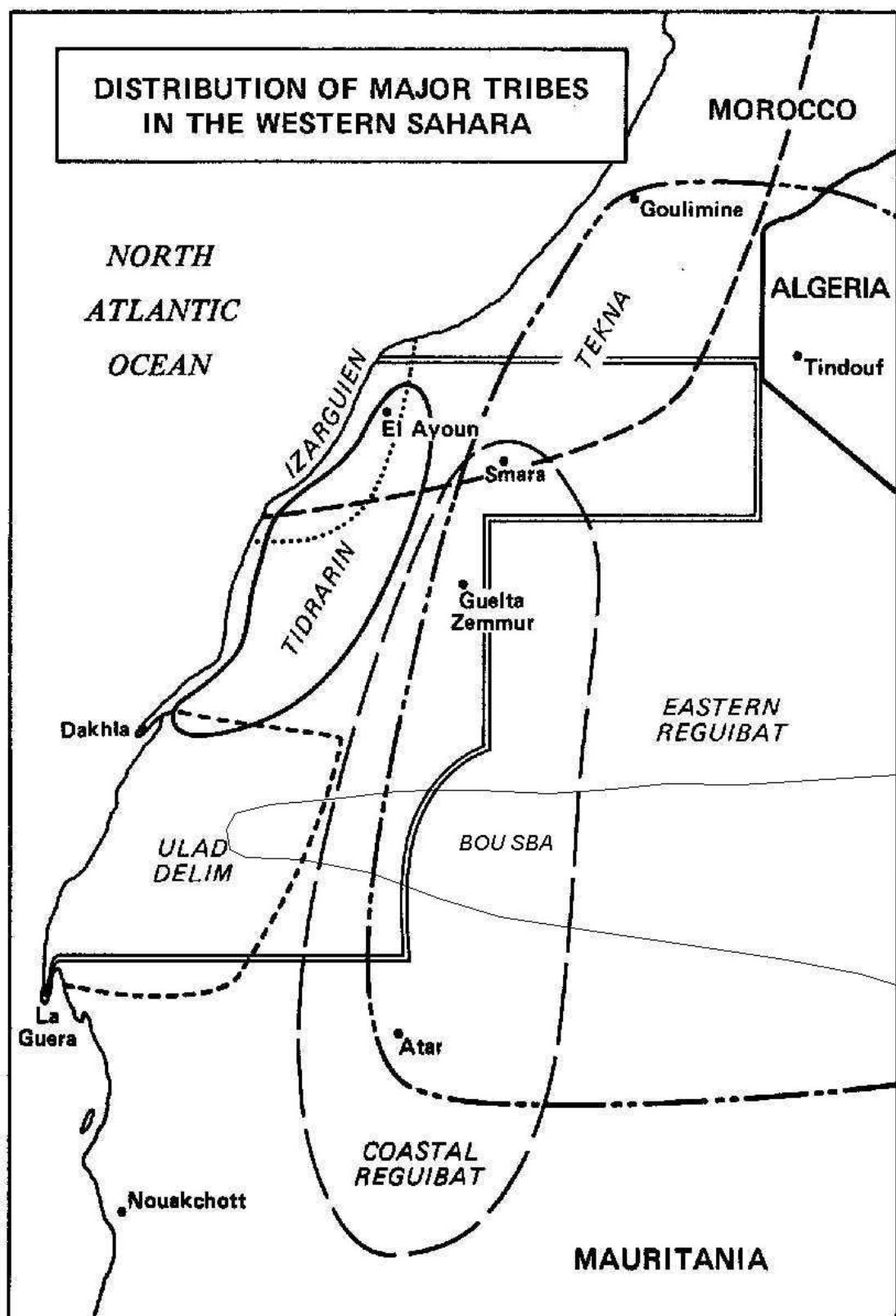
Fig. 3.2: Extent of traditional tribal ranges in Western (Spanish) Sahara in the third quarter of the 20th century. Image source: map from Damis 1983, p. 7, with additions from Mercer 1976, p. 128.

Fig. 3.3: The position of Villa Cisneros on the Dakhla peninsular along the inlet (*Bahia*) of Rio de Oro. The line of defensive blockhouses north of Villa Cisneros is also shown, circled in red. Image source: portion of 1951 Spanish Military (SGE) Map, from Blanco Vázquez 2012.
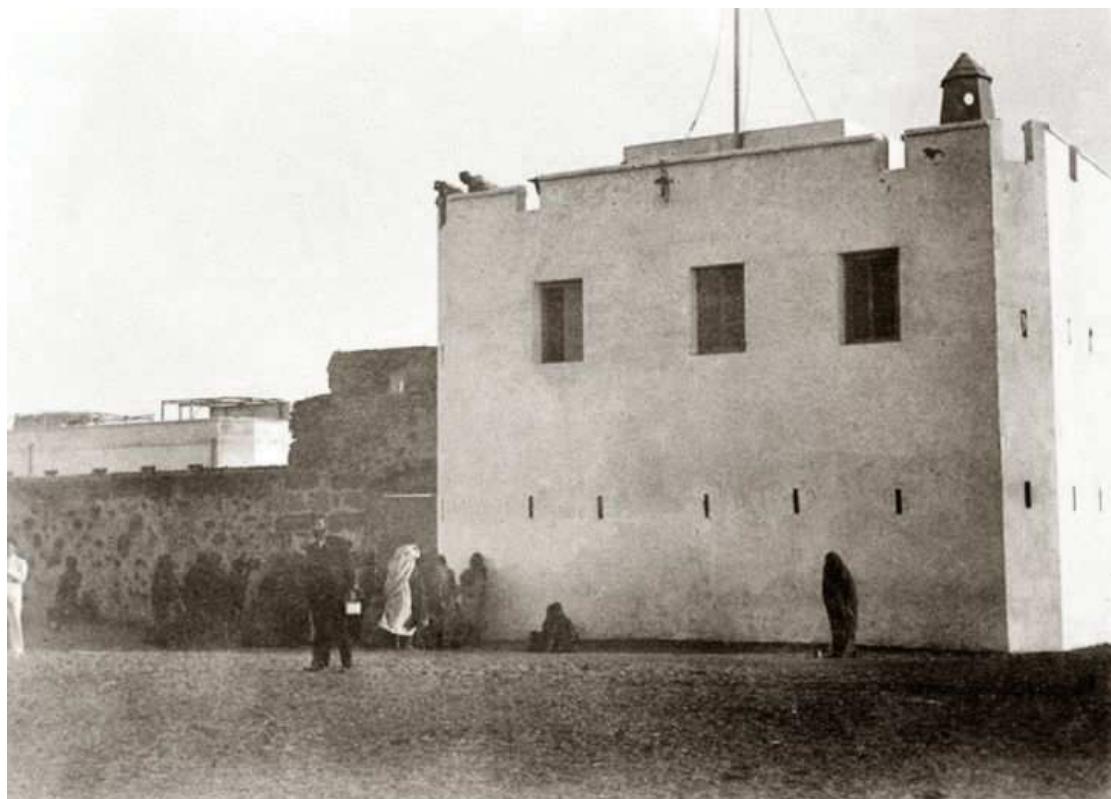
Fig. 3.4: An early view of the fort at Villa Cisneros showing the northern 'defensive tower' and the low, un-rendered curtain wall. Image source: www.sahara-mili.net/images/fuerte/bens20.jpg accessed 11 April 2011.

Fig. 3.5: A post card dated 1910 illustrating the monumentalising of the fort at Villa Cisneros, with nomads' tents in the foreground. Image source: www.sahara-mili.net/images/fuerte/bens25.jpg accessed 11 April 2011.

Fig. 3.6: Ruins of the probable French fort at Zug. Image source: Western Sahara Project.
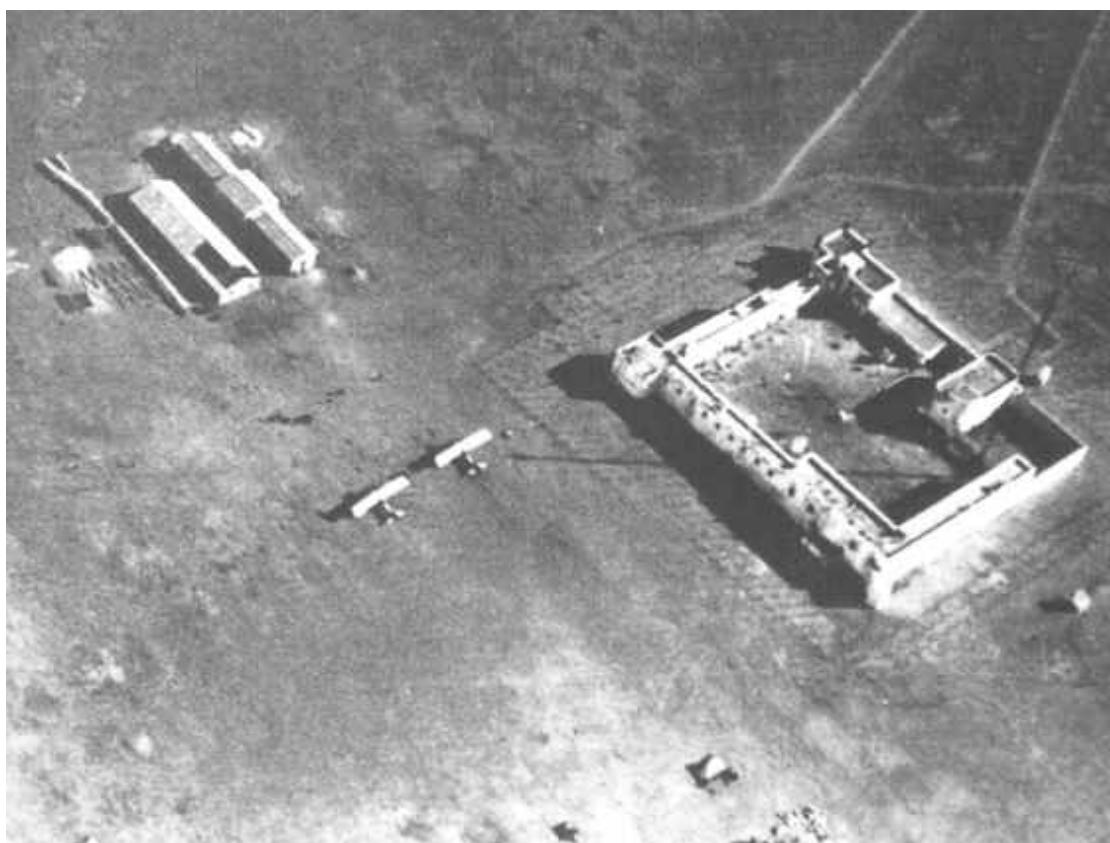
Fig. 3.7: 1926 aerial view of the expanded fort at Villa Cisneros, clearly surrounded by barbed wire. Image source: http://www.lasonet.com/sahara/images/aero1926.jpg accessed 11 April 2011.
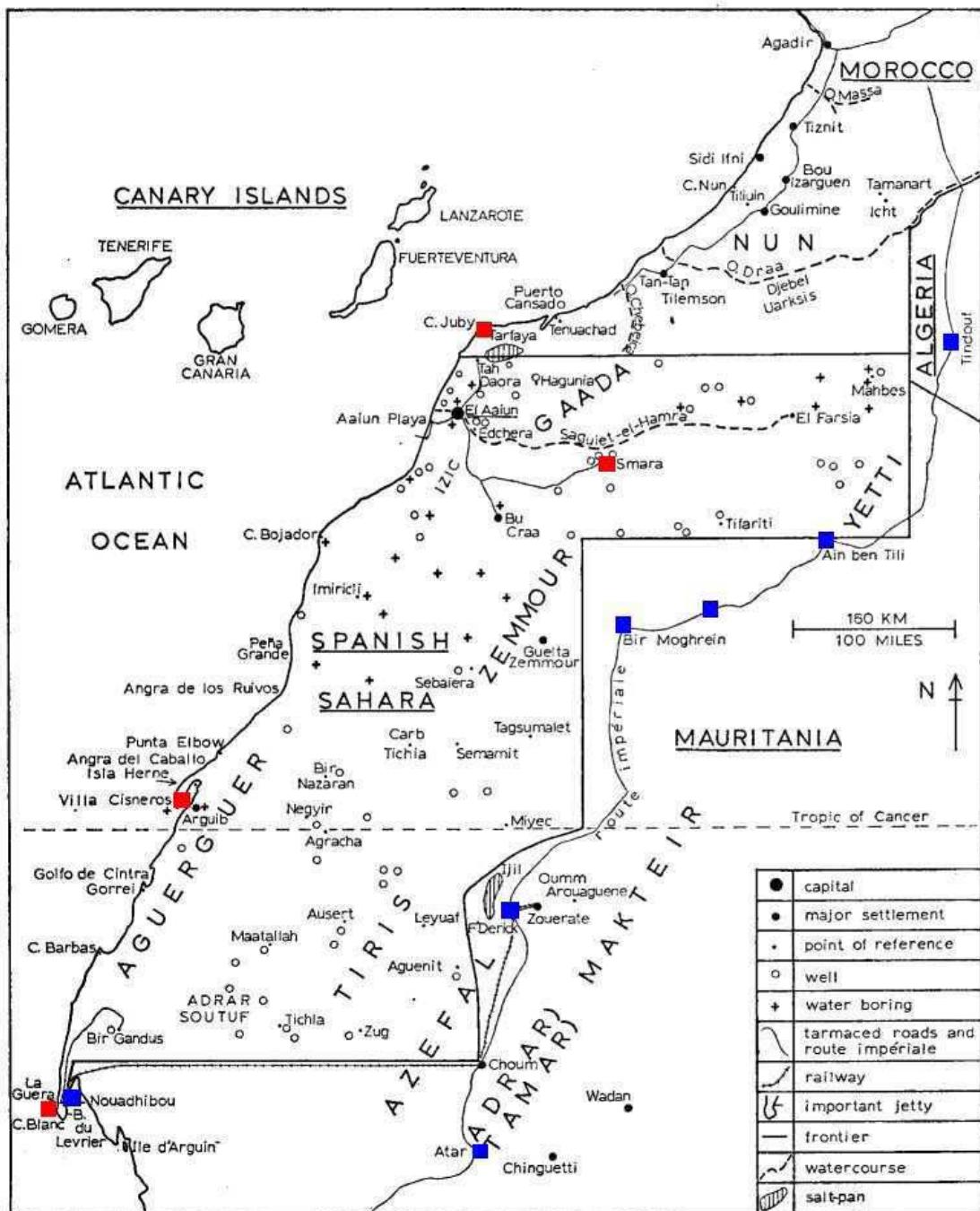
Fig. 3.8: By 1934 Western Sahara was enclosed by French and Spanish forts. The Spanish forts or positions, along the coast, north to south are (red squares): Cape Juby (Tarfaya), Villa Cisneros, and La Guera. Occupied Smara is also shown in the northern panhandle. The French forts along the Piste Imperiale, from northeast to south, are (blue squares): Tindouf, Ain Ben Tilli, Agmar (not labelled), Bir Moghrein, Idjil (F'Derick) and Atar. The western, French coastal fort at Cape Blanc is Port Etienne (Nouadhibou). Image source: base map from Mercer 1976.
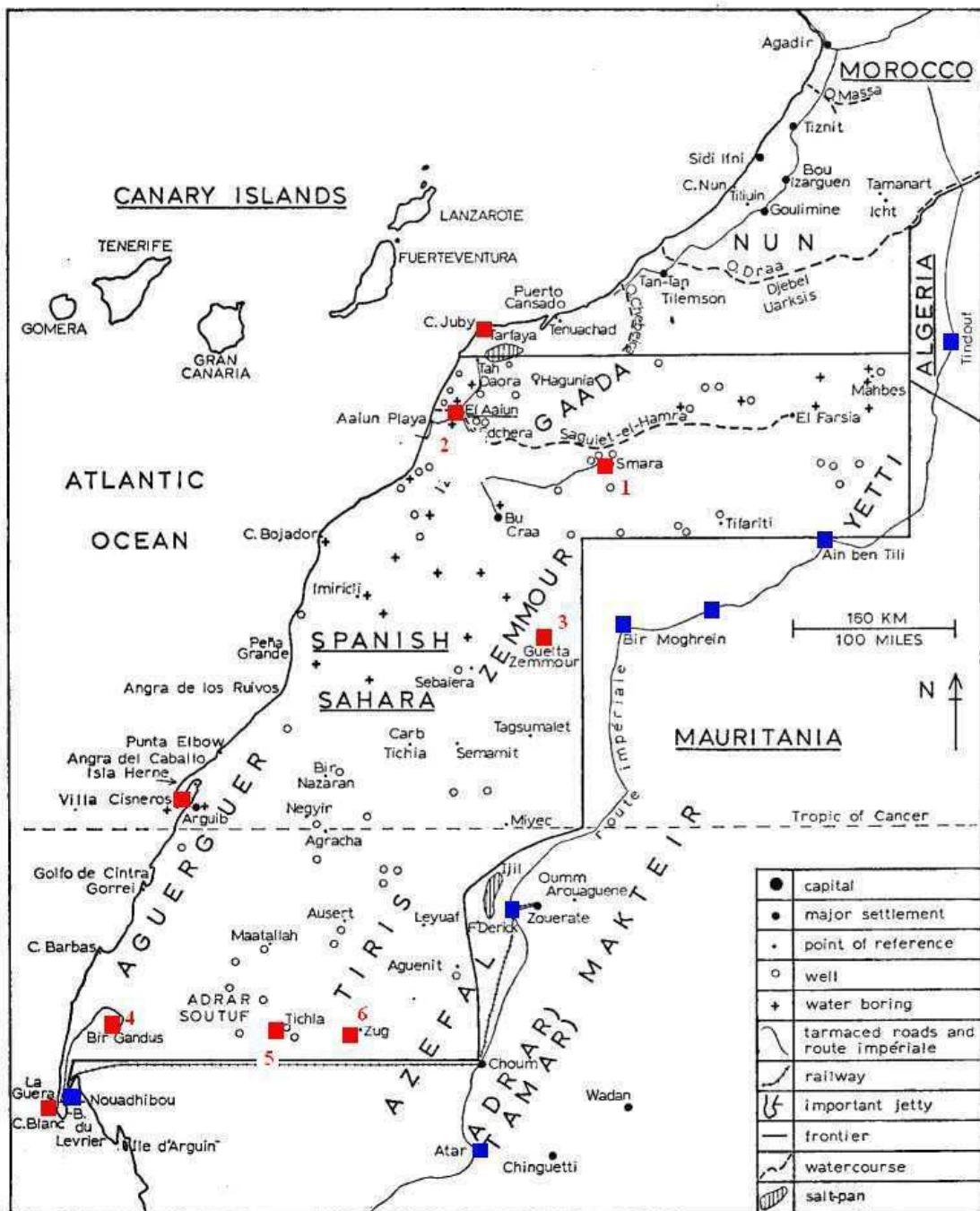
Fig. 3.9: Spanish expansion in the 1930s and 1940s. Key (in red): No. 1, Smara; No. 2, El Ayoun; No. 3, Guelta Zemmour; No. 4, Bir Gandus; No. 5, Tichla, and No. 6, Zug. Image source: base map from Mercer 1976.

Fig. 3.10: A very early view of the fort at Tichla. The barbed wire entanglement around the fort can just be made out. Image source: http://www.sahara-mili.net/images/anoni/antc001.jpg accessed 9 April 2011.
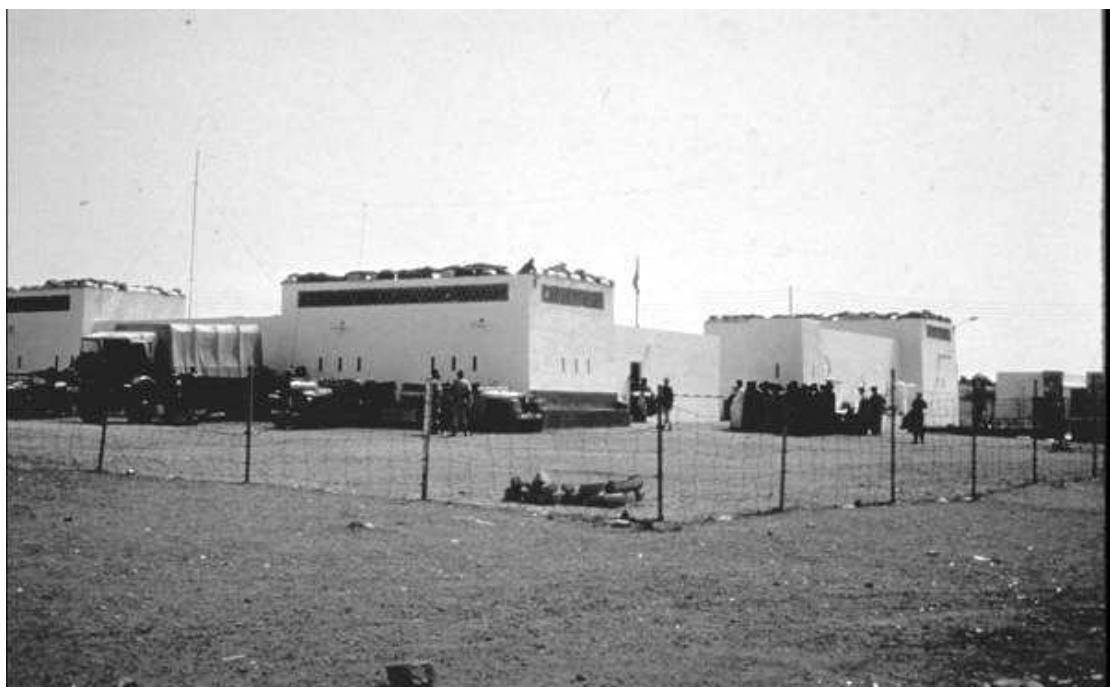
Fig. 3.11: The fort at Tifariti garrisoned by the Spanish Foreign Legion. Image source: http://www.sahara-mili.net/lugar/albumLugarMarcos.htm and http://www.sahara-mili.net/images/amigost/tf001.jpg accessed 9 April 2011.
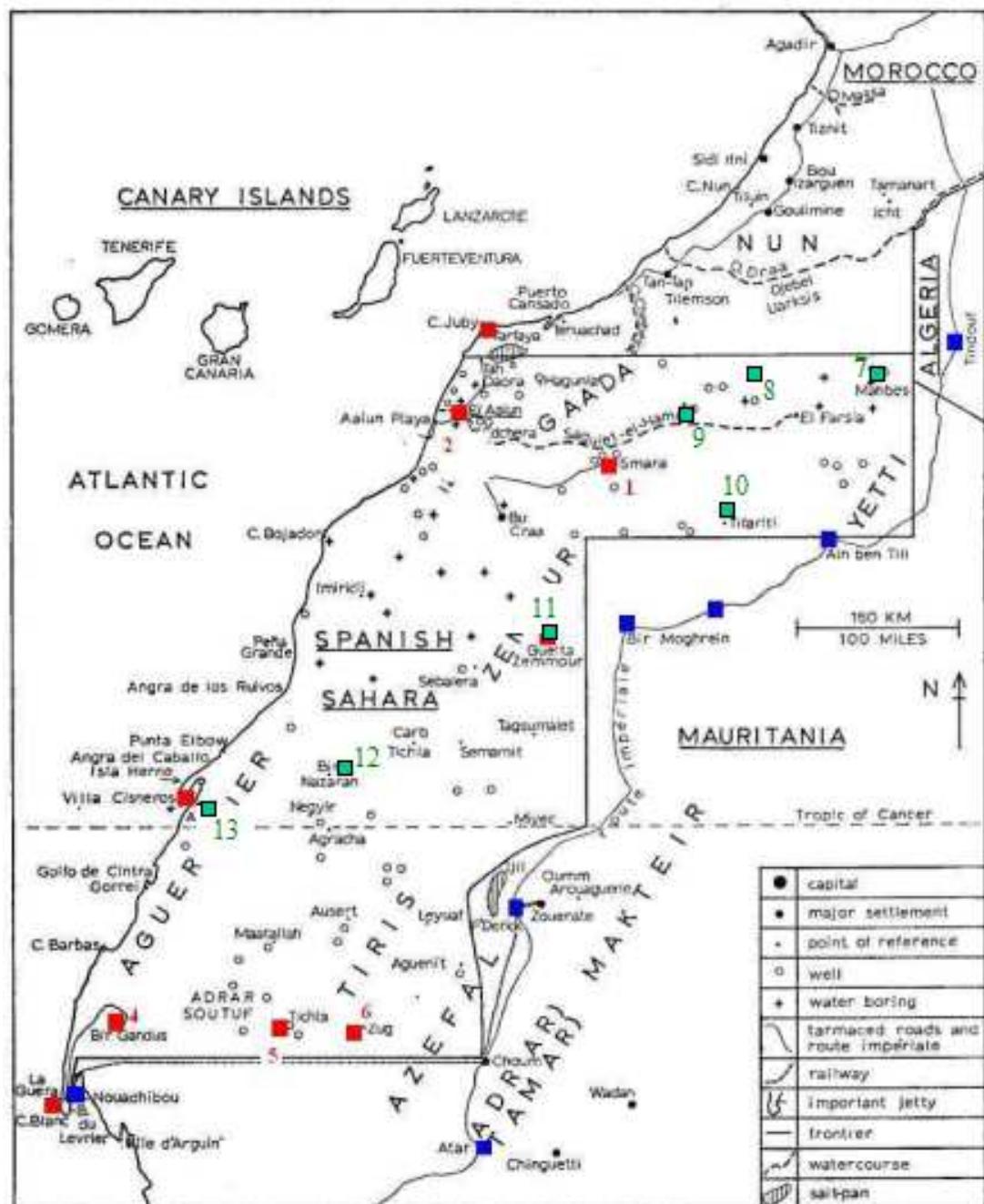
Fig. 3.12: The green squares show the new desert forts built by the Spanish in the 1960s. Key: No. 7, Mahbes; No. 8 Echdeiria; No. 9, Hausa; No. 10, Tifariti, No. 11, Guelta Zemmour; No. 12, Bir Enzaren, and No. 13, Aargub (the numbers do not reflect any sequence of construction). Image source: base map from Mercer 1976.
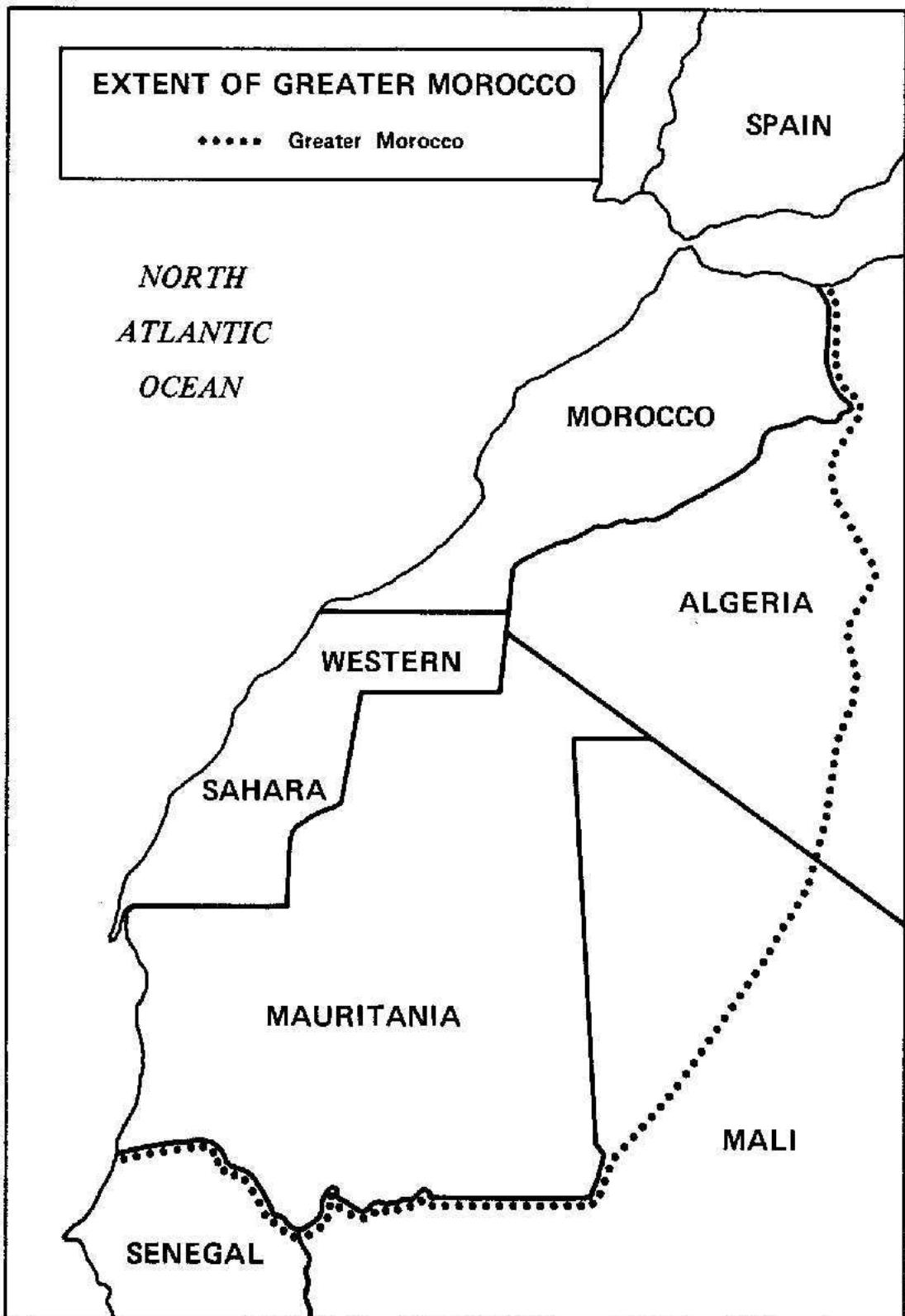
Fig. 3.13: Outline of 'Greater Morocco', taking in parts of Algeria and Mali, and the whole of Mauritania. Image source: map from Damis 1983, p. 16.
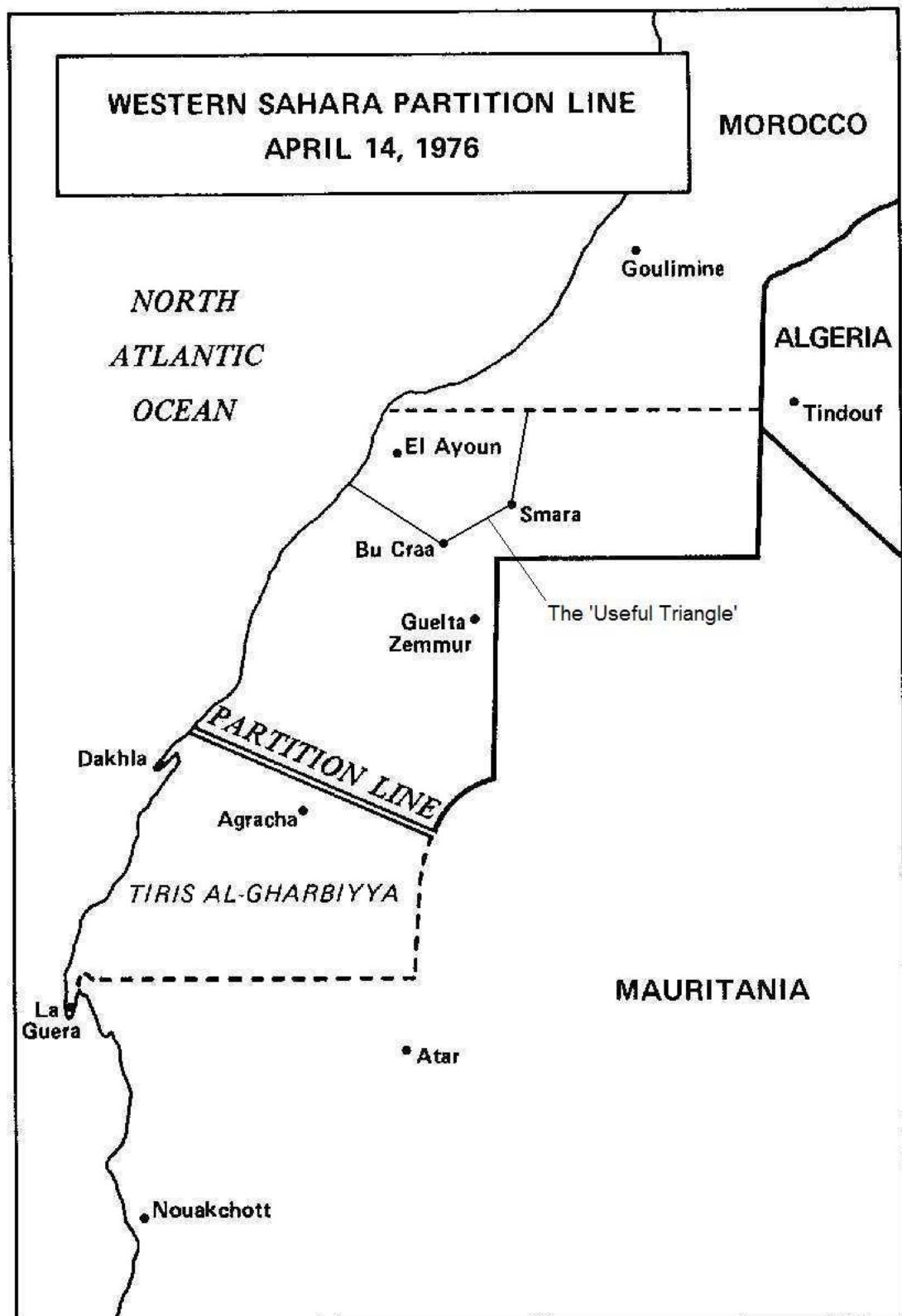
Fig. 3.14: The partition of Western Sahara. The Moroccan occupied zone is north of the partition line, while the Mauritanian zone is south of it. El-Ayoun, Bou-Craa and Smara are shown as being in the so-called 'useful triangle'. Image source: base map from Damis 1983, p. 77.
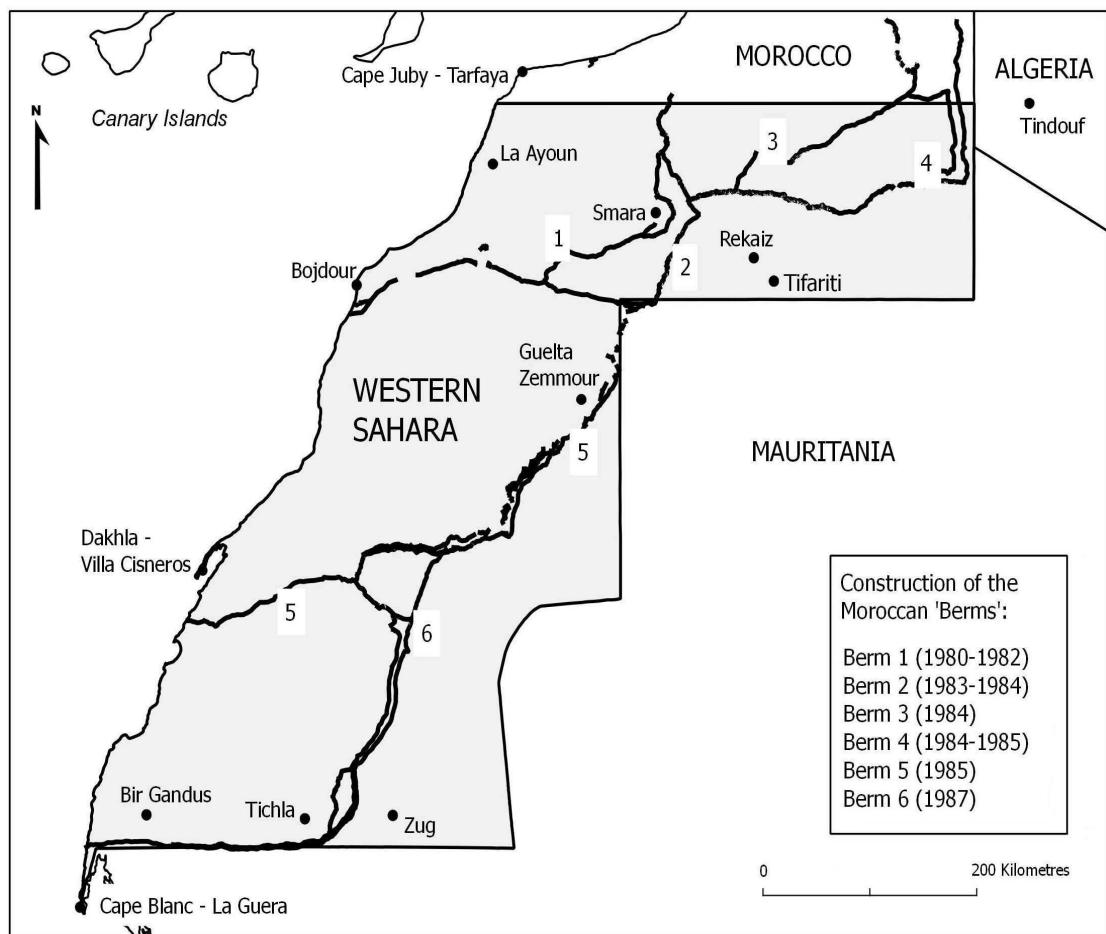
Fig. 3.15: Map of the Moroccan 'berms' partitioning Western Sahara and built between 1980-1987. The territory north and west of berms 4, 2, 5 and 6 is presently occupied by Morocco, while the territory to the east, including Tifariti and Zug, is held by Polisario/SADR.

Fig. 4.1: This Google Earth image of Western Sahara shows the extent of Google Earth (Digital Globe and Geo-Eye) high-resolution imagery (outlined in white) dated to 20 August 2008. This was the range of imagery available for the studying of the Moroccan berms as of 9 November 2010.
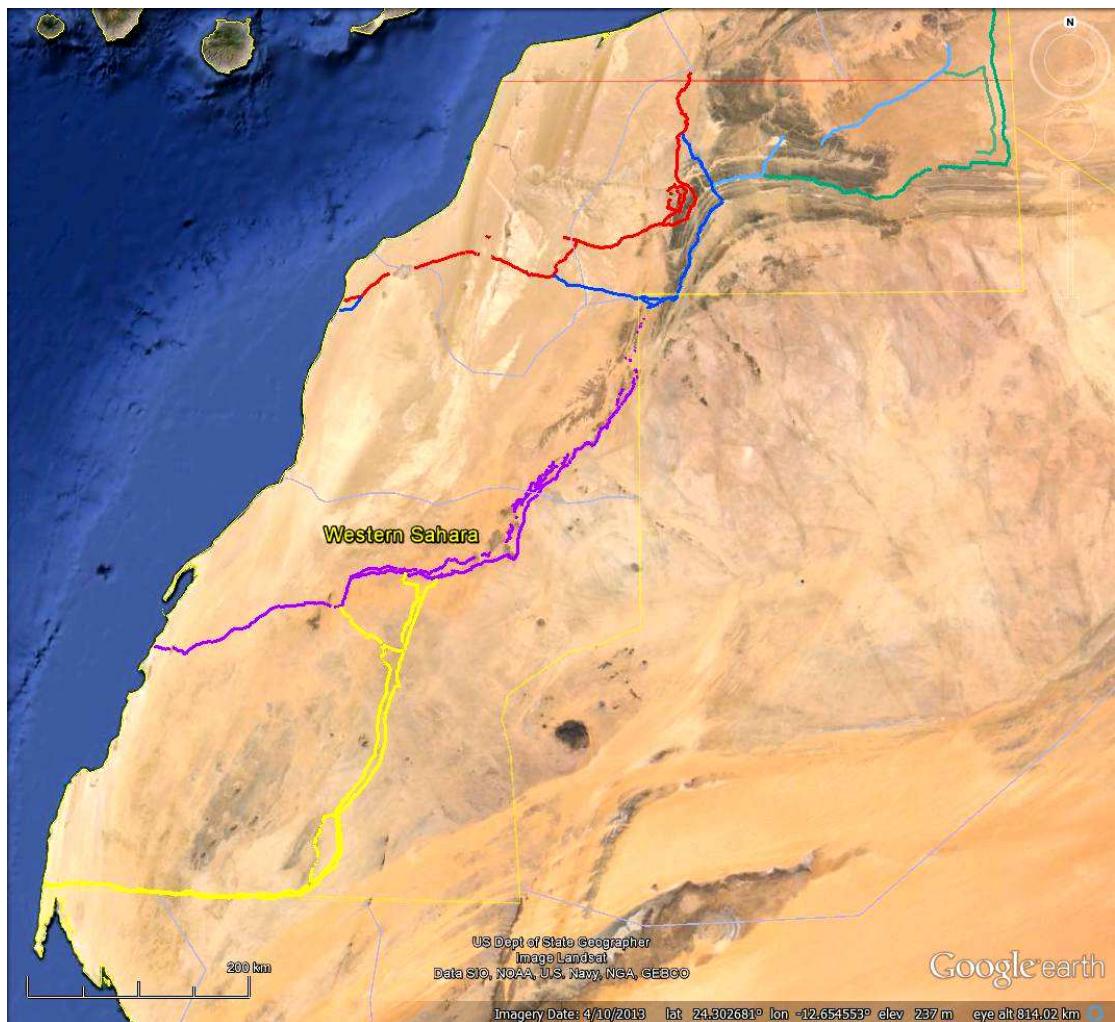
Fig. 4.2: Google Earth imagery showing the digitised delineations, or traces, of the Moroccan berms across Western Sahara. They have been drawn in different colours to differentiate them, and for their sequence of building see Fig. 3.15. The scale bar in the lower left indicates 200 kilometres.
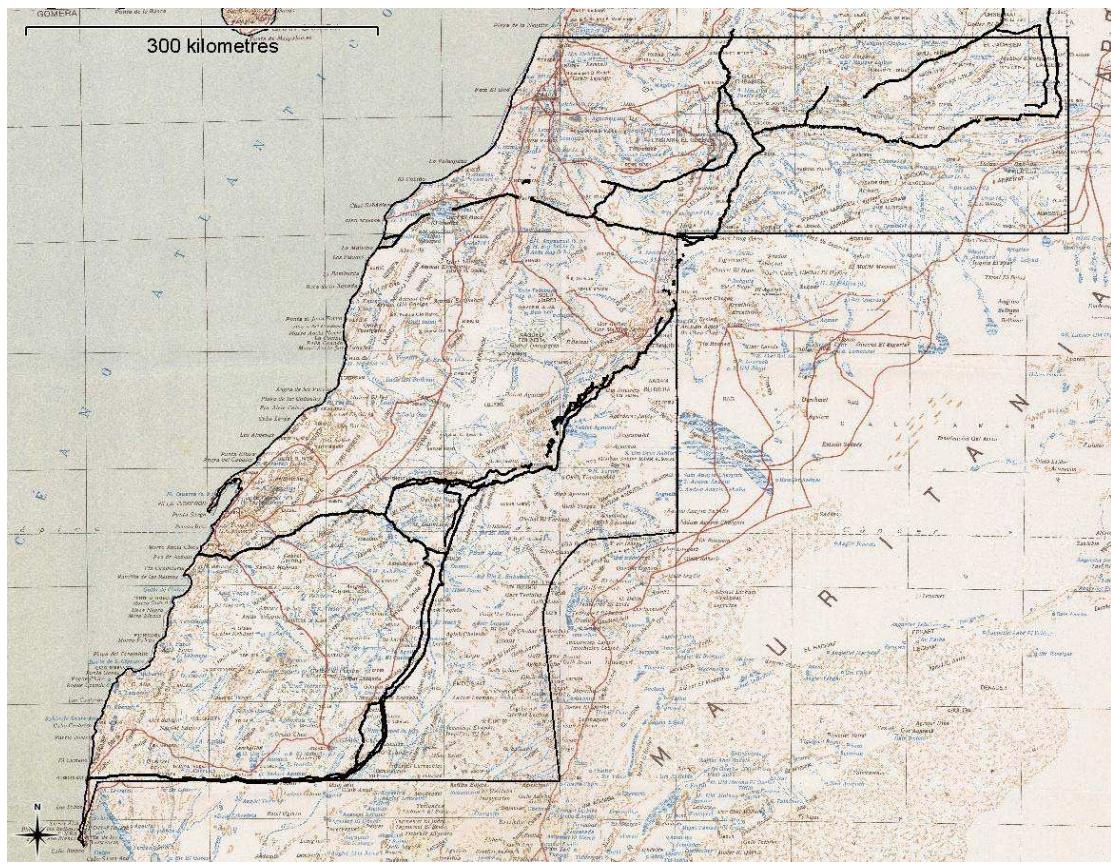
Fig. 4.3: Spanish military map (Servicio Geográfico del Ejército de España – 'SGE') dated to 1960, with the digitised traces of the Moroccan berms across Western Sahara.

Bank type	Description
Single	Berm is mainly a single embankment along its trace.
Double	Berm is mainly a double embankment along its trace.
Multiple	Berm has more than two embankments along its trace.
Multiple configurations	This can be a qualifier to the above types of berms. It indicates that there are a variety of additional configurations of embankments associated with a given defensive trace.

Fig. 4.4: Table of descriptive terminology applied to berm embankments during digitisation from Google Earth.

Installation type (code)	Description
ft	Mural fort; a fort along a berm. But this type of installation can be free standing in those few regions where there are no berms, and the 'barrier' is made up of natural features.
rft	A fort behind the berm; a fort in the rear.
ftfb	Fort with a firebase apparently built as an integral part; a composite fort. Almost always mural.
ftfba	Fort with a firebase added or attached. Almost always mural.
fsb	Fire support base; always in the rear behind a given berm.
flt	Fortlet; up to 100 metres along its longest length or under 10,000 sqr metres in area. Almost always mural.
comp	Non-mural compound with no, or very minimal, internal features, and with no signs of obvious fortifications.
mcomp	Mural compound with no, or very minimal, internal features. With no signs of obvious fortifications.
pcomp	Long & thin mural compound, laid out parallel to a given berm.
sop	Small occupation position; essentially a small fortlet (flt) and apparently specific to Berm No. 4. Up to ca. 50 metres along their greatest length. These are densely spaced and very numerous along the berm facing the Algerian border, and because of this, only a sample of these installations have been recorded - within square 952 (see Fig. 4.6 and the reference in Fig. 4.19). *There are other small, similar sized features associated with the berms, but these have no internal features and they have not been included in the tabulations in this chapter.*
gar	Garrison or camp, usually with no enclosure and behind the berms.

Fig. 4.5: Table of the basic descriptive types of military installations recorded along the berms.
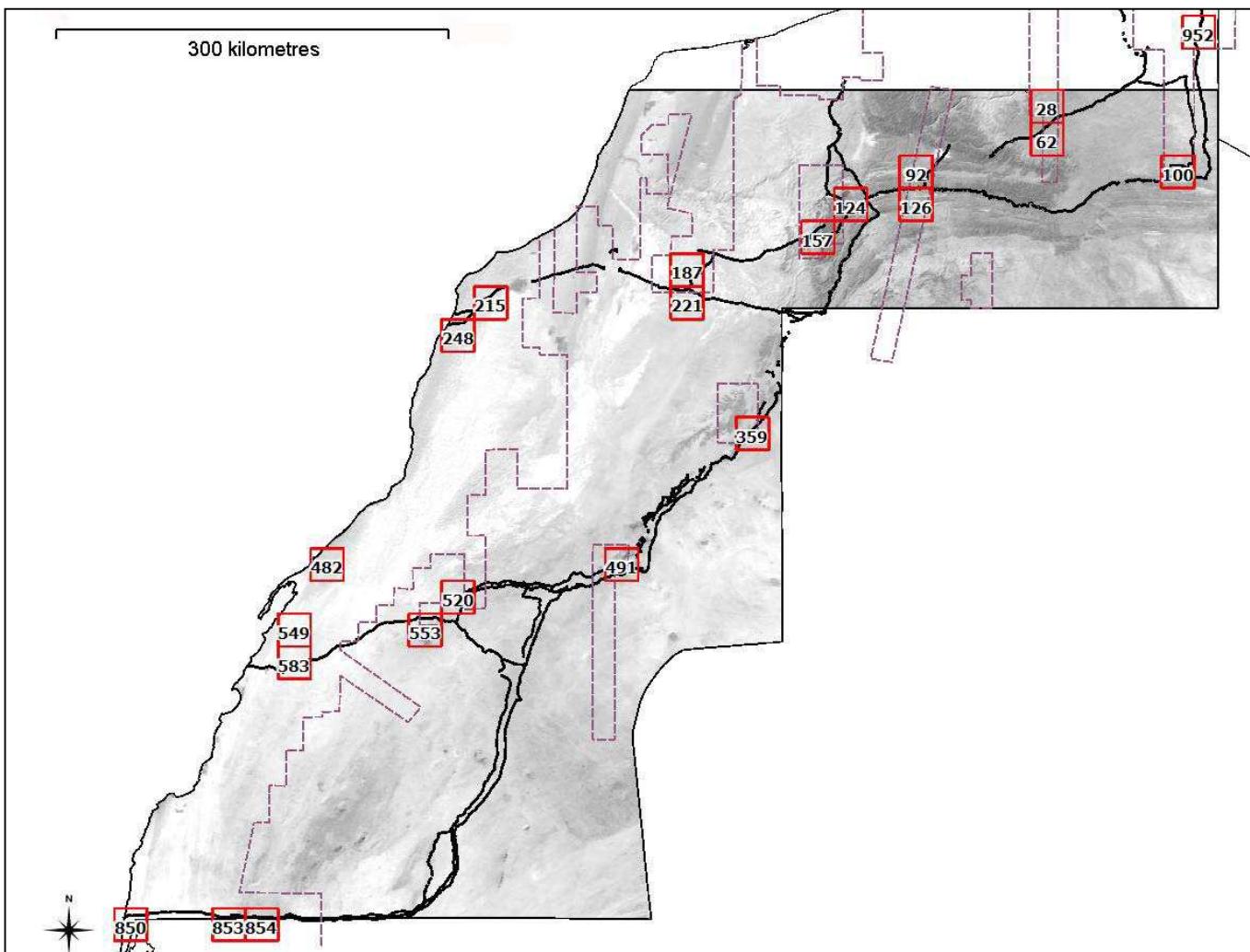
Fig. 4.6: Map of Western Sahara showing selected (sampled) rectangles for 'snapshots' of the berms. These are shown in red overlying areas covered by Google Earth high-resolution imagery – outlined in broken lines.
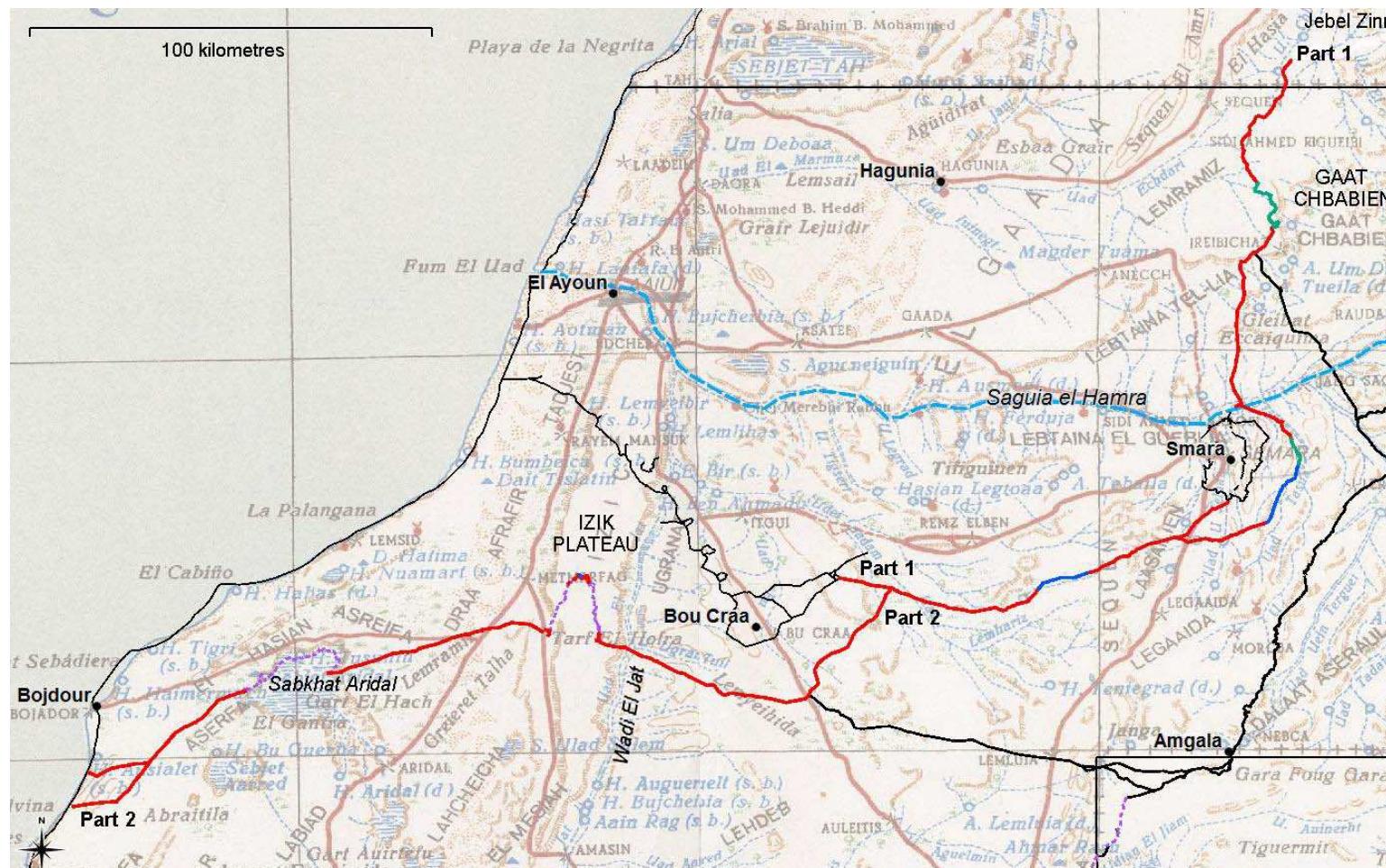
**Fig. 4.7:** Map of Berm No. 1. Colour Key: red line = single embankment; blue line = double embankment; green line = double embankment with additional, multiple configurations of banks; broken purple line = natural defensive features; broken blue line = Saguia el Hamra; thin black line = earlier Bou-Craa and Smara defences; thicker black line (east of Bou-Craa and Smara) = later defensive berms/barriers.

Berm No. 1: (Part 1) Barrier lengths for berm from Jebel Zini to Bou Craa	Count
Total length (kms) of all barriers (<u>there are no natural barriers</u>)	299*
Length (kms) of single banked barriers	235
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks	64
Berm No. 1: All military installations from Jebel Zini to Bou Craa	
Total of all defensive installations on and behind the berm	182**
Number of mural forts **(ft)**	100
Number of forts in the rear **(rft)**	18
Number of mural forts with an integral firebase **(ftfb)**	1
Number of mural forts with a firebase added **(ftfba)**	1
Number of non-mural fire support bases **(fsb)**	23
Number of fortlets **(flt)**	8
Number of non-mural compounds **(comp)**	11
Number of mural compounds **(mcomp)**	6
Number of linear (parallel) mural compounds **(pcomp)**	14
NB: *299 kms/182 = 1 type of installation for every 1.6 kms**	

Fig. 4.8: Table listing the different types of barriers, and their lengths, making up Part 1 of Berm No. 1. The different types of installations along the berm have also been tabulated. To compare Part 1 with Part 2 of Berm No. 1, see Fig. 4.10.

Berm No. 1: (Part 2) Barrier lengths for berm from Bou Craa to the Atlantic coast	Count
Total length (kms) of all barriers (<u>including natural barriers</u>)	335*
Total Length (kms) of all barriers (<u>excluding 101 kms of natural barriers</u>)	234
Length (kms) of single banked barriers	234
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks	<1
Berm No. 1: All military installations from Bou Craa to the Atlantic coast	
Total of all defensive installations on and behind the berm	143**
Number of mural forts **(ft)**	63
Number of forts in the rear **(rft)**	2
Number of mural forts with an integral firebase **(ftfb)**	3
Number of mural forts with a firebase added **(ftfba)**	8
Number of non-mural fire support bases **(fsb)**	17
Number of fortlets **(flt)**	36
Number of non-mural compounds **(comp)**	9
Number of mural compounds **(mcomp)**	2
Number of linear (parallel) mural compounds **(pcomp)**	3
NB: *335 kms/143 = 1 type of installation for every 2.3 kms**	

Fig. 4.9: Table listing the different types of barriers, and their lengths, making up Part 2 of Berm No. 1. The different types of installations along the berm have also been tabulated. To compare Part 2 with Part 1 of Berm No. 1, see Fig. 4.10.

Berm 1	(Part 1)		(Part 2)		All	
Total length (inc natural barriers)	299	47%	335	53%	634**	
Single banks	235	79%	234	70%	469	74%
Double and multiple banks	64	21%	0.5	<1%	65	10%
Natural barriers			101	30%	101	16%
Associated installations	**Count**		**Count**		**Count**	
ft	*100*	**55%**	*63*	**44%**	*163*	**50%**
rft	*18*	**10%**	*2*	**1%**	*20*	**6%**
ftfb	*1*	**<1%**	*3*	**2%**	*4*	**1%**
ftfba	*1*	**<1%**	*8*	**6%**	*9*	**3%**
fsb	*23*	**13%**	*17*	**12%**	*40*	**14%**
flt	*8*	**4%**	*36*	**25%**	*44*	**12%**
comp	*11*	**6%**	*9*	**6%**	*20*	**6%**
mcomp	*6*	**3%**	*2*	**1%**	*8*	**2%**
pcomp	*14*	**8%**	*3*	**2%**	*17*	**5%**
Total	*182*		*143*		*325*	

Fig. 4.10: Comparative table showing the differences and similarities between parts 1 and 2 of Berm No. 1.
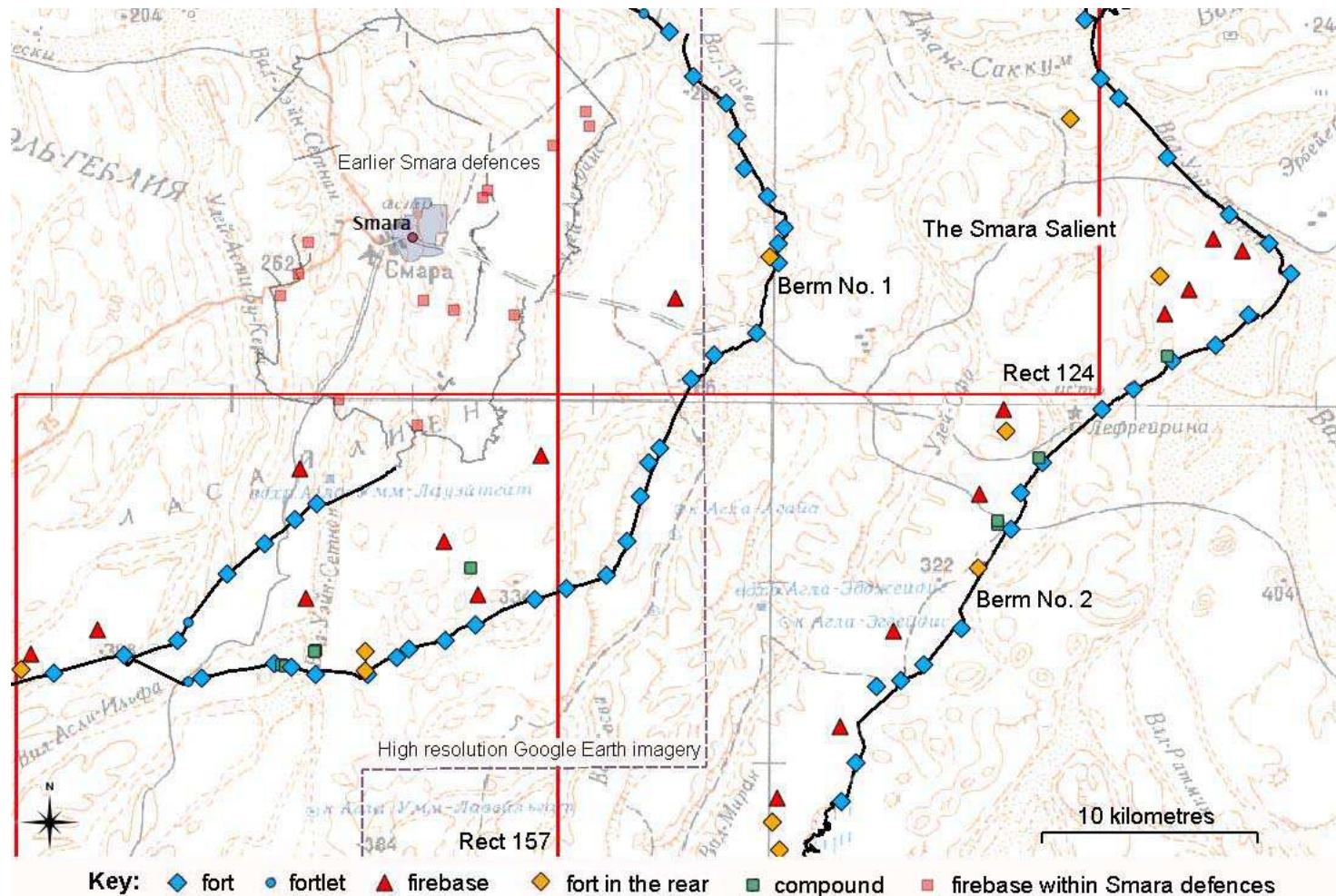
Fig. 4.11: GIS 'snapshot' showing the disposition of Berm No. 1 (Part 1) and Berm No. 2, at the Smara salient, within and adjacent to rectangles 124 and 157. Note: 'High resolution Google Earth imagery' denotes (on all GIS 'snapshots') those areas covered by the best quality imagery available on Google Earth in 2010.

46
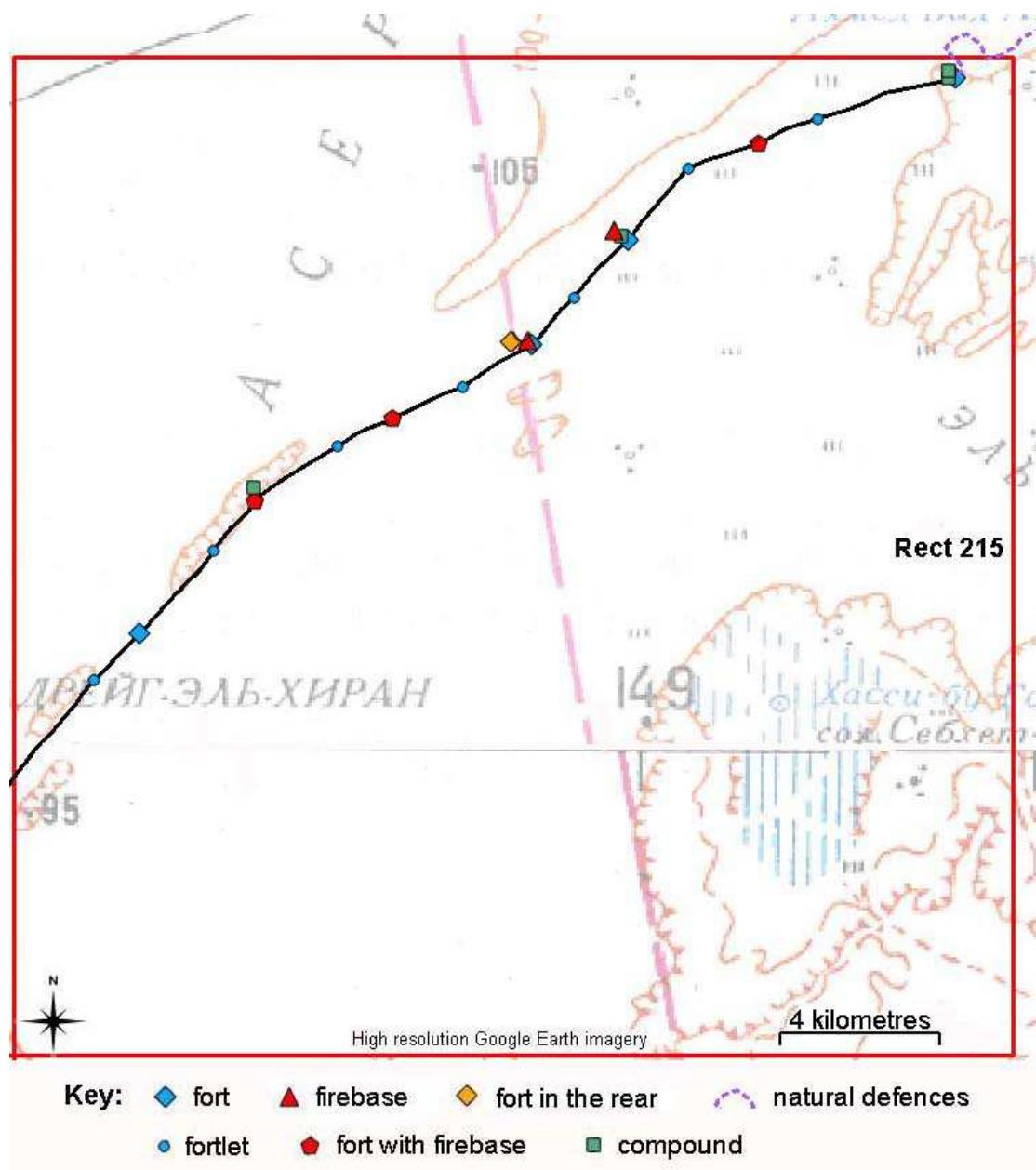
Fig. 4.12: GIS 'snapshot' showing the disposition of Berm No. 1 (Part 2) in Rectangle 215.
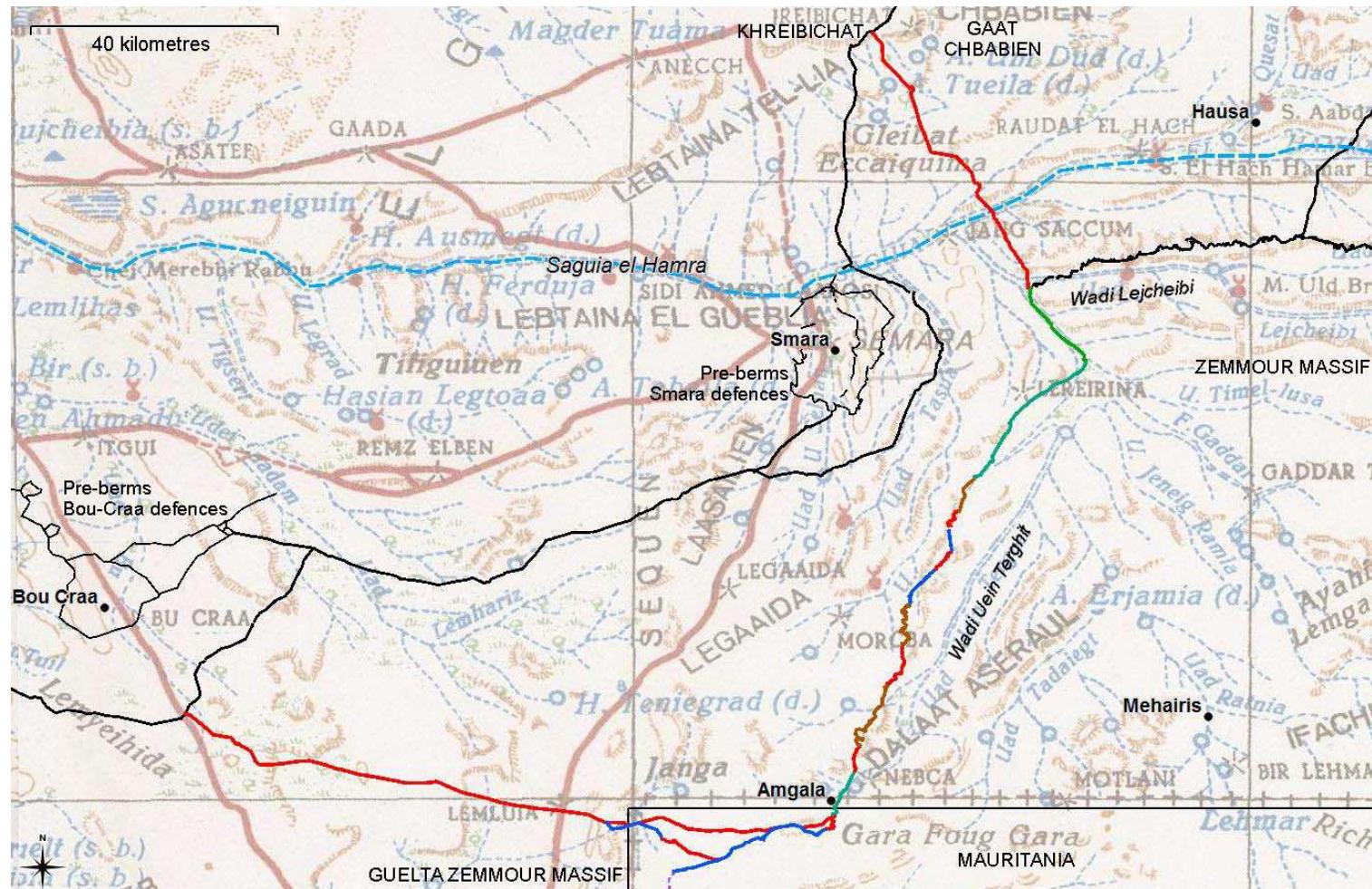
Fig. 4.13: Map of Berm No. 2. Colour Key: red line = single embankment; blue line = double embankment; green line = double embankment with additional, multiple configurations of banks; brown line = single embankment with additional, multiple configurations of banks; broken blue line = Saguia el Hamra; Black line = earlier and later barrier/berm defences.

Berm No. 2: Barrier lengths	Count	
Total length (kms) of all barriers (there are no natural barriers)	357*	
Length (kms) of single banked barriers	234	66%
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks	123	34%
Berm No. 2 All military installations		
Total of all defensive installations on and behind the berm	202**	100%
Number of mural forts **(ft)**	130	64%
Number of forts in the rear **(rft)**	16	8%
Number of non-mural fire support bases **(fsb)**	24	12%
Number of fortlets **(flt)**	2	1%
Number of non-mural compounds **(comp)**	11	5%
Number of mural compounds **(mcomp)**	2	1%
Number of linear (parallel) mural compounds **(pcomp)**	6	3%
Number of rear garrisons **(gar)**	11	5%
NB: *357 kms/202 = 1 type of installation for every 1.8 kms**		

Fig. 4.14: Table listing the different types of barriers, and their lengths, making up Berm No. 2. The different types of installations along the berm are also tabulated.
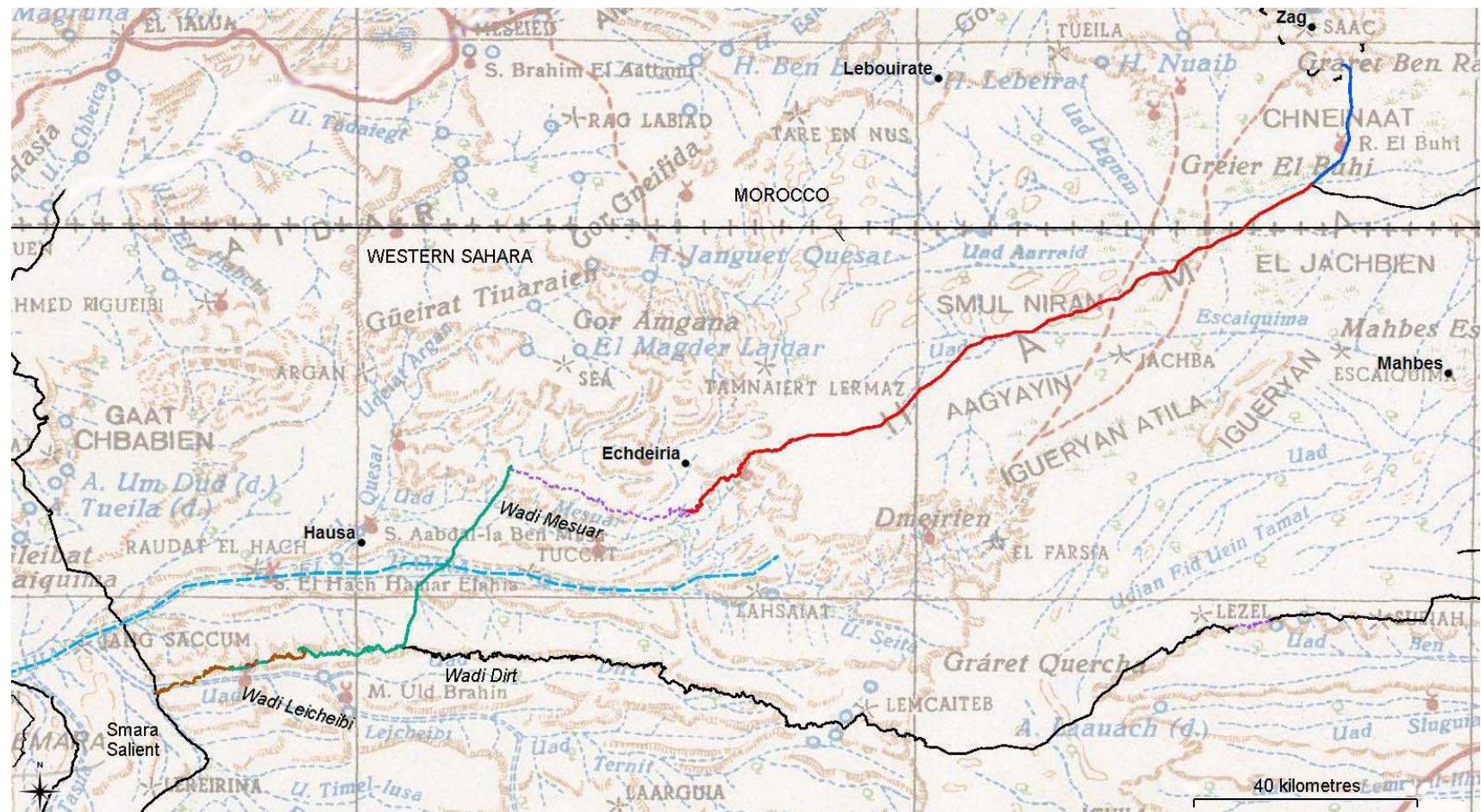
**Fig. 4.15:** Map of Berm No. 3. Colour Key: red line = single embankment; blue line = double embankment; green line = double embankment with additional, multiple configurations of banks; brown line = single embankment with additional, multiple configurations of banks; broken purple line = natural defensive features; broken blue line = Saguia el Hamra; Black line = earlier and later barrier/berm defences.

Berm No. 3: Barrier lengths	Count	
Total length (kms) of all barriers (including natural barriers)	338*	
Length (kms) of single banked barriers	145	43%
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks	141	42%
Length (kms) of natural barriers	52	15%
Berm No. 3 All military installations		
Total of all defensive installations on and behind the berm	181**	100%
Number of mural forts **(ft)**	111	61%
Number of forts in the rear **(rft)**	11	6%
Number of mural forts with an integral firebase **(ftfb)**	1	<1%
Number of non-mural fire support bases **(fsb)**	41	23%
Number of fortlets **(flt)**	1	<1
Number of non-mural compounds **(comp)**	5	3%
Number of linear (parallel) mural compounds **(pcomp)**	5	3%
Number of rear garrisons **(gar)**	6	3%
NB: *338 kms/181 = 1 type of installation for every 1.9 kms**		

Fig. 4.16: Table listing the different types of barriers, and their lengths, making up Berm No. 3. The different types of installations along the berm are also tabulated.
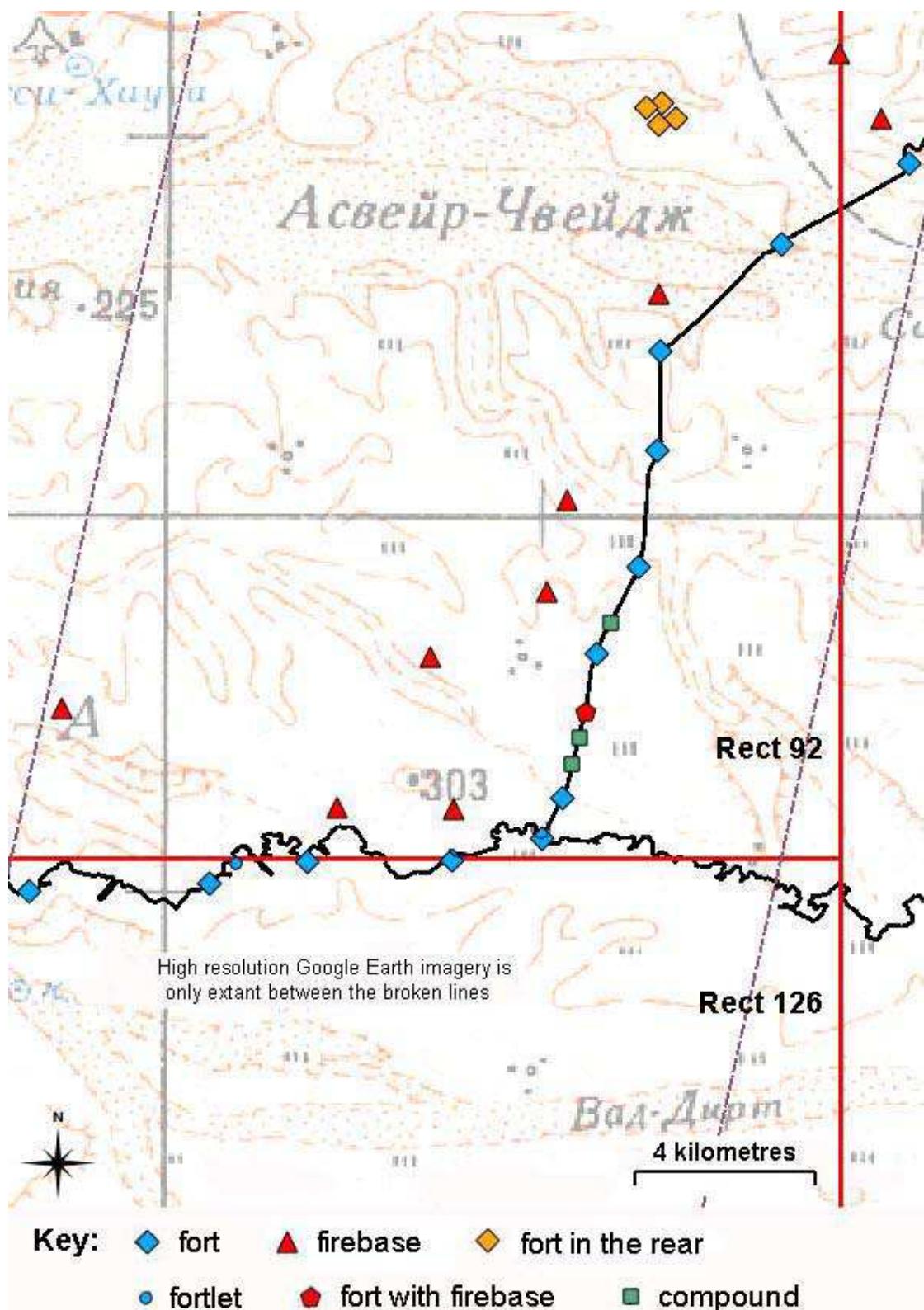
Fig. 4.17: GIS 'snapshot' showing the disposition of Berm No. 3, in rectangles 92 and 126. This mapping sample shows the barrier running west to east, and then turning northwards. Berm No. 4 extends to the east, into rectangle 126 and beyond.
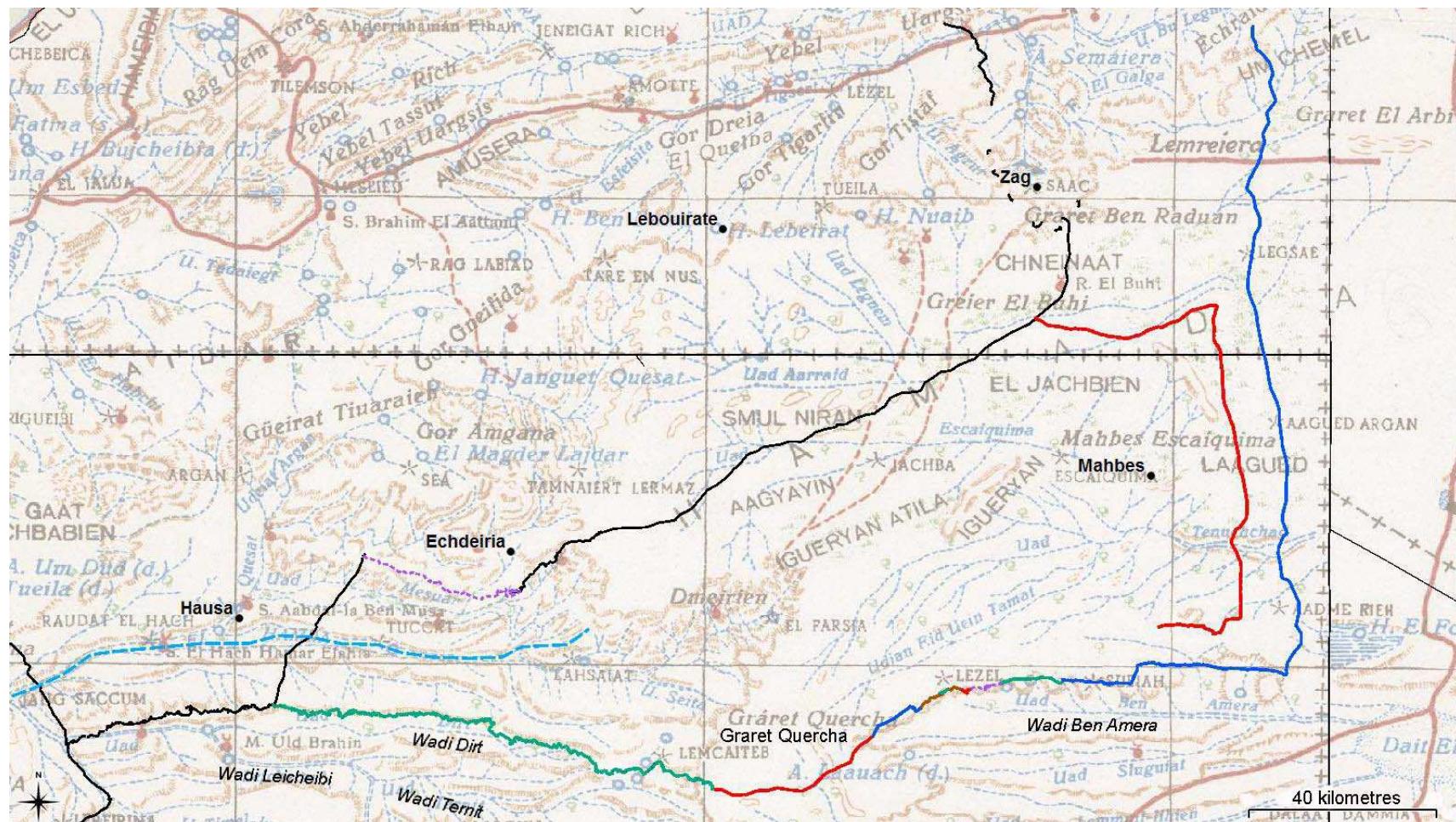
Fig. 4.18: Map of Berm No. 4. Colour Key: red line = single embankment; blue line = double embankment; green line = double embankment with additional, multiple configurations of banks; brown line = single embankment with additional, multiple configurations of banks; broken purple line = natural defensive features; broken blue line = Saguia el Hamra; Black line = earlier barrier/berm defences.

53

Berm No. 4: Barrier lengths	Count	
Total length (kms) of all barriers (<u>including natural barriers and the rear, subsidiary berm</u>)	624*	
Length (kms) of single banked barriers (<u>excluding the rear, subsidiary berm</u>)	43	7%
Length (kms) of single banked, rear, subsidiary berm	138	22%
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks	432	69%
Length (kms) of natural barriers	11	2%
Berm No. 4: All military installations		
Total of all recorded defensive installations on and behind the berm	427	
Total of all defensive installations on and behind the berm (excluding 53 sop*s* from sampling rectangle 952)	374**	100%
Number of mural forts **(ft)**	153	41%
Number of forts in the rear **(rft)**	45	12%
Number of mural forts with a firebase added **(ftfba)**	2	<1%
Number of non-mural fire support bases **(fsb)**	53	14%
Number of fortlets **(flt)**	31	8%
Number of non-mural compounds **(comp)**	26	7%
Number of mural compounds **(mcomp)**	1	<1%
Number of linear (parallel) mural compounds **(pcomp)**	10	3%
Number of rear garrisons **(gar)**	53	14%
Number of small occupation positions (sop): only in sampling rectangle 952	53	
NB: *624 kms/374 = 1 type of installation for every 1.7 kms**		

Fig. 4.19: Table listing the different types of barriers, and their lengths, making up Berm No. 4. The different types of installations along the berm are also tabulated.
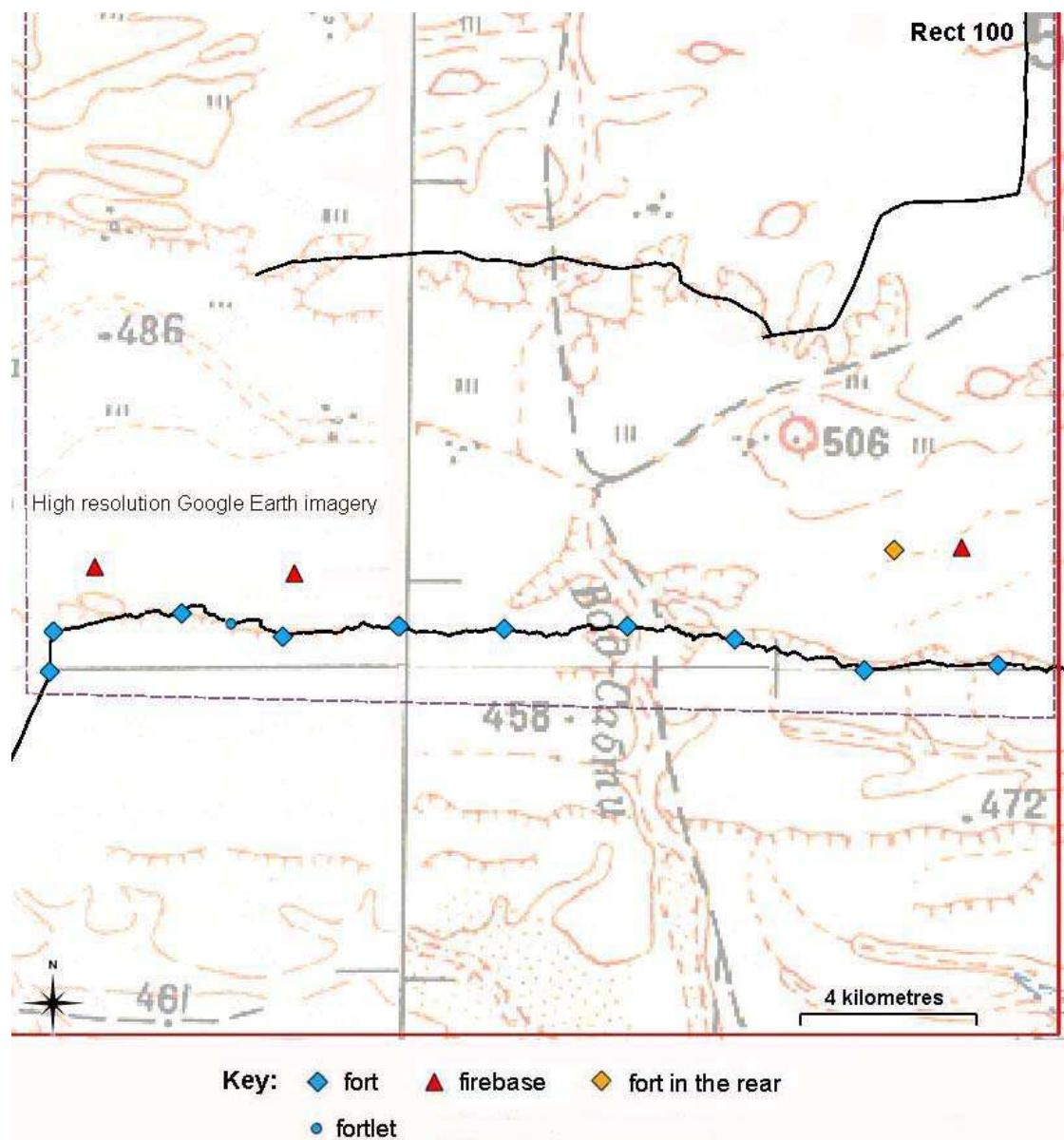
Fig. 4.20: GIS 'snapshot' showing the disposition of Berm No. 4, in rectangle 100. The rear, subsidiary barrier behind the berm (to the north) is also shown.
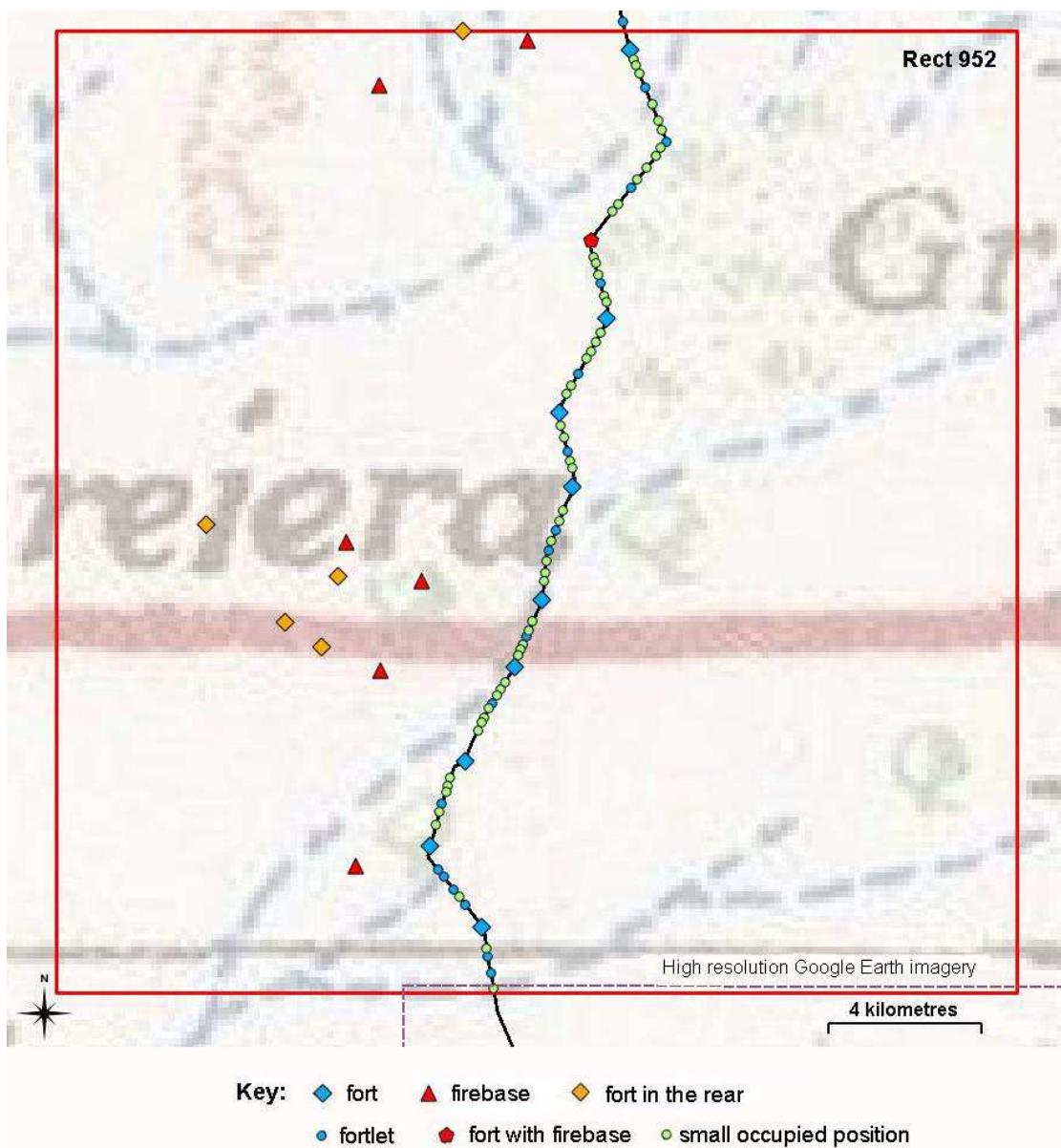
Fig. 4.21: GIS 'snapshot' showing the disposition of Berm No. 4, in rectangle 952. This sampled mapping clearly illustrates the density of installations in this length of the barrier, which directly faces the frontier with Algeria to the east.
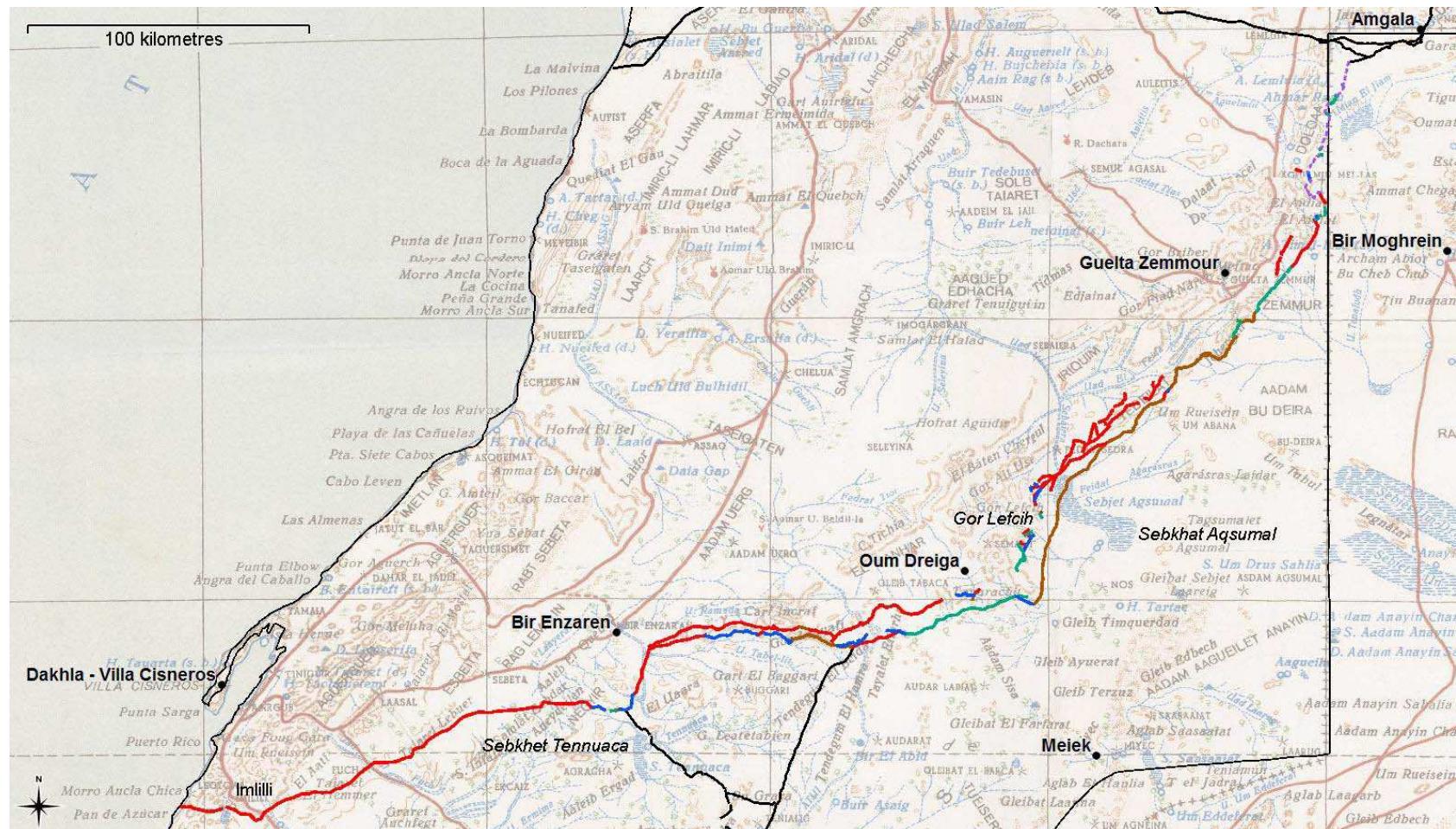
Fig. 4.22: Map of Berm No. 5. Colour Key: red line = single embankment; blue line = double embankment; green line = double embankment with additional, multiple configurations of banks; brown line = single embankment with additional, multiple configurations of banks; broken purple line = natural defensive features; black line = earlier and later barrier/berm defences.

Berm No. 5: Barrier lengths	Count	
Total length (kms) of all barriers (including natural barriers, and the matrix of rear, subsidiary berms at 354 kms)	1002*	
Length (kms) of single banked barriers (excluding the matrix of rear, subsidiary berms)	264	26%
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks (excluding the matrix of rear, subsidiary berms)	327	33%
Length (kms) of the matrix of rear, subsidiary berms	354	35%
Length (kms) of natural barriers	57	6%
Berm No. 5: All military installations		
Total of all defensive installations on and behind the berm	321**	100%
Number of mural forts **(ft)**	203	63%
Number of forts in the rear **(rft)**	33	10%
Number of non-mural fire support bases **(fsb)**	46	14%
Number of fortlets **(flt)**	19	6%
Number of non-mural compounds **(comp)**	5	2%
Number of mural compounds **(mcomp)**	1	<1%
Number of rear garrisons **(gar)**	14	4%
NB: *1002 kms/321 = 1 type of installation for every 3.1 kms**		

Fig. 4.23: Table listing the different types of barriers, and their lengths, making up Berm No. 5. The different types of installations along the berm are also tabulated.

High resolution Google Earth imagery

Rect 359

4 kilometres

Key: ◆ fort   ● fortlet   ▲ firebase   ◆ fort in the rear
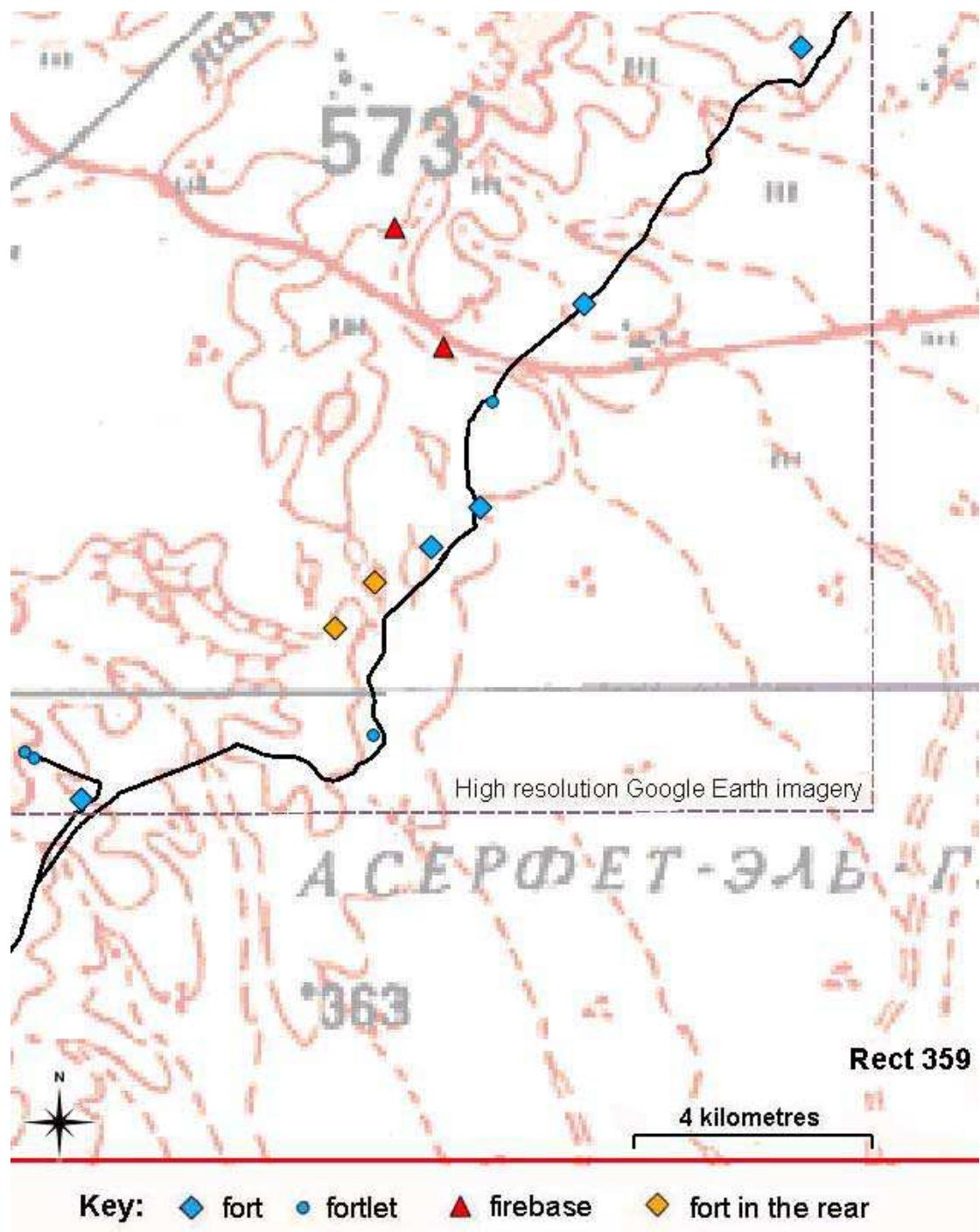
Fig. 4.24: GIS 'snapshot' showing the disposition of Berm No. 5, in rectangle 359.
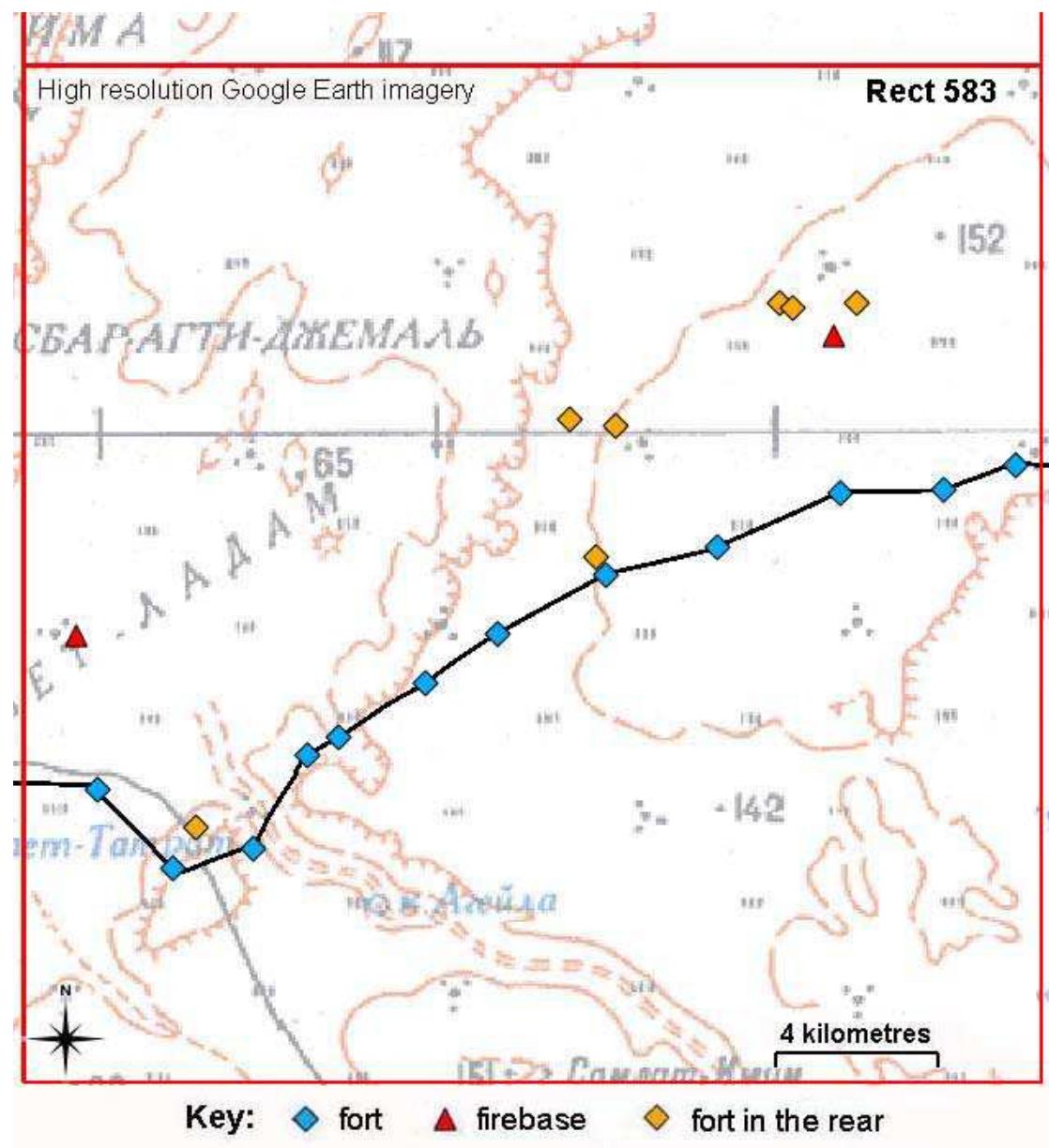
Fig. 4.25: GIS 'snapshot' showing the disposition of Berm No. 5, in rectangle 583.
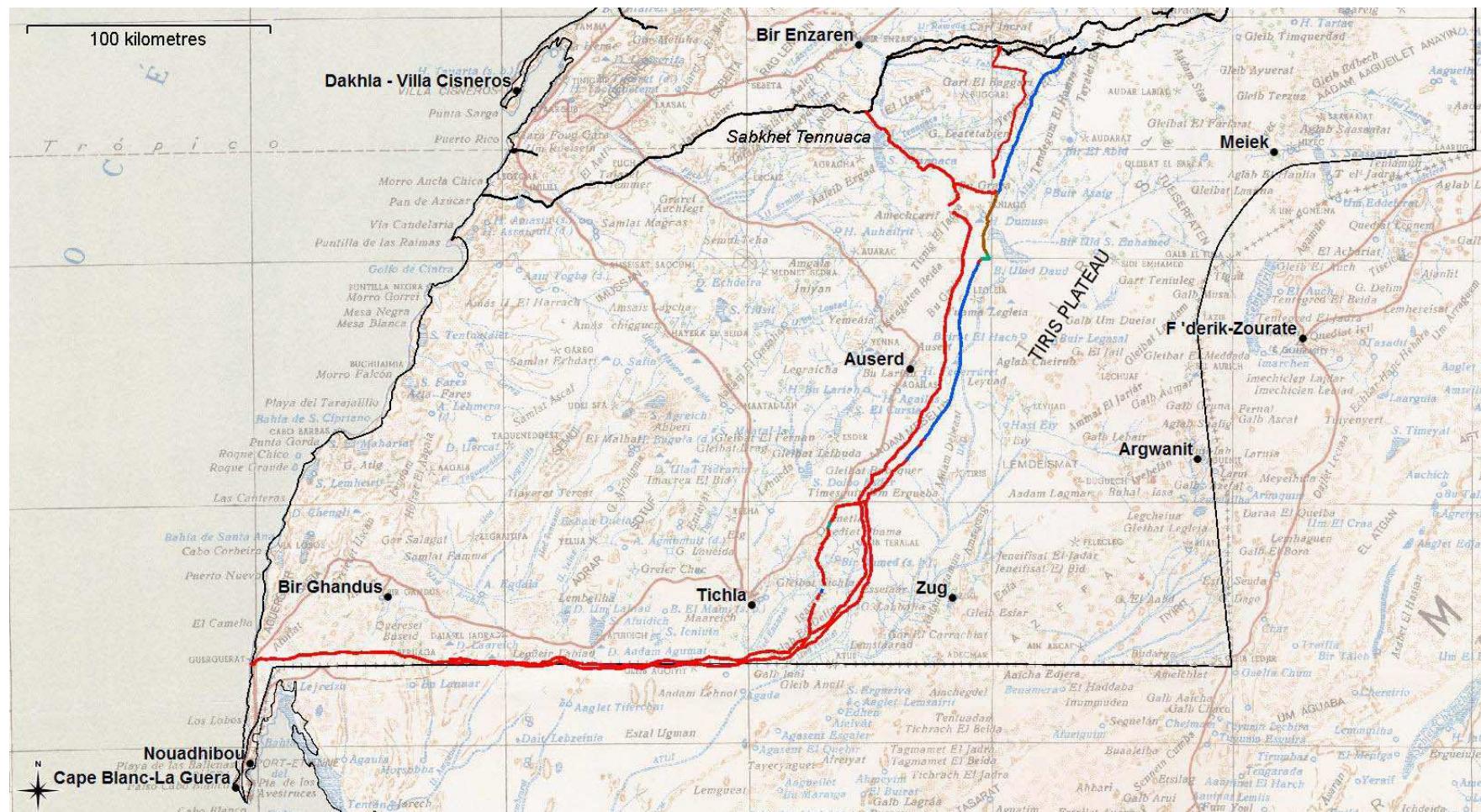
Fig. 4.26: Map of Berm No. 6. Colour Key: red line = single embankment; blue line = double embankment; green line = double embankment with additional, multiple configurations of banks; brown line = single embankment with additional, multiple configurations of banks; black line = earlier barrier/berm defences.

Berm No. 6: Barrier lengths	Count	
Total length (kms) of all barriers (including the rear, subsidiary berms)	1168*	
Length (kms) of single banked barriers (excluding the rear, subsidiary berms)	361	31%
Length (kms) of double and multiple banked barriers, and all barriers with additional multiple configurations of banks (excluding the rear, subsidiary berms)	196	17%
Length (kms) of rear, subsidiary berms	611	52%
Berm No. 6: All military installations		
Total of all defensive installations on and behind the berm	364**	100%
Number of mural forts **(ft)**	207	57%
Number of forts in the rear **(rft)**	11	3%
Number of non-mural fire support bases **(fsb)**	25	7%
Number of fortlets **(flt)**	99	27%
Number of non-mural compounds **(comp)**	7	2%
Number of mural compounds **(mcomp)**	3	1%
Number of rear garrisons **(gar)**	12	3%
NB: *1168 kms/364 = 1 type of installation for every 3.2 kms**		

Fig. 4.27: Table listing the different types of barriers, and their lengths, making up Berm No. 6. The different types of installations along the berm are also tabulated.
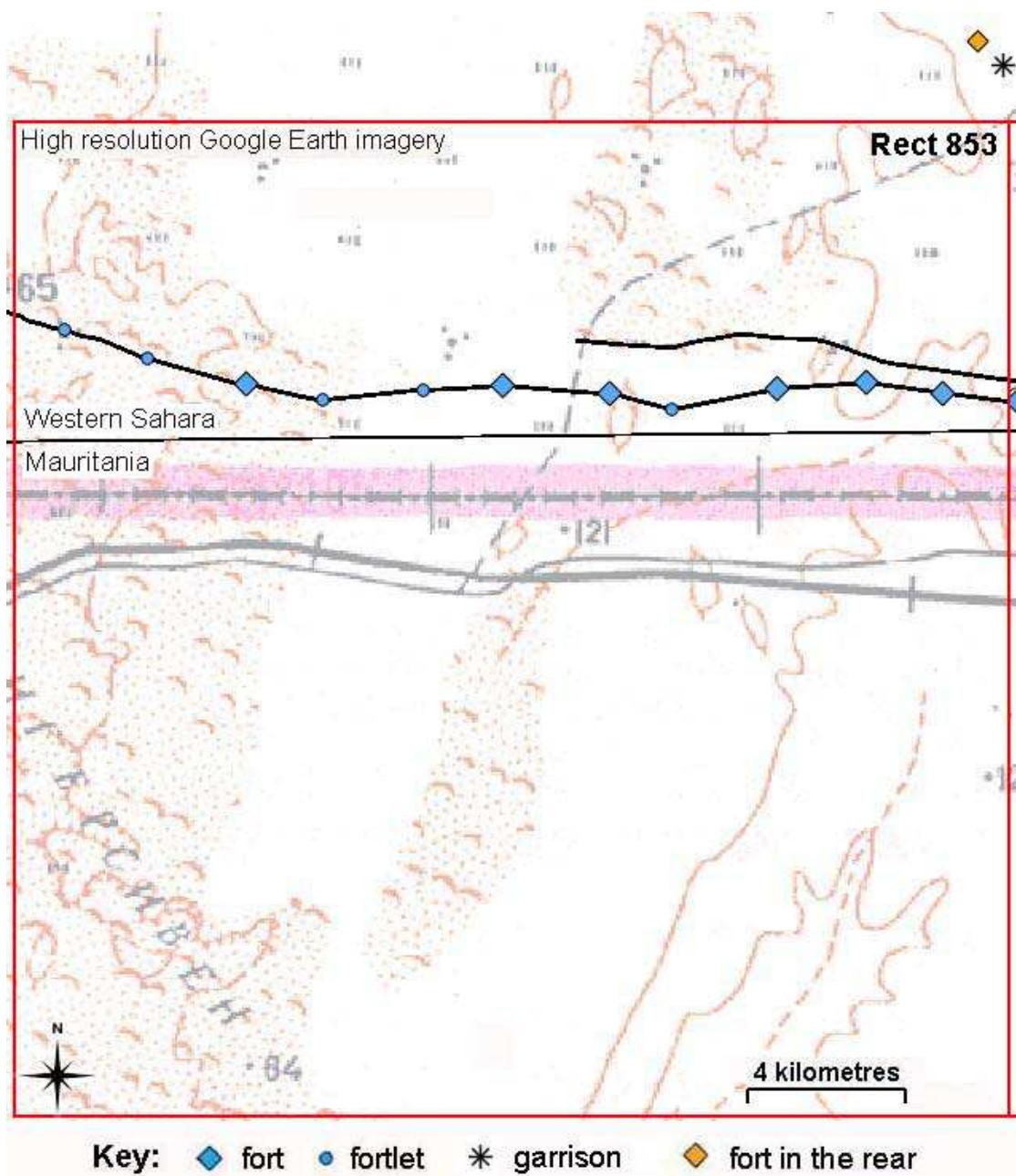
Fig. 4.28: GIS 'snapshot' showing the disposition of Berm No. 6, in rectangle 853, along the border with Mauritania.

Fig. 4.29: Google Earth image along Berm No.1 (in rectangle 124 of Fig. 4.6). The bulldozer tracks are clearly visible only on the west side of the barrier. The sharply defined shadow on the west of the barrier indicates that the embankment is triangular in section. Scale bar at lower left indicates 50 metres. Image date 23/12/12, DigitalGlobe.

Fig. 4.30: A Google Earth image showing a section of Berm No.1 (in rectangle 215 of Fig. 4.6). When looked at closely, the top of the embankment appears to be flat or slightly indented, perhaps with two ridges. North is to the left of the image. Scale bar at lower left indicates 40 metres. Image date 31/1/06, DigitalGlobe.

Fig. 4.31: Part of Berm No.1 shown on Google Earth (in rectangle 124 of Fig. 4.6). It is a single embankment with clear evidence of being created by bulldozing from both sides. The top, in places, appears slightly flat, or with a slight depression. Scale bar at lower left indicates 50 metres. Image date 31/12/04, DigitalGlobe.
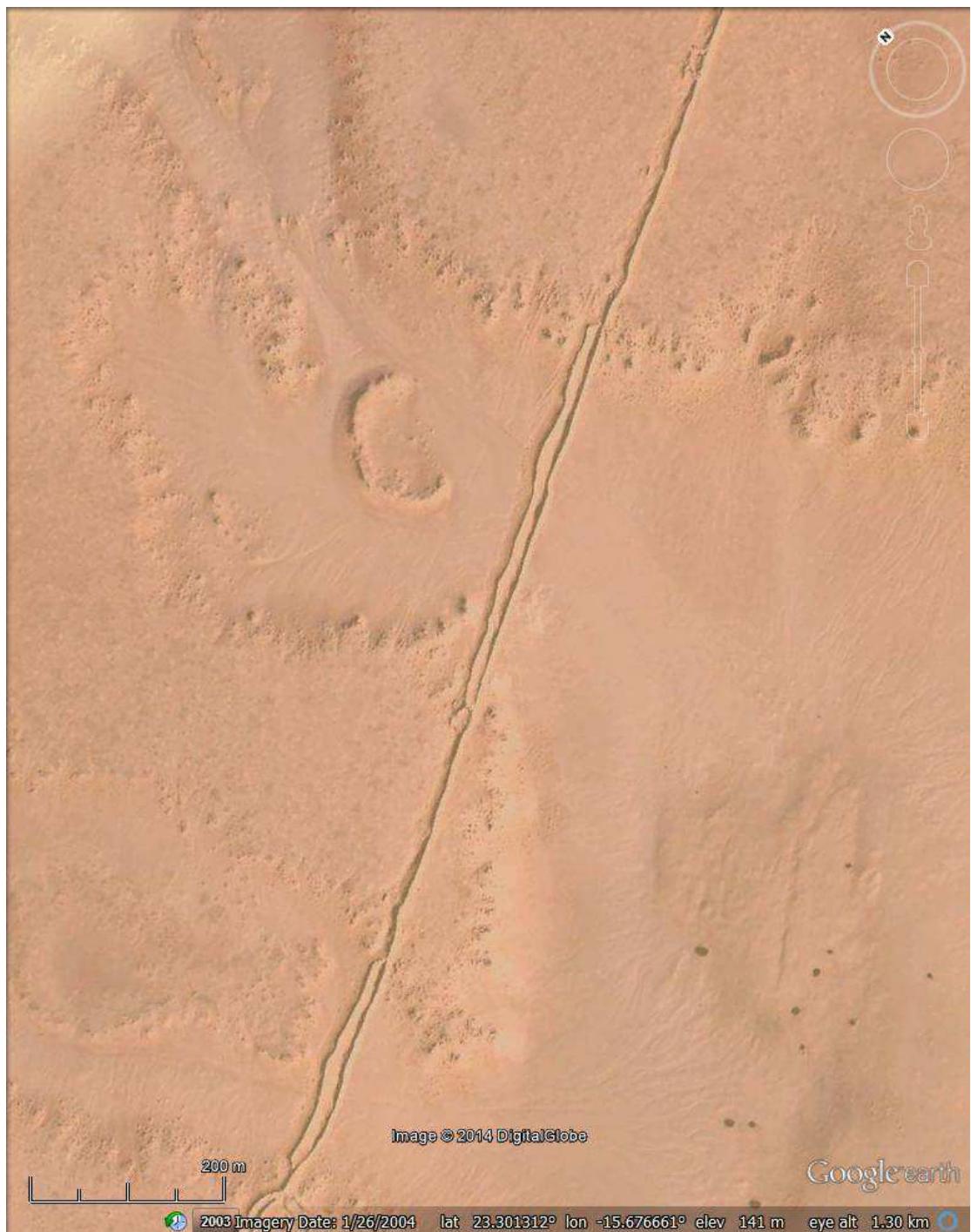
Fig. 4.32: A Google Earth image showing part of Berm No.5 (in rectangle 583 of Fig. 4.6). A single embankment is clearly visible with short sections of secondary banks**.** North is to the upper left. Scale bar at lower left indicates 200 metres. Image date 26/1/04, DigitalGlobe.

Fig. 4.33: A Google Earth image showing part of Berm No.1 (between rectangles 124 and 157 of Fig. 4.6). It shows the direction of bulldozing in the construction of the barriers (only from one side), and illustrates how the secondary, western barrier more or less follows natural contours, with the primary frontal barrier cutting across natural drainage. A mural track is visible to the west. Scale bar at lower left indicates 200 metres. Image date 12/6/10, DigitalGlobe.

Fig. 4.34: A low resolution Google Earth image showing parallel banks along Berm No.2 at the Smara salient (located around nine kilometres southeast of rectangle 157 of Fig. 4.6). Multiple tracks behind the barrier are also visible. Scale bar at lower left indicates 200 metres. Image date 2004, CNES/Spot.

Fig. 4.35: At just to the west of rectangle 491 in Fig. 4.6, this Google Earth image of Berm No.5 clearly shows a frontal defensive bank with subsidiary, intermediate banks. The tracks of the bulldozers which created the embankments are also clearly visible. The second, rear bank is not parallel with the frontal bank, but it also has a ditch on its south side (north is to the top left of the image). A causeway through the second bank and ditch is clearly visible, and water has backed up behind the second barrier, illustrating how the construction of the berms can affect natural drainage. Scale bar at lower left indicates 80 metres. Image date 3/3/06, DigitalGlobe.

Fig. 4.36: A Google Earth image from rectangle 359 of Fig. 4.6. North is to the upper left. It shows a multiple embanked section of Berm No.5, with three banks, though with the north most, rear bank, having a ditch in front of it (as in Fig. 4.35). A mural bunker is incorporated in the frontal bank (near the bottom of the image) and there are at least two vehicular slots behind the barrier, near the top of the image. The scale bar at lower left indicates 50 metres. Image date 25/10/04, DigitalGlobe.

71

Fig. 4.37: A very good Google Earth image of a short section of Berm No. 4, located in rectangle 100 of Fig. 4.6. It shows a triple embanked barrier, facing south (north is to the left), and positioned on a watershed. A light line in front of the barrier probably represents barbed wire. There are bunker type structures associated with the front embankment. The bank making up the rear of the barrier includes a ditch along its southern side. The earthworks to the north (the left) are probably gun emplacements. The scale bar at lower left indicates 60 metres. Image date 23/11/07, DigitalGlobe.

Fig. 4.38: A low level aerial photo of the location indicated in Fig. 4.39, showing a Paris-Dakar rally car passing through the Moroccan Berm. It clearly gives a sense of scale, and illustrates the components making up the barrier. North is to the right of the photo. Image source: http://www.origo.hu/nagyvilag/20091109-nem-csak-a-berlini-fal-nepeket-elvalaszto-falak-es.html accessed 14 September 2012.
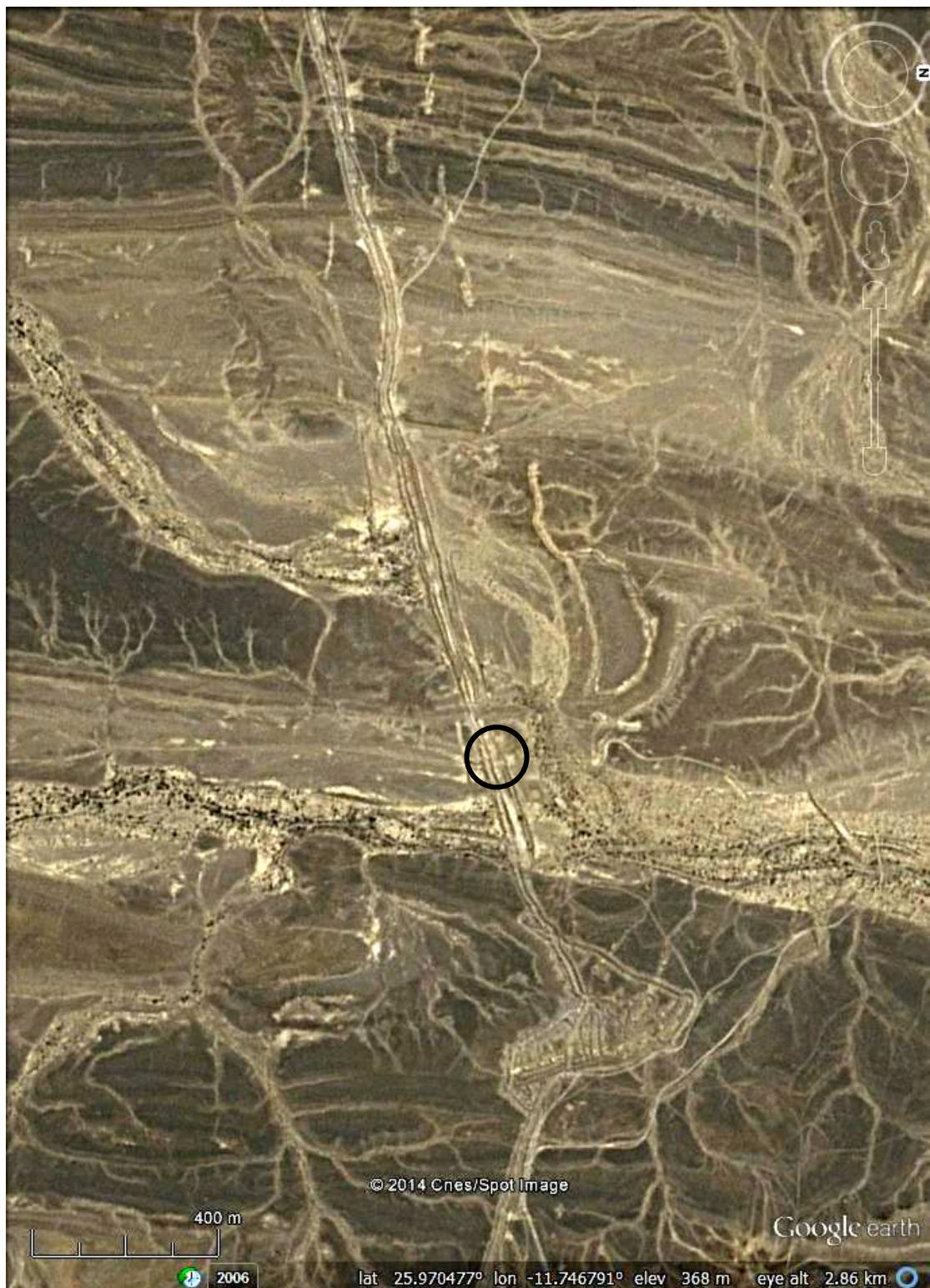
Fig. 4.39: A low resolution image from Google Earth showing a stretch of Berm No. 2 in Mauritania, and located due south of rectangle 157 of Fig. 4.6. North is to the right. The black circle indicates the approximate location of the crossing point though the Berm shown in Fig. 4.38. The scale bar at lower left indicates 400 metres. Image date 2006, CNES/Spot.

Fig. 4.40: View of Berm No. 4 taken near the border with Algeria. It shows multiple embankments and even the rooflines of buildings or bunkers. Image source: © 'wixtroem', from http://www.panoramio.com/photo/40069297 accessed 3 september 2012.[1]

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[1] Photograph taken and posted on Panoramio and Google Earth by 'wixtroem'. There is no guarantee that the 'geotagged' location of the photograph on Google Earth is correct.

Figure 4.41: A view of the Moroccan barrier at ground level, photographed near Tifariti. The barrier has three elements: the stone wall at the rear, an earthen bank in the centre, followed by a frontal embankment with two ridges, just visible at the left of the photograph. The Saharawi soldier on the barrier gives a sense of scale. Image source: © Bruno Zanzottera, from http://stock.parallelozero.com and http://www.parallelozero.com/images/stock/mid/c72e465d7af3494aa14600a8956d98bb5fa097fc.jpg accessed 12 April 2014.

Fig. 4.42: One of four examples of polygonal forts and fortlets clearly visible on Google Earth. This is a redundant fortlet (flt 10) on Berm No.1 (located in rectangle 215 of Fig. 4.6). Its internal buildings and bunkers are visible (now roofless) and the routeways in and out of the installation can just be made out. The scale bar in the lower left indicates 30 metres. Image date 26/5/12, DigitalGlobe.
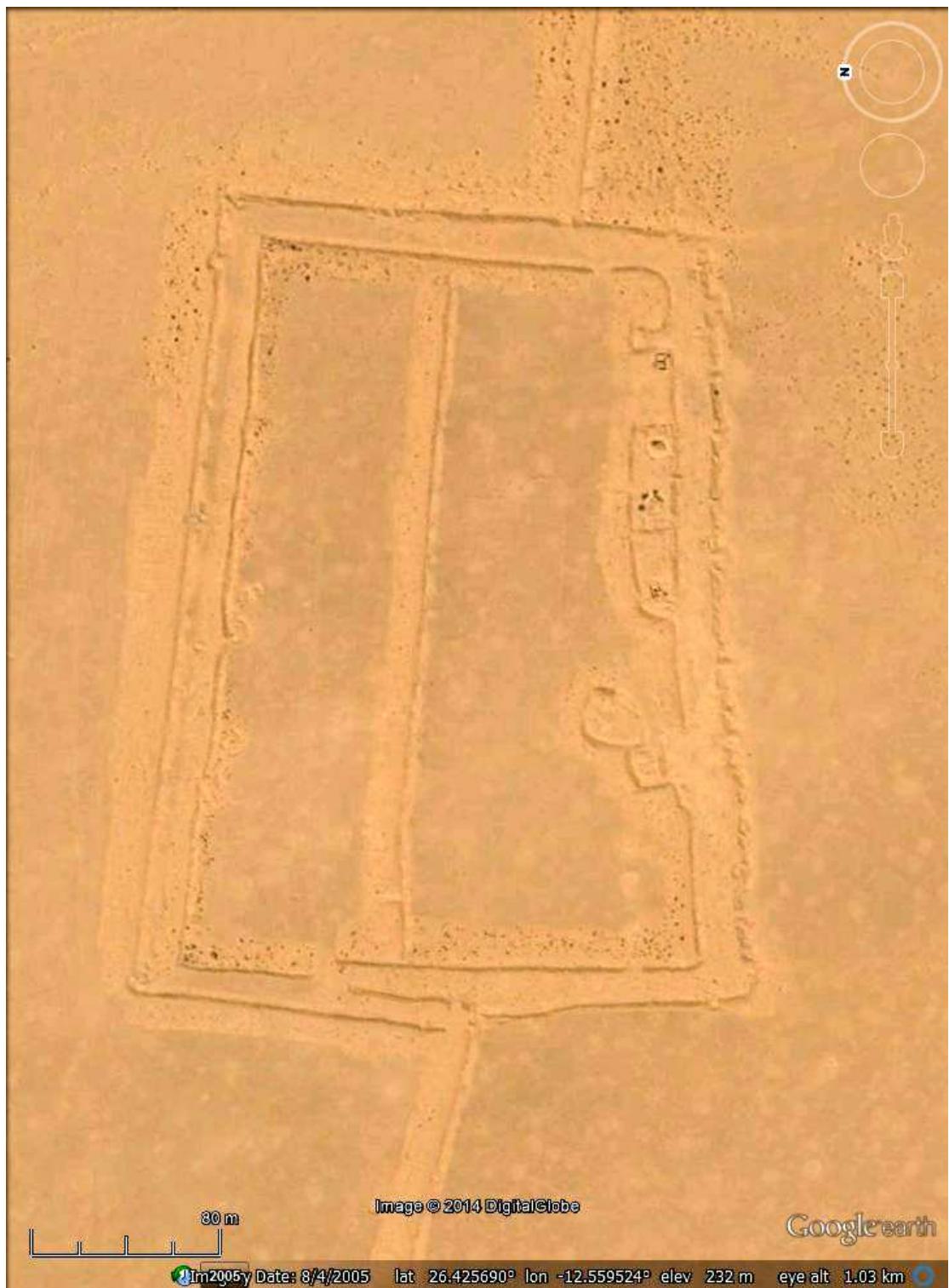
Fig. 4.43: Second of four examples of polygonal forts and fortlets, clearly visible on Google Earth. North is to the left of the image. This is a redundant fort (ft 163) on Berm No. 1. It is located just outside the northeast corner of rectangle 187 of Fig. 4.6. It is clearly concentric with two perimeter banks and it is subdivided longitudinally. There are clear fighting positions along its southern face (they look like nicks, or indents, in the embankment). The scale bar in the lower left indicates 80 metres. Image date 4/8/05, DigitalGlobe.

78
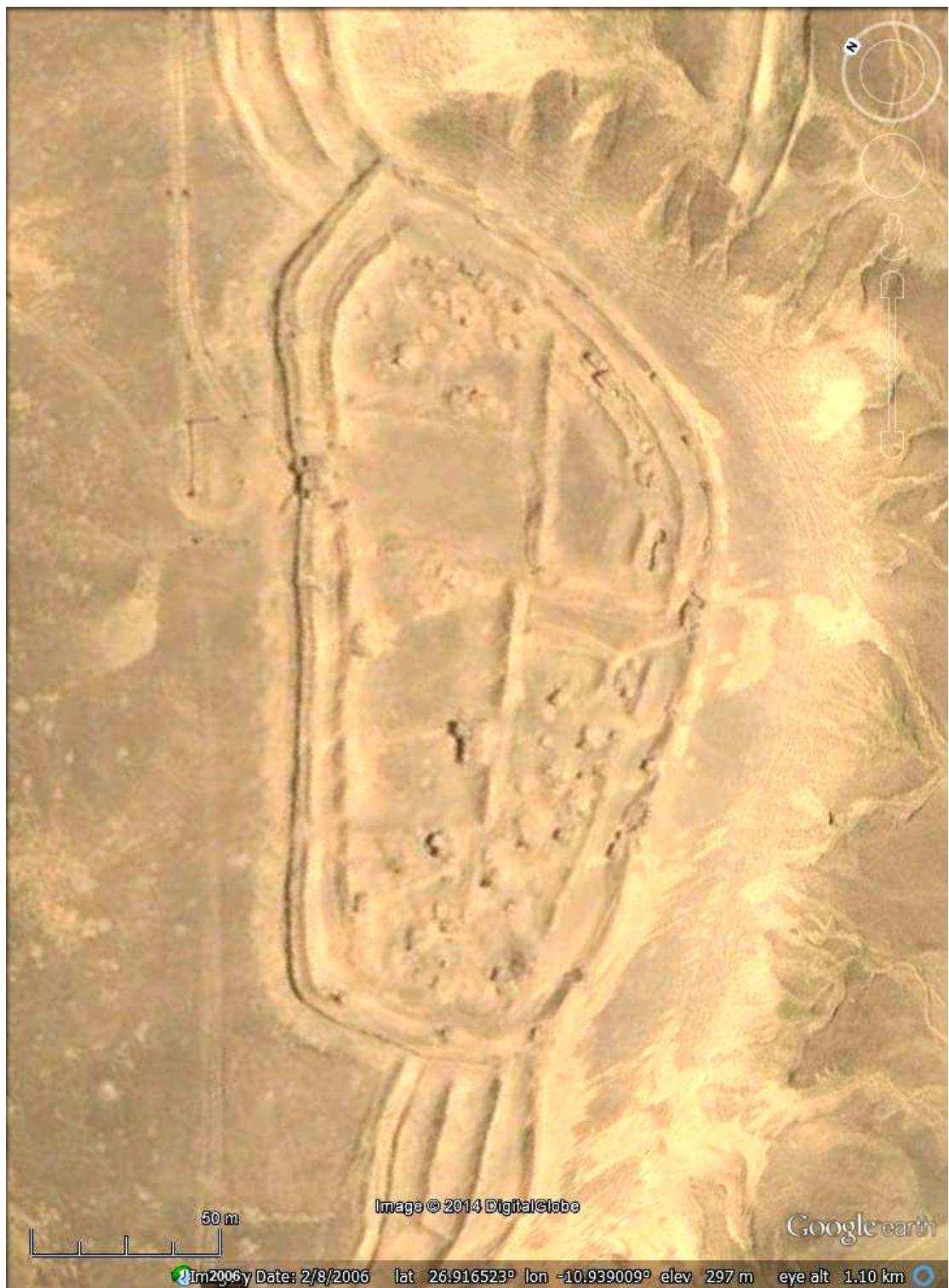
Fig. 4.44: Third of four examples of polygonal forts and fortlets. A concentric, polygonal fort (ft 685) with rounded corners on Berm No.3 (located in rectangle 126 of Fig. 4.6). This fort is not redundant since it faces the Poliosario held zone of Western Sahara. It has fighting/observation positions along its southern and eastern flanks - facing the upper right, and right of the image (north is to the upper left), and its internal buildings and bunkers are roofed and visible. Its northwest side is very slightly bent (concave) while its south and southeast trace follows the contours of the slight rise on which it is situated. The scale bar in the lower left indicates 50 metres. Image date 8/2/06, DigitalGlobe.
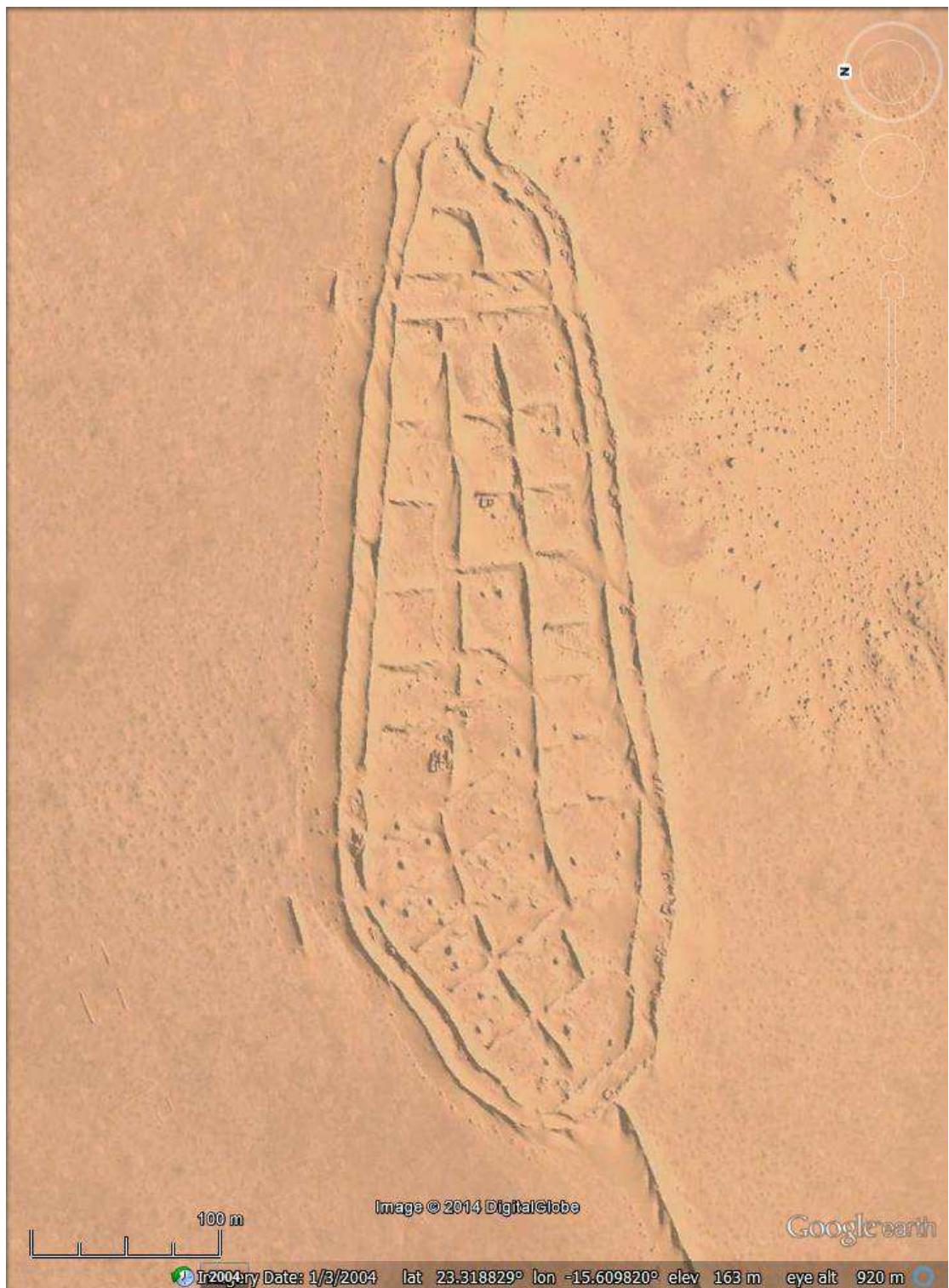
Fig. 4.45: Fourth of four examples of polygonal forts and fortlets. This mural fort (ft 1335) is located on a redundant part of Berm No.5, located in rectangle 583 of Fig. 4.6. North is to the left. Though partly obscured by drift sand, the fort's internal buildings are clear (and now roofless), and its concentric trace and multiple subdivisions are also clearly visible. The scale bar in the lower left indicates 100 metres. Image date 3/1/04, DigitalGlobe.

Fig. 4.46: Google Earth image of a semi-circular fortlet (flt 1252) on Berm No.4 (located in rectangle 952 of Fig. 4.6). There are obvious bunkers along the front of the installation facing east. It is also sub-divided with embanked partitions. There is a cordon of barbed wire just in front of the fortlet, which is just barely visible. The scale bar in the lower left indicates 50 metres. Image date 3/3/08, DigitalGlobe.

Fig. 4.47: Google Earth image (in monochrome to highlight features) of a semi-circular fort (**ft** 1250) from Berm No.4 (located in rectangle 952 of **Fig. 4.6**). This fort has a concentric trace along its rear, with a frontage (facing the northeast) filled with bunkers and fighting positions. The installation is obviously compartmentalised and its entrance is clear This fort faces Algeria from Morocco, north of Western Sahara. The scale bar in the lower left indicates 60 metres. Image date 16/3/08, DigitalGlobe.

Fig. 4.48: Google Earth image showing a sub-circular fort (ft 1597) on Berm No. 5 (located in rectangle 359 of Fig. 4.6). This fort is still occupied and it clearly shows fighting positions along its east facing front. It is also sub-divided with blast partitions. The fort has a rectilinear landing zone to the immediate northwest, while internally, there are gun pits and obvious bunkers. The concentric earthen banks outlining the installation have sharp outlines suggesting that they are revetted with stones. The scale bar in the lower left indicates 80 metres. Image date 25/10/04, DigitalGlobe.
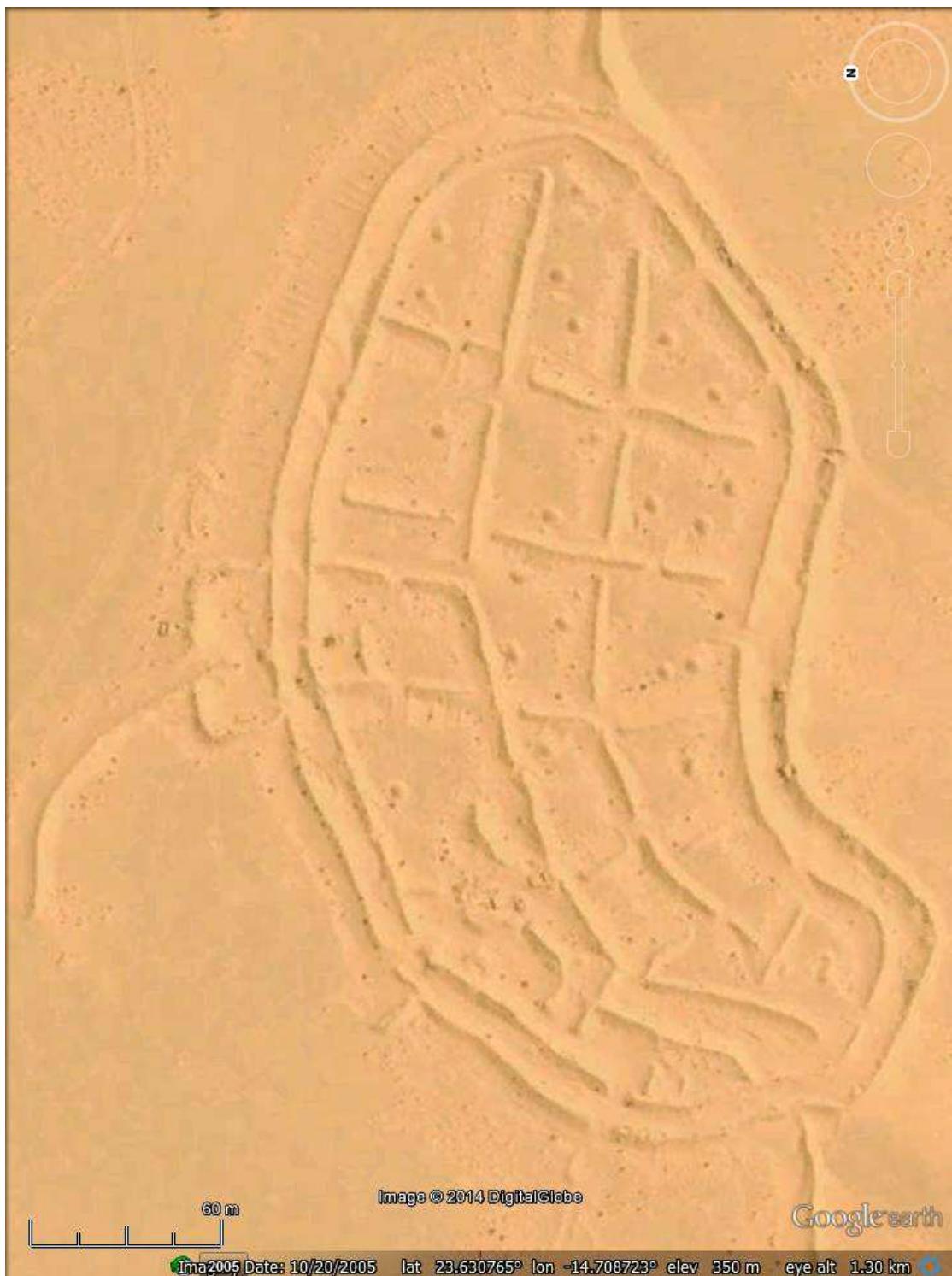
Fig. 4.49: Google Earth image of a kidney shaped fort (ft 1387) along a redundant part of Berm No.5 (located in rectangle 553 of Fig. 4.6). The fort is compartmentalised with internal internal blast barriers and there are fighting positions, and some bunkers, along its frontage, facing south (north is to the left). The remains of bulldozing tracks indicate that the fort was constructed from the north. The scale bar in the lower left indicates 60 metres. Image date 20/10/05, DigitalGlobe.
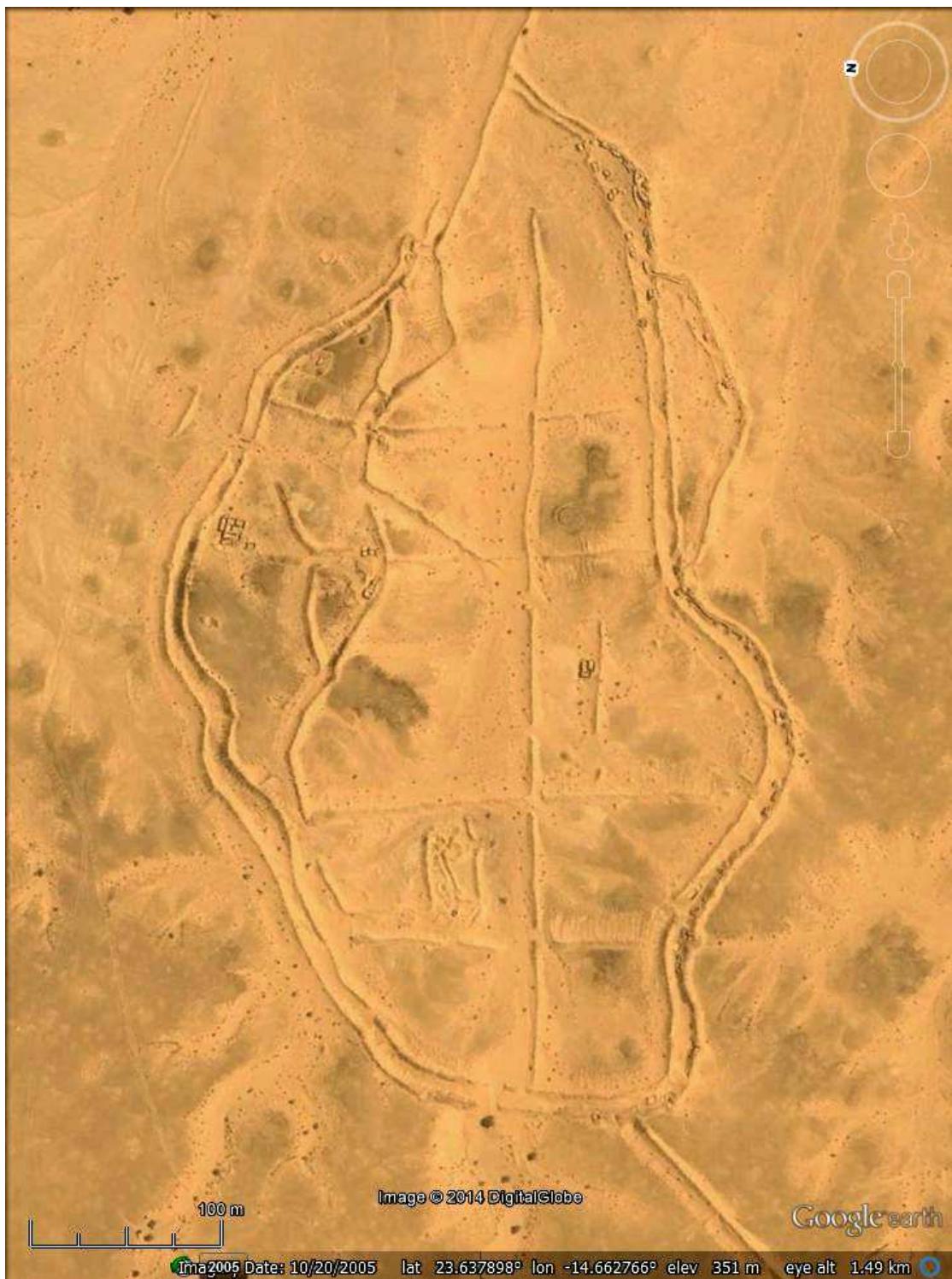
Fig. 4.50: Google Earth image of an irregular shaped fort (ft 1391) on Berm No.5 (located in rectangle 583 of Fig. 4.6), in an area of desert with low relief. It is mainly surrounded by a double embankment, and it is compartmentalised by numerous blast barriers. There are bunkers and fighting positions along its southern, curvilinear frontage (north is to the left). There are other buildings or bunkers, and even some gun pits within the installation. The scale bar in the lower left indicates 100 metres. Image date 20/10/05, DigitalGlobe.
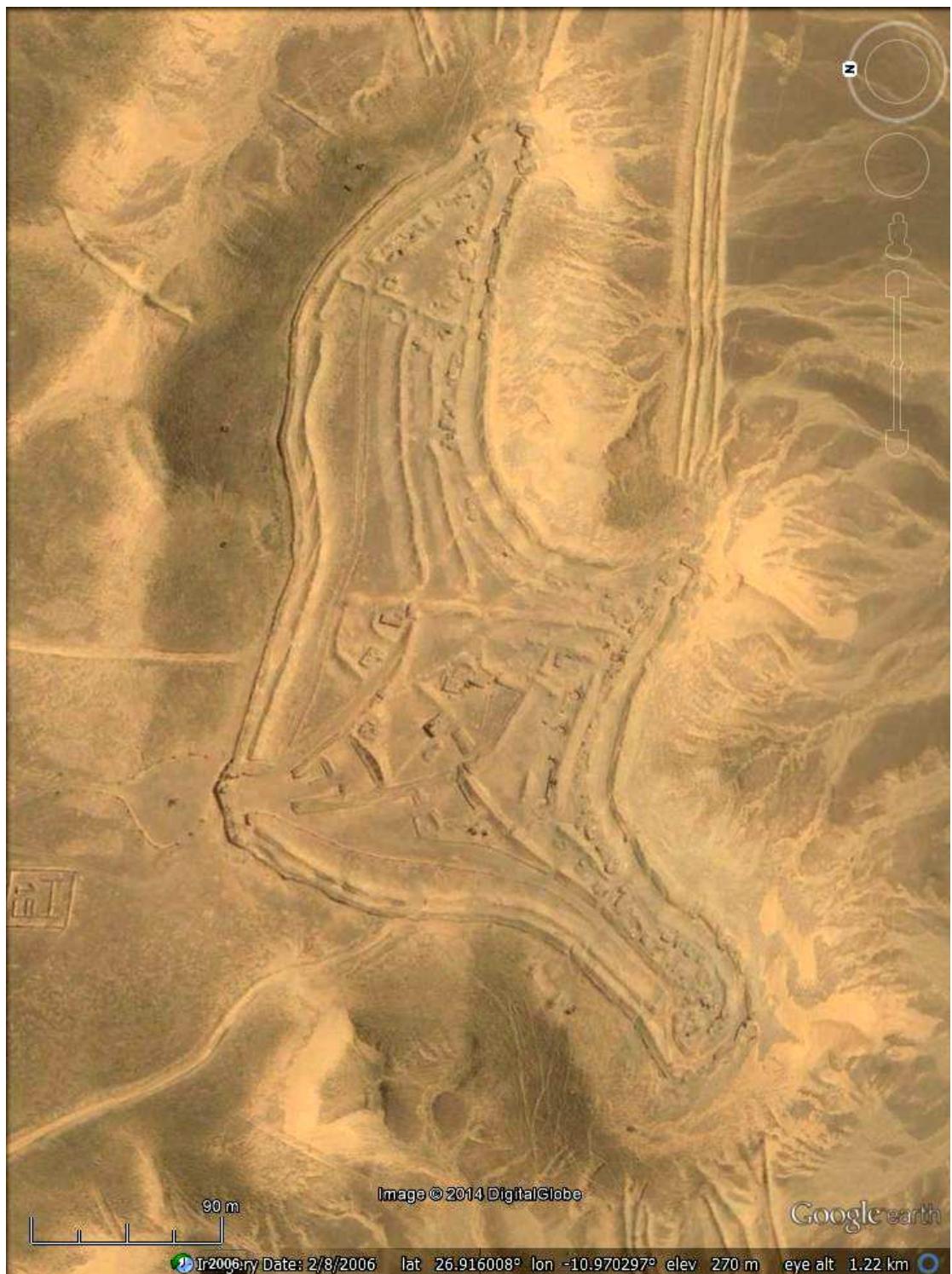
Fig. 4.51: Google Earth image of an irregular shaped fort (ft 681) on Berm No.3 (located in rectangle 126 of Fig. 4.6). Its defensive banks are concentric and follow the natural contours of three spurs of high ground. There are multiple sub-divisions with blast barriers. Buildings and bunkers are spread through out the fort, and there are bunkers and fighting positions at the salients facing south (north is to the left). The scale bar in the lower left indicates 90 metres. Image date 8/2/06, DigitalGlobe.

Fig. 4.52: Low level aerial view of fort ft 681 in Fig. 4.51. The view is to the east, so north is to the left. This image clearly illustrates the disposition of this sizable fort on high ground, overlooking Polisario controlled territory to the right (the south). Image source: unattributed image from http://www.lasonet.com/sahara/sh-163.htm accessed 15 January 2014.
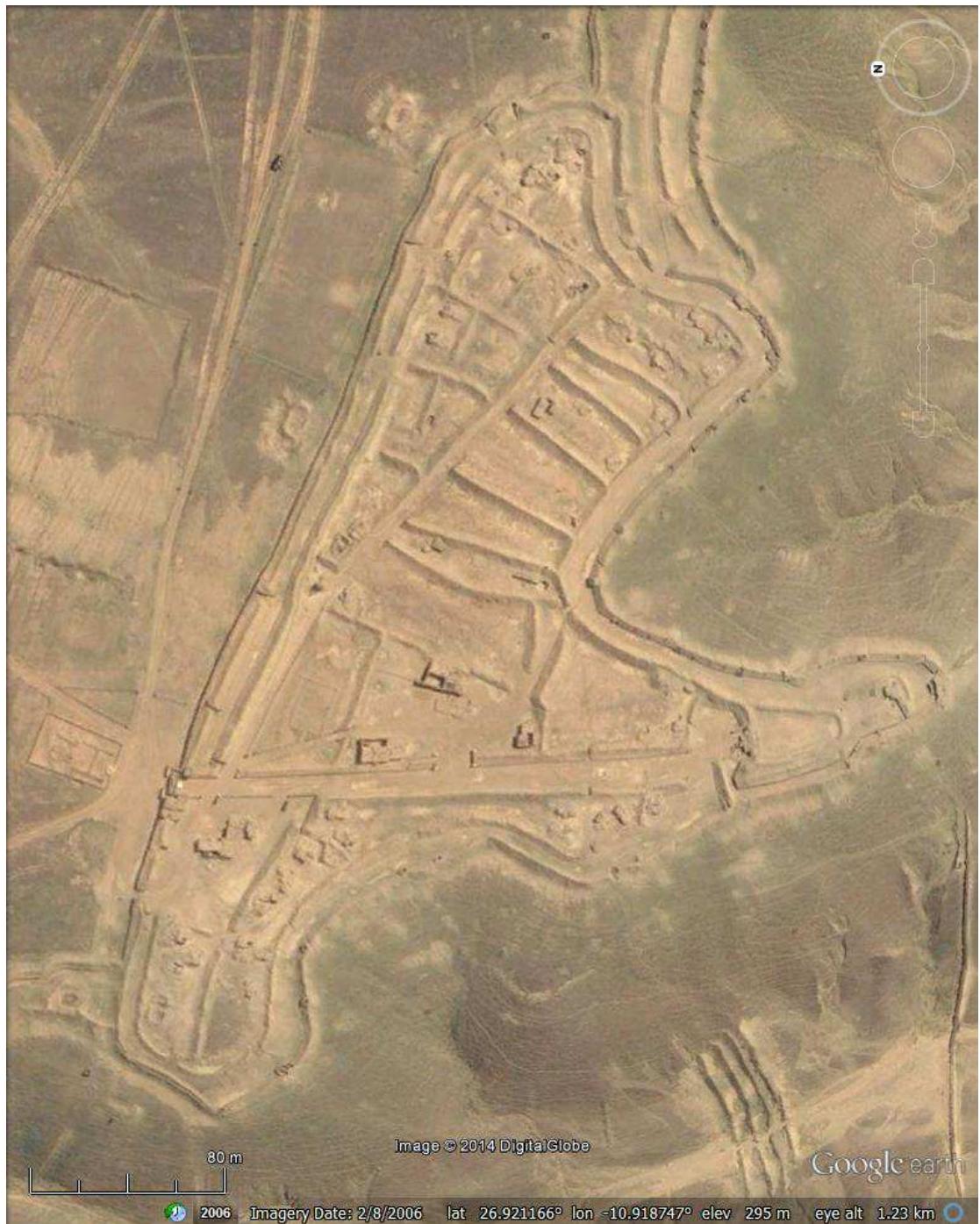
Fig. 4.53: Google Earth image of an irregular shaped fort (ft 687) situated at the junction of Berms No. 3 and No. 4 (located in rectangle 92 of Fig. 4.6). It follows the contours of an escarpment over lower ground to the west and south (north is to the left). Its defences are more or less concentric and there is multiple compartmentalisation. There are numerous buildings and bunkers with fighting positions visible along the fort's southern flanks. There are two rectangular landing zones to the immediate north. The scale bar in the lower left indicates 80 metres. Image date 8/2/06, DigitalGlobe.

Fig. 4.54: Google Earth image (in monochrome to highlight features) of an irregular shaped fort (ft 1269) on Berm No. 4 (located in rectangle 952 of Fig. 4.6). It used to be a concentric semi-circle but its frontage has been removed and it is now an irregular arc shaped installation. It is sub-divided and there are bunkers. Fighting positions are visible along the east facing front. A cordon of barbed wire is also just visible, about 100 metres in front of the fort, to the east. The scale bar in the lower left indicates 80 metres. Image date 16/3/08, DigitalGlobe.

Fig. 4.55: Google Earth image of a straightforward, though partly complex, fort (ft 1648) on Berm No. 6 (located in rectangle 850 of Fig. 4.6). It is situated on a knoll. It has an external enclosure to the east, which also incorporates high ground with the remains of fighting or observation positions. The south and east facing ramparts of the fort, with observation and fighting positions, are sharply outlined, indicating retaining walls along the internal faces. There are bunkers and buildings, and two gun pits, also well defined. A ramp leads into the fort from the north. The scale bar in the lower left indicates 50 metres. Image date 21/2/13, DigitalGlobe.
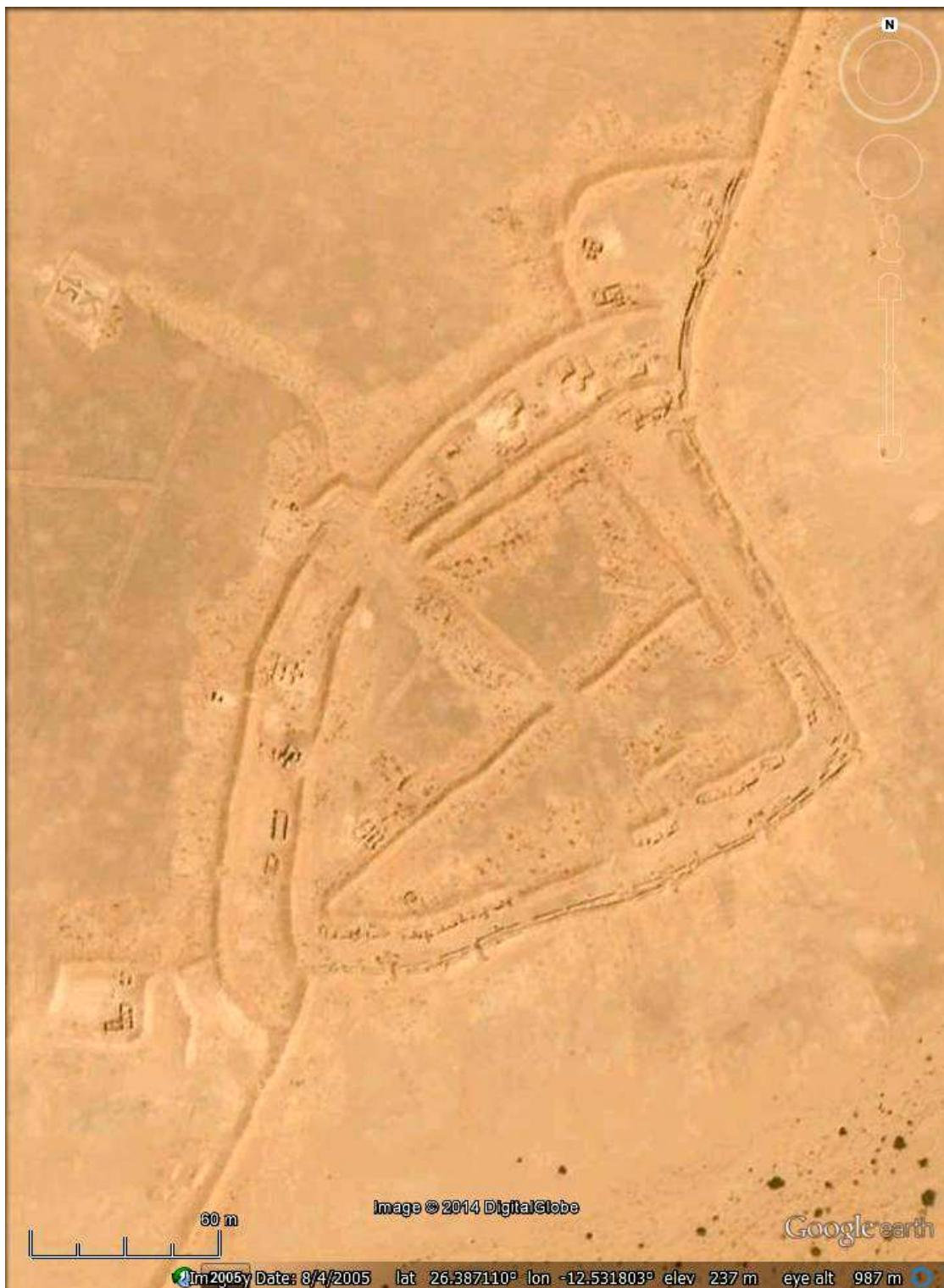
Fig. 4.56: Google Earth image of a complex fort (ft 145) on Berm No.1 (located close to, but outside the northeast corner of rectangle 187 of Fig. 4.6). It has observation and fighting positions along its angled east side overlooking a wadi. It has secondary embankments that give the impression that it has concentric defences, but this is not the case. Instead, the fort simply consists of multiple enclosures. There are annexes to the north and south, and besides the buildings and bunkers internally, there are also two possible gun pits. The scale bar in the lower left indicates 60 metres. Image date 4/8/05, DigitalGlobe.

Fig. 4.57: Monochrome (for better clarity) Google Earth image of a complex fort (ft 1274) on Berm No.4 (located in rectangle 952 of Fig. 4.6). The installation consists of an initial concentric sub-circular fort, with a multiple embanked rectilinear addition to the north. Both parts of the fort are compartmentalised and there are bunkers and observation and fighting positions on their eastern flanks, facing Algeria. It is possible that there are two small gun or mortar pits in the southern, circular part of the installation. There are five gun pits to the west of the fort, and there is a cordon of barbed wire, just barely visible, in an arc in front of the initial, circular fortification. The scale bar in the lower left indicates 100 metres. Image date 16/3/08, DigitalGlobe.
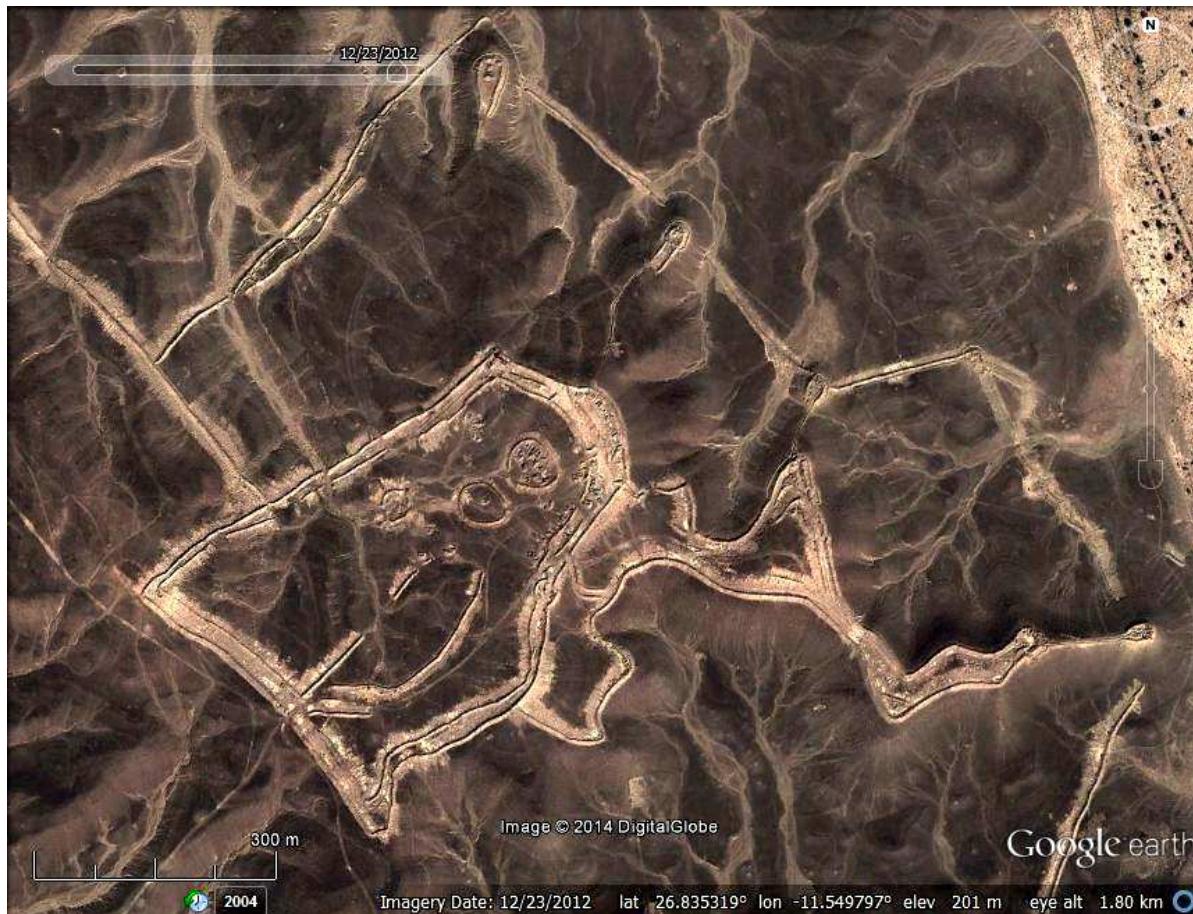
Fig. 4.58: A complex fort (ft 290) on Berm No.1, in the Smara salient (located in rectangle 124 of Fig. 4.6). This is a very large group of enclosures utilising a spur and at least four knolls overlooking a wadi to the east. The core enclosure at the lower, left centre of the image, has concentric defences with observation and fighting positions facing east. The contoured extension to the east also has fighting and observation positions facing eastwards, and the knolls just behind the single embanked outer enceinte, are all individually fortified. This is indeed, a multi-part, complex fort. The scale bar in the lower left indicates 300 metres. Image date 23/12/12, DigitalGlobe.

93

Fig. 4.59: This is a very good example of a concentrically embanked fort on one of the Moroccan berms, illustrating the complexity of internal compartmentalization with sand embanked blast barriers. Image source: unattributed image from http://www.lasonet.com/sahara/sh-163.htm accessed 15 January 2014.

Fig. 4.60: View of a mural fort along one of the Moroccan berms. The image shows the construction of internal buildings quite well, and a parapet walkway with niches: fighting and observation positions. Image source: attributed to 'MINURSO Database' and available at http://www.tindoufexpress.org/tep/?page_id=183&lang=en and http://www.tindoufexpress.org/tep/wp-content/uploads/2013/05/Muro_ONU_2007.06.07_-1_028.jpg accessed 17 January 2014.

Fig. 4.61: This is an aerial photograph of an Israeli fort or strong point (*Maozim*) from the Bar Lev Line, reputedly taken by an Egyptian spy plane some time before the 1973 Arab- Israeli War. It is included here to illustrate what small fighting positions, or niches, along a defensive line can look like. Here they are revetted with sand bags, but stones could just as easily be used. There are metal hoops over the trenches, and these were for canvas shades. Image source: http://www.flickr.com/photos/41809355@N00/877414678/ accessed 4 October 2012.[2]

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[2] Aerial photograph uploaded on to Flickr on 23 July 2007 by 'Amr Saleh', with the caption: 'Egyptian military intelligence photo of a Bar Lev Line strong point, taken from a spy plane. Typical Bar Lev Line fortification, surrounded with 5 lines of barbed wire with land mines and traps in between. Under ground bunker is 15m deep into the ground made of railway reinforced concrete. With exception of one post, all Bar Lev Line points were stormed by Egyptian infantry in 1973.'

Figure 4.62: This image, taken as a still from a YouTube video, shows Moroccan soldiers in a bunker on the berm manning a recoilless rifle. It clearly shows the aperture size, and type of view available, from what is possibly a relatively standard bunker along the perimeter of a fortified Moroccan position along the berms. Image source:
http://www.youtube.com/watch?feature=endscreen&v=5KxzZQGpIHc&NR=1 accessed 1 October 2012.[3]

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[3] This is a still image taken from a video entitled (in English) *Hassan II inspects* [*the*] *army in the Algerian-Moroccan border Moroccan Sahara.* The video is undated and unattributed, but it has been uploaded onto YouTube by 'Lineamarocco' on 7 January 2010.

Fig. 4.63: Berm No. 1. Google Earth image of two mural compounds (to the west, in the left portion of the image) and a mural fort (to the east of centre), with vehicular slots ('tank' slots) behind the berm at the eastern (right) edge of the image. The compounds, from the west (left to right) are mcomp 251 and mcomp 252, and the fort is ft 253 (located in rectangle 157 of Fig. 4.6). The scale bar in the lower left indicates 180 metres. Image date 12/6/10, DigitalGlobe.

Fig. 4.64: Google image of pcomp 132 on Berm No. 1 (located in rectangle 187 of Fig. 4.6). It shows a parallel enclosure, longitudinally subdivided, with fighting/observation positions along its front, to the east. The entry to the compound is from the west, near the north end of the compound. The scale bar in the lower left indicates 80 metres. Image date 2/5/10, DigitalGlobe.

Fig. 4.65: Examples of small occupation positions on Berm No. 4 (located in rectangle 952 of Fig. 4.6). At the top (to the north) is sop 2097, while to the south is sop 2098. Between them are vehicular slots, probably for tanks (or perhaps even smaller vehicles that can mount guns), with a slightly larger slot, on its own and to the west, that could probably accommodate a self-propelled piece of artillery. The scale bar in the lower left indicates 60 metres. Image date 16/3/08 (in monochrome for clarity), DigitalGlobe.

Fig. 4.66: Google Earth image (in monochrome for clarity) of ftfb 133 on Berm No. 1 (located in rectangle 187 of Fig. 4.6). This multipart installation has four gun pits located more-or-less in its centre. Probably for self propelled artillery. North is to the upper left. The scale bar in the lower left indicates 200 metres. Image date 2/5/10, DigitalGlobe.
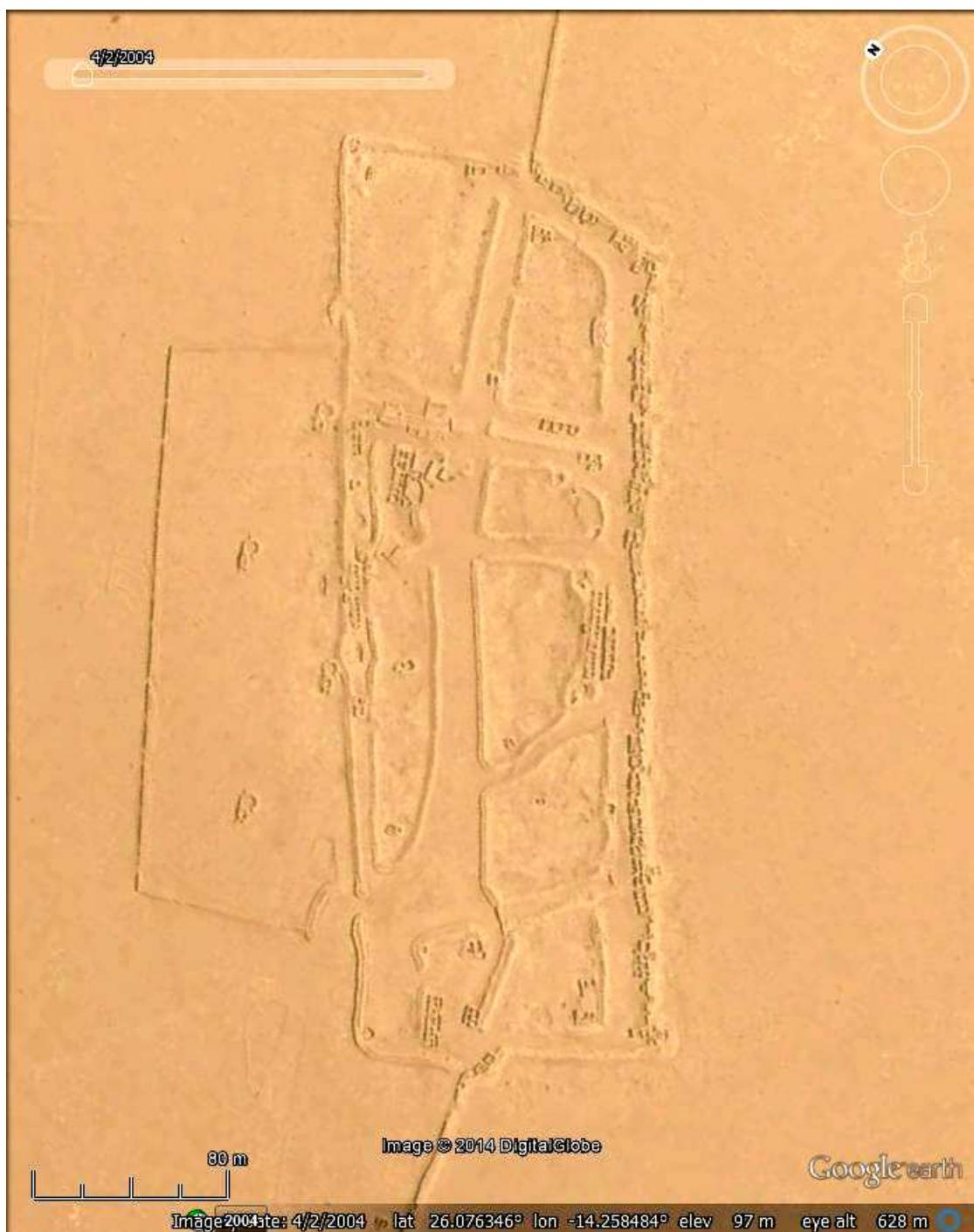
Fig. 4.67: Google Earth image of ftfba 16 on Berm No. 1 (located in rectangle 215 of Fig. 4.6). A large, redundant, mural fort with a firebase attached to its northwest side (north is to the upper left). The firebase includes four artillery gun pits very spread out. The scale bar in the lower left indicates 80 metres. Image date 2/4/04, DigitalGlobe.

Fig. 4.68: Google Earth image of fsb 1470 on Berm No. 5 (located to the west of rectangle 491 of Fig. 4.6). A polygonal fire support base, though originally sub-rectangular, with three large gun pits for self propelled artillery. The guns can be seen in the image. The base is behind Berm No. 5 by more than four kilometres. The scale bar in the lower left indicates 100 metres. Image date 3/3/06, DigitalGlobe.

Fig. 4.69: Google Earth image of fsb 1255 (located in rectangle 952 of Fig. 4.6). A rectilinear, though complex, fire support base with four gun positions situated behind Berm No. 4. The scale bar in the lower left indicates 100 metres. Image date 3/3/08, DigitalGlobe.
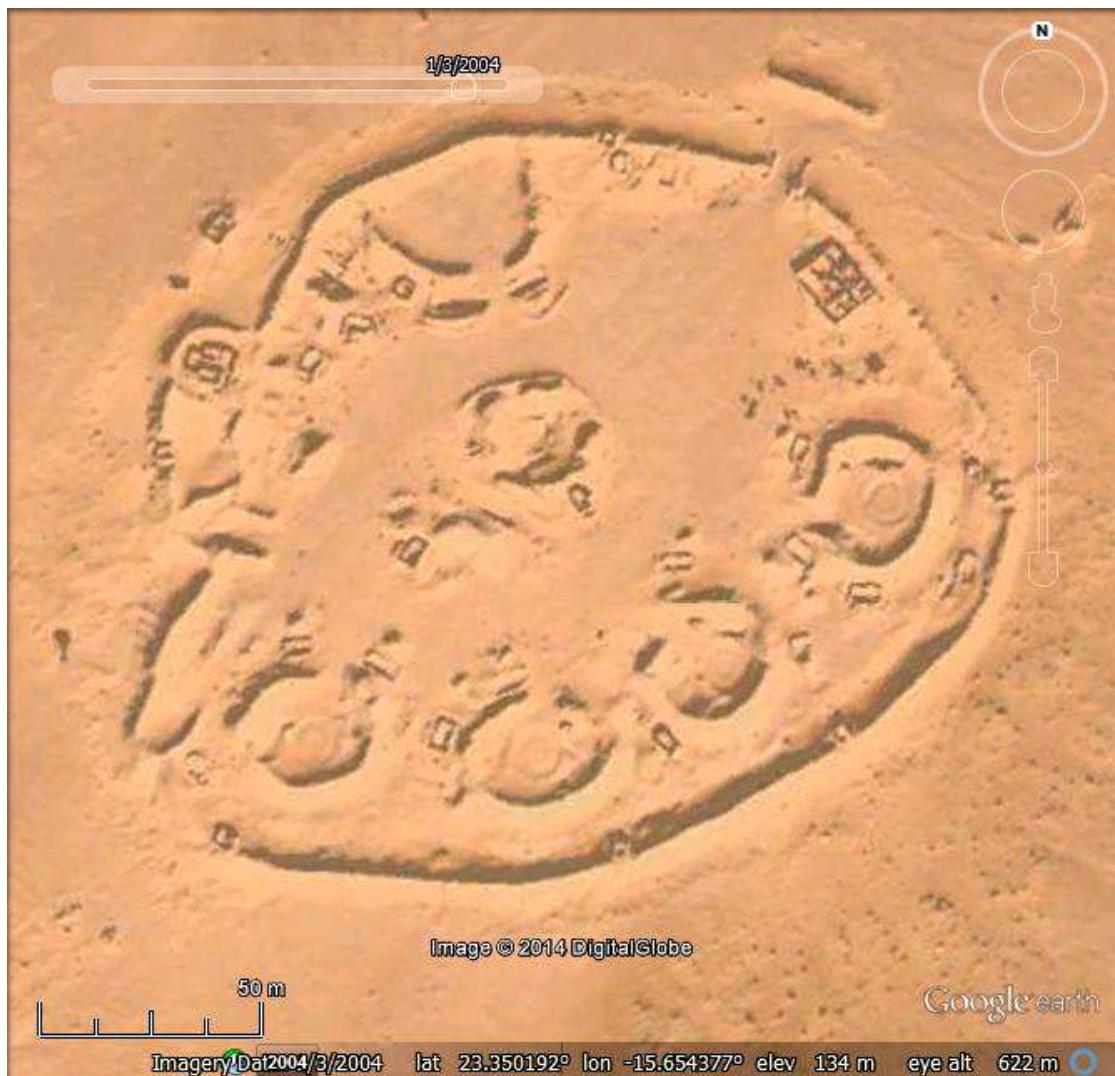
Fig. 4.70: Google Earth image of sub-circular fsb 1327 behind Berm No. 5 (located in rectangle 583 of Fig. 4.6). Though redundant, this is a fine example of a fire support base with five gun pits, perimeter fighting or observation positions, and clearly visible internal buildings. The scale bar in the lower left indicates 50 metres. Image date 3/1/04, DigitalGlobe.

Fig. 4.71: Google Earth image of an irregular shaped fire support base (fsb 1257) behind Berm No. 4 (located within rectangle 952 of Fig. 4.6). This firebase is redundant, probably replaced by fsb 1255 (see Fig. 4.69). The scale bar in the lower left indicates 100 metres. Image date 3/3/08, DigitalGlobe.

Fig. 4.72: Google Earth image of a redundant, complex firebase (fsb 237) behind Berm No. 1 (located in rectangle 157 of Fig. 4.6). This installation has numerous gun pits and vehicular slots. The scale bar in the lower left indicates 50 metres. Image date 14/9/12, DigitalGlobe.

Fig. 4.73: Google Earth image of a firebase (fsb 703) for self propelled artillery, behind a redundant part of Berm No. 3 (located in rectangle 92 of Fig. 4.6). This firebase has been built behind a knoll along its east side. North is to the upper right. The scale bar in the lower left indicates 60 metres. Image date 8/2/06, DigitalGlobe.

Fig. 4.74: Google Earth image of an unenclosed firebase (fsb 682) behind Berm No. 3 (located in rectangle 92 of Fig. 4.6). It is situated between two knolls, one to the south and the other to the northwest. There are three clear gun pits, and additionally, fortifications on the southern knoll. The scale bar in the lower left indicates 100 metres. Image date 8/2/06, DigitalGlobe.
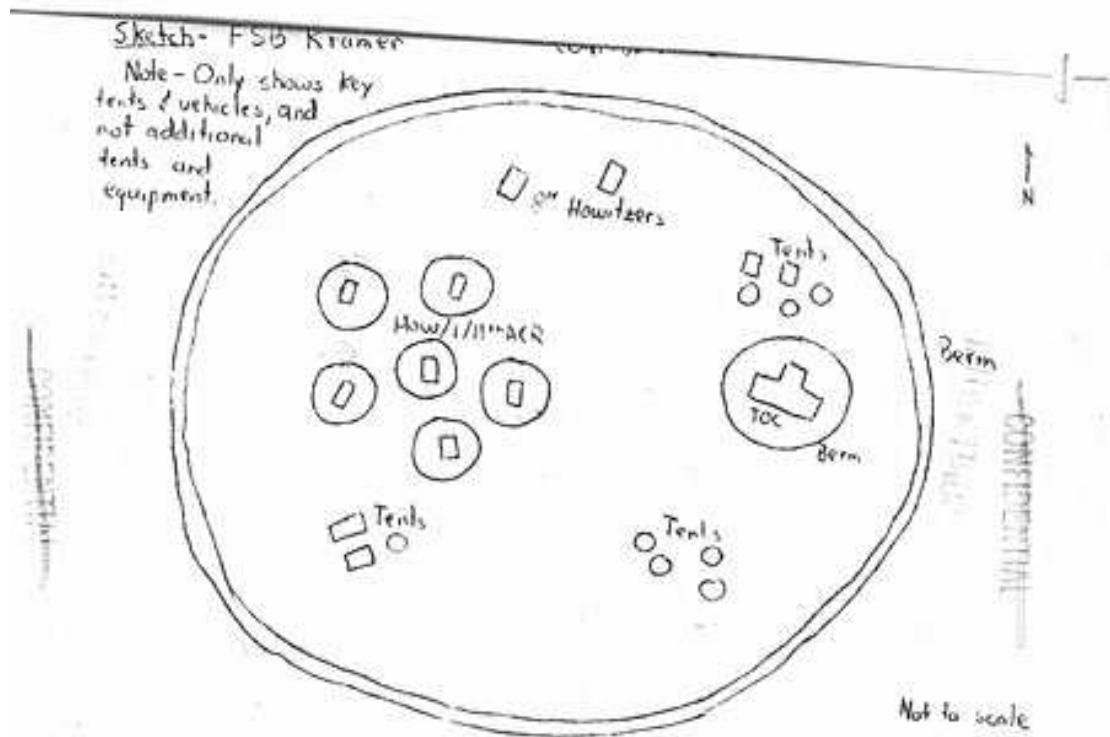
Fig. 4.75: This is a sketch of United States Army Fire Support Base Kramer in Vietnam. It shows the base perimeter; five artillery pieces in gun pits left of centre; the command centre, in its own protective berm (and labelled 'TOC'); tent positions; and howitzer positions. Image source: United States Army Heritage and Education Centre, from: http://www.carlisle.army.mil/ahec/AHM/AHT/Vietnam/Firebase.cfm accessed 19 February 2013.
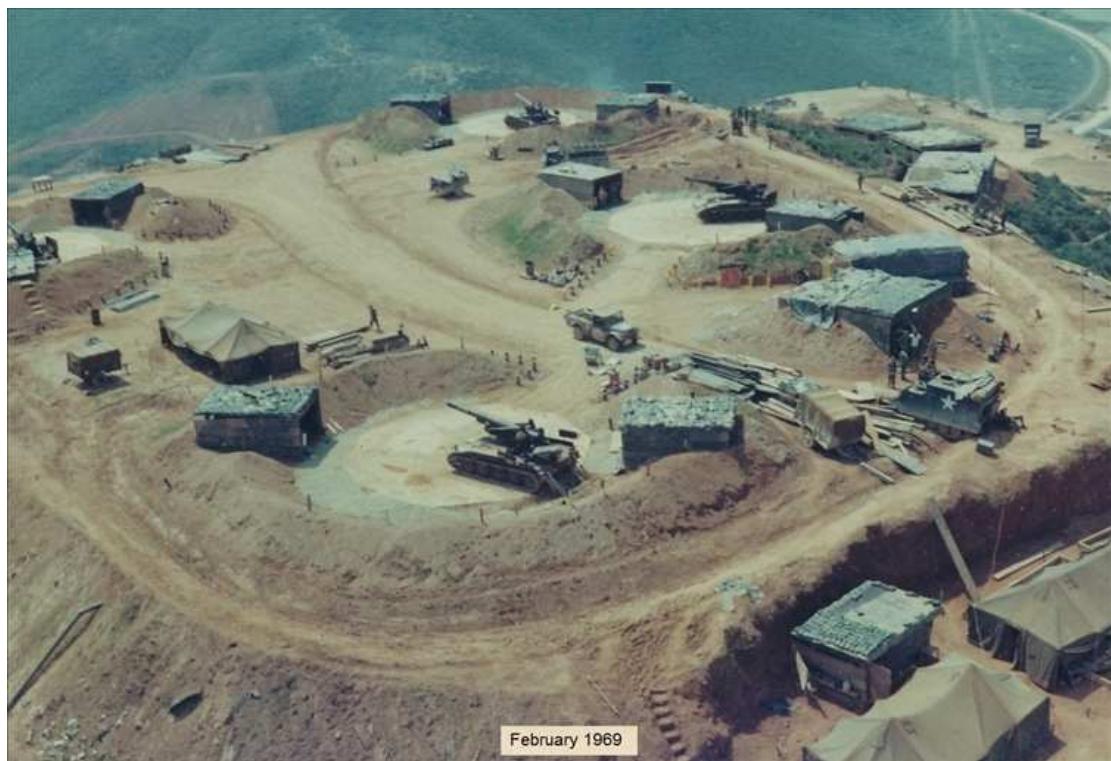
Fig. 4.76: Low level aerial photo of Fire Support Base Roy in Vietnam (dated February 1969). Image source: http://www.alphaavengers.com/PICS/fb-roy2.jpg and http://www.alphaavengers.com/firebases.htm accessed 19 February 2013.

Fig. 4.77: Unattributed and undated photograph of a Moroccan fire support base behind one of the berms. Image source: http://www.lasonet.com/sahara/sh-165.htm accessed 19 February 2013.
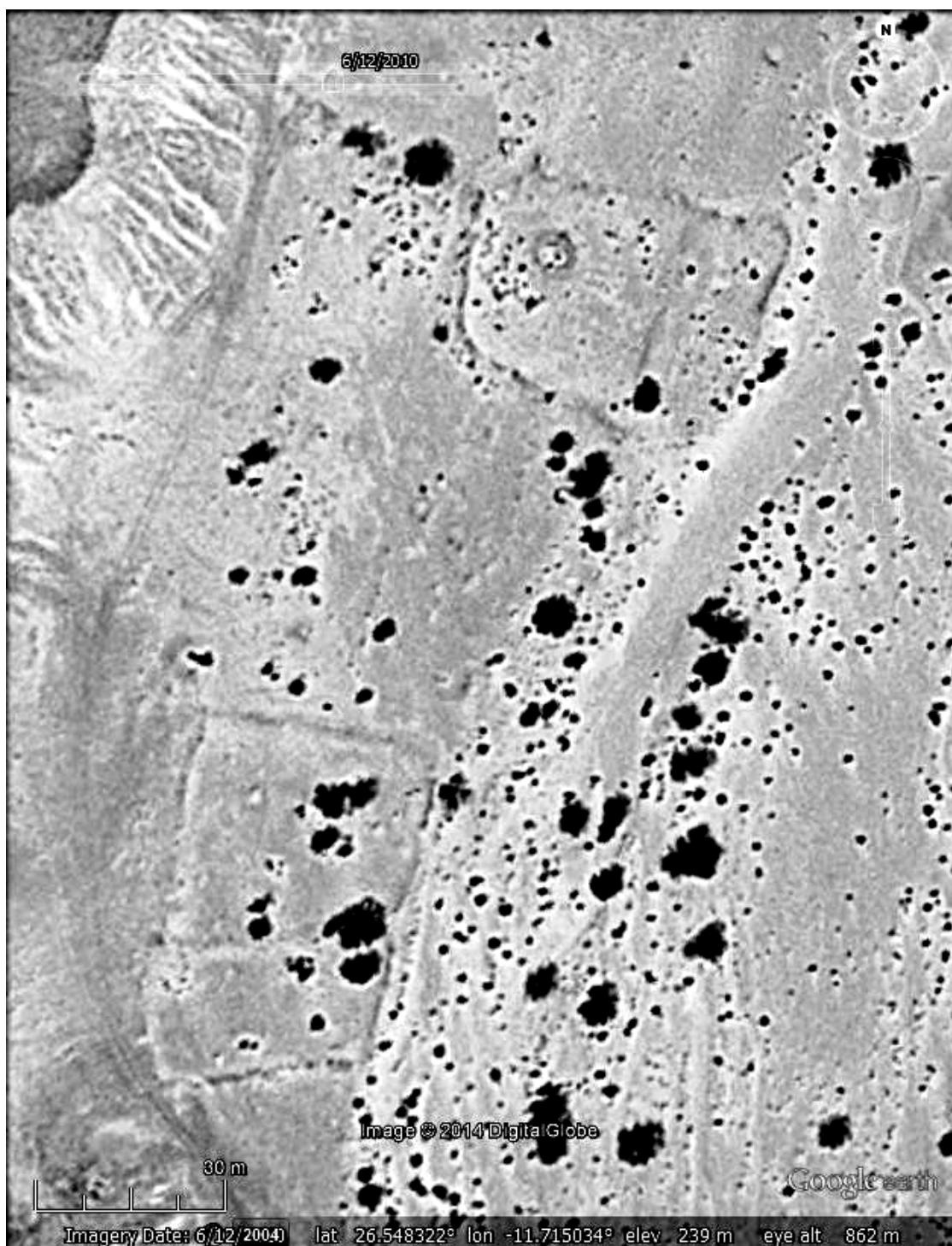
Fig. 4.78: A Google Earth image (in monochrome for clarity) of two compounds behind Berm No. 1. To the north is comp 256 with a possible gun) pit within it, while comp 257 is to the south, and made up of two parts (both are located in rectangle 157 of Fig. 4.6). The scale bar in the lower left indicates 30 metres. Image date 12/6/10, DigitalGlobe.
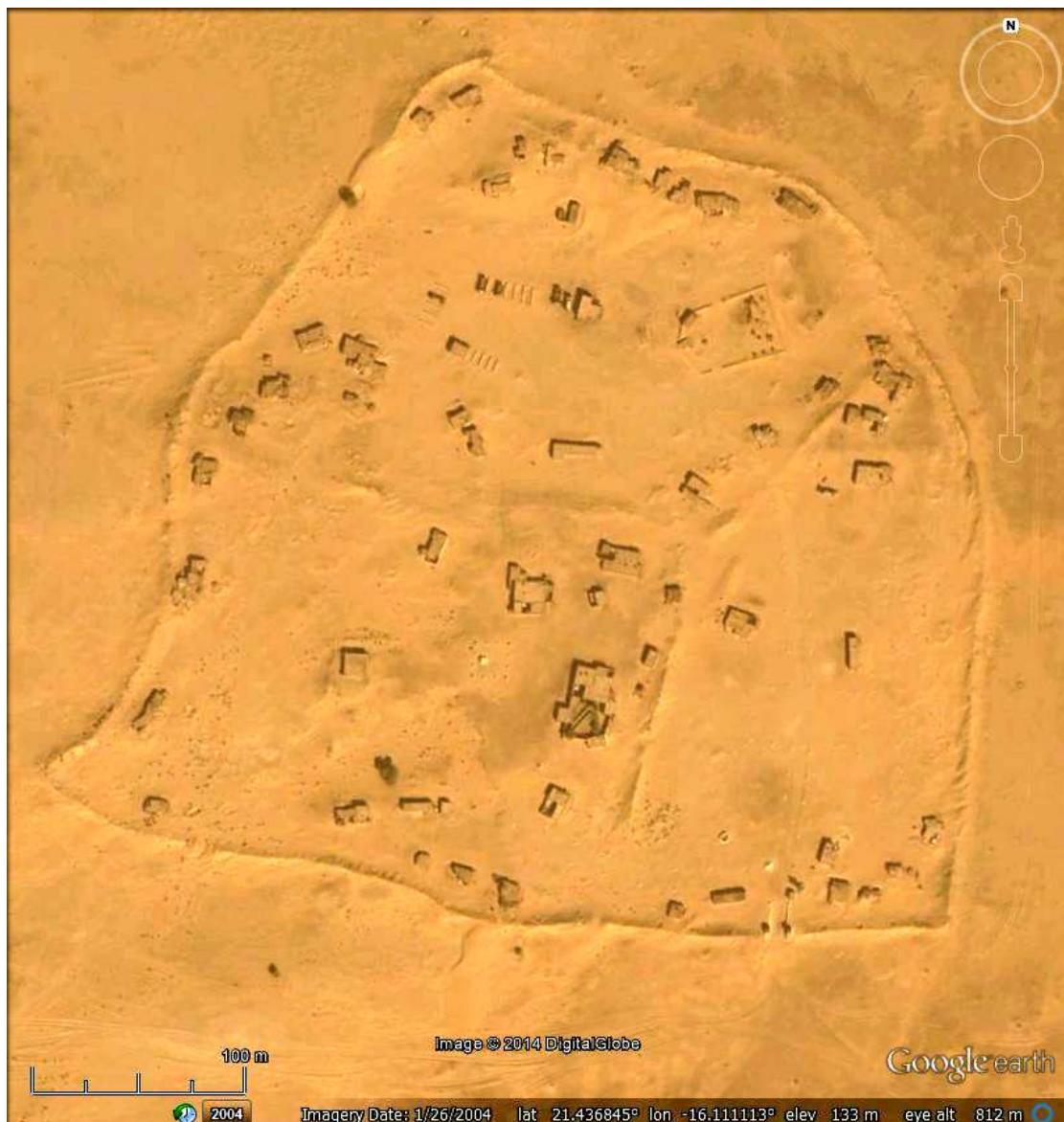
Fig. 4.79: A fort in the rear (rft 1674), behind Berm No. 6 (located to the north of rectangle 853 in Fig. 4.6). This is essentially a garrison position surrounded by a single earth embankment. There are no obvious defensive positions along the perimeter bank. The scale bar in the lower left indicates 100 metres. Image date 26/1/04, DigitalGlobe.
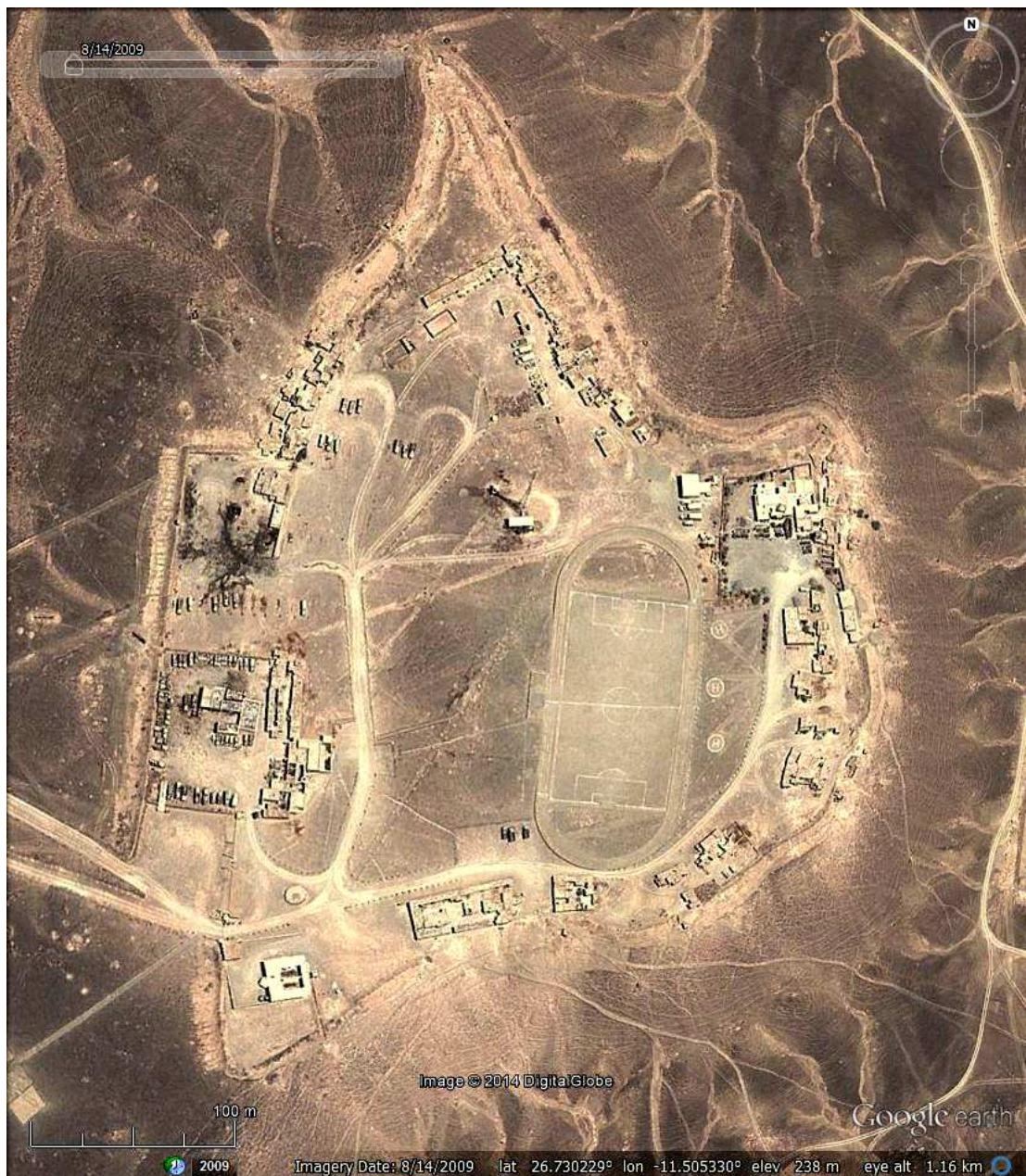
Fig. 4.80: A highly developed rear support fort (rft 282) on Berm No. 1, east of Smara (located in rectangle 124 of Fig. 4.6). This large base has a great variety of facilities including a sports field. It follows the contours of the high ground on which it is situated, with lower ground sloping downwards to the east. The scale bar in the lower left indicates 100 metres. Image date 14/8/09, DigitalGlobe.

Fig. 4.81: This rear support fort (rft 236) is around half a kilometre behind Berm No. 1 (located in rectangle 157 of Fig. 4.6). It is very similar to other polygonal forts situated on, and integral to the territorial berms. Although this installation is apparently redundant, it has still been maintained, as shown by the clear bulldozer tracks. The scale bar in the lower left indicates 50 metres. Image date 14/9/12, DigitalGlobe.
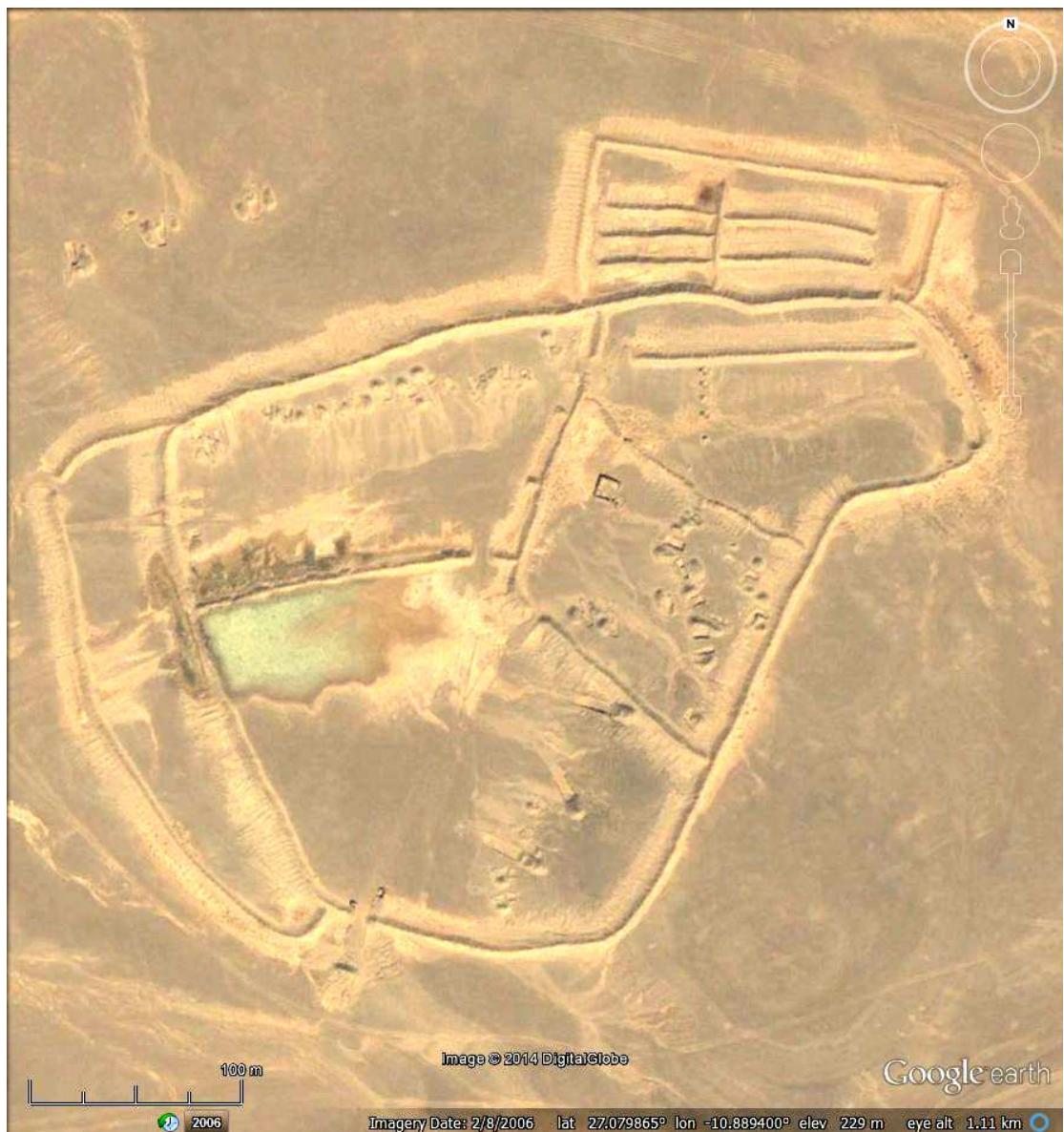
Fig. 4.82: Google Earth image of a fort in the rear behind Berm No. 3 (rft 706). It is irregular in shape, though also complex, and in its southern part there are three possible positions for self-propelled artillery. This installation is located in rectangle 92 of Fig. 4.6. The scale bar in the lower left indicates 100 metres. Image date 8/2/06, DigitalGlobe.
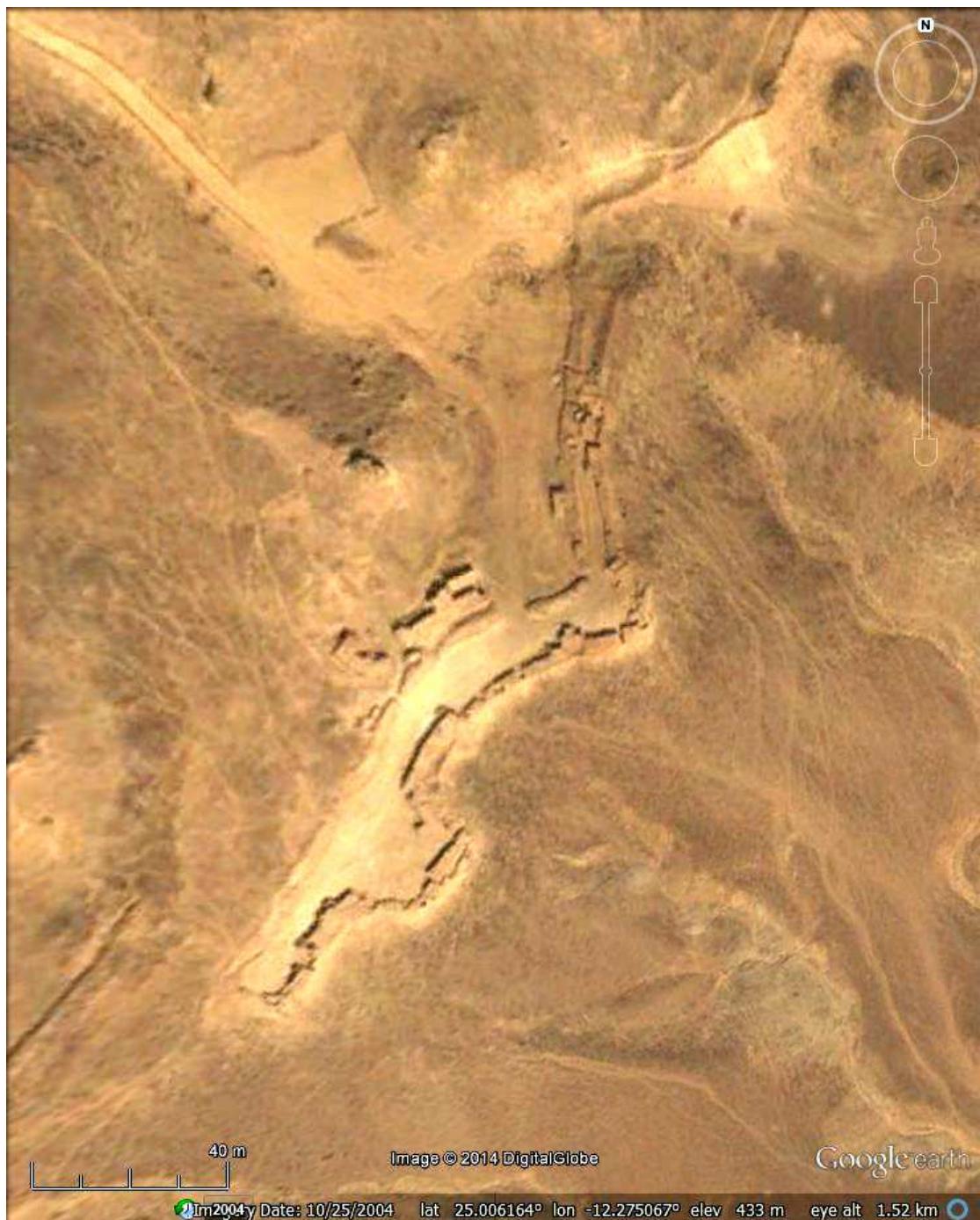
Fig. 4.83: Rear support forts are commonly found on hill top ridges in the Guelta Zemmour region of Western Sahara. This Google Earth image shows rft 1588, strung out on a ridge at around one kilometre behind Berm No. 5 (located in rectangle 359 of Fig. 4.6). The scale bar in the lower left indicates 40 metres. Image date 25/10/04, DigitalGlobe.

Fig. 4.84: Unattributed and undated photograph of a Moroccan installation, presumably located behind one of the berms and situated on a hill top ridge. A defensive trench or parapet is just visible along the far edge of the closely placed buildings and bunkers making up the post. Image source: http://www.lasonet.com/sahara/sh-164.htm accessed 19 February 2013.

Fig. 4.85: Google Earth image (in monochrome for clarity) of garrison gar 1112 behind Berm No. 4 (located in rectangle 100 of Fig. 4.6). North is to the bottom of the image, and the marked out rectangle represents the approximate coverage of view in Fig. 4.86. Image date 4/9/07, DigitalGlobe.

Fig. 4.86: Unattributed photograph of an unfortified army camp (or garrison) behind the Moroccan berms. Upon examination, it turns out that this is part of gar 1112 behind Berm No. 4. The coverage of this view (south is to the top of the photo) is outlined in the rectangle in the lower left of Fig. 4.85. Image source: http://www.lasonet.com/sahara/sh-165.htm, accessed 19 February 2013.
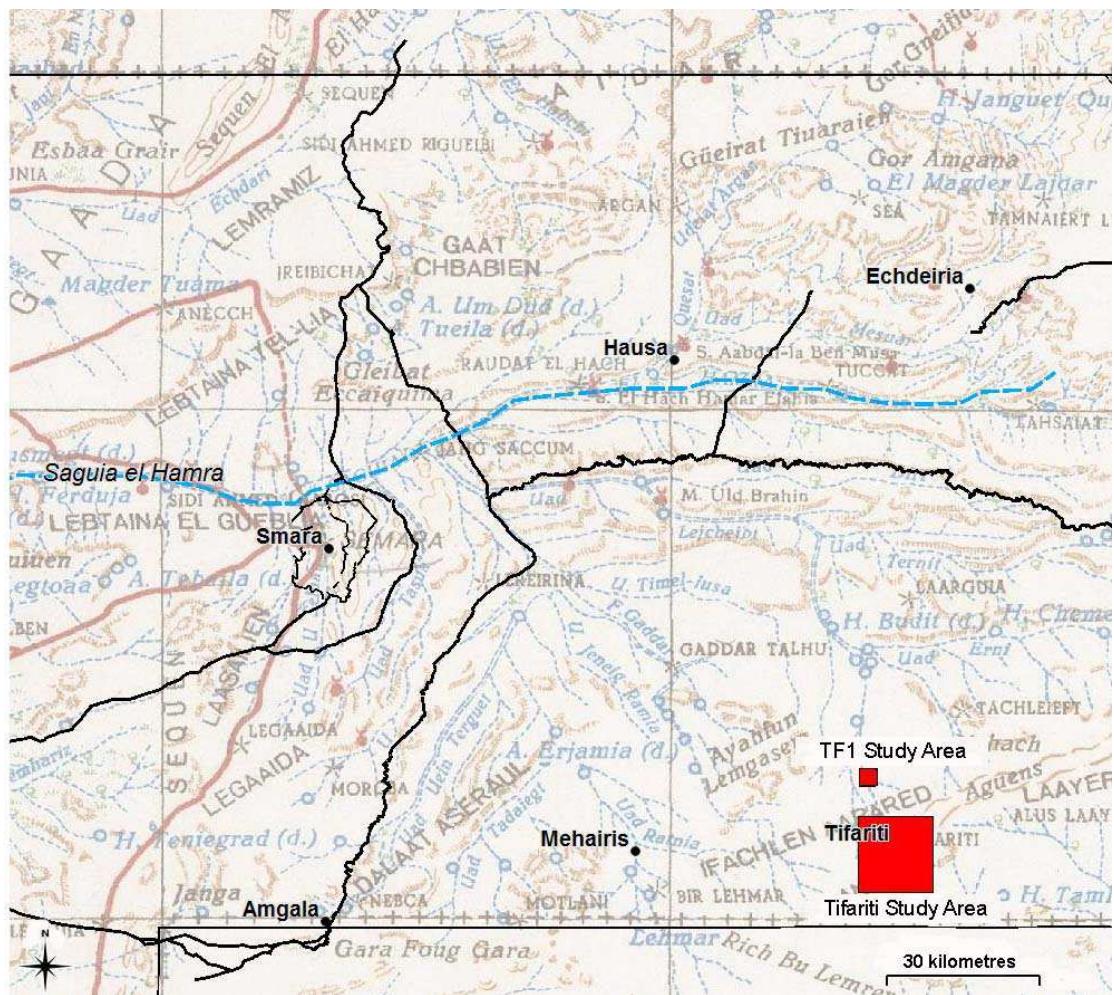
Fig. 6.1: This map shows the location of the TF1 study area of the Western Sahara Project (WSP), north of the larger Tifariti Study Area (2011), which is the subject of Chapters 6 and 7.
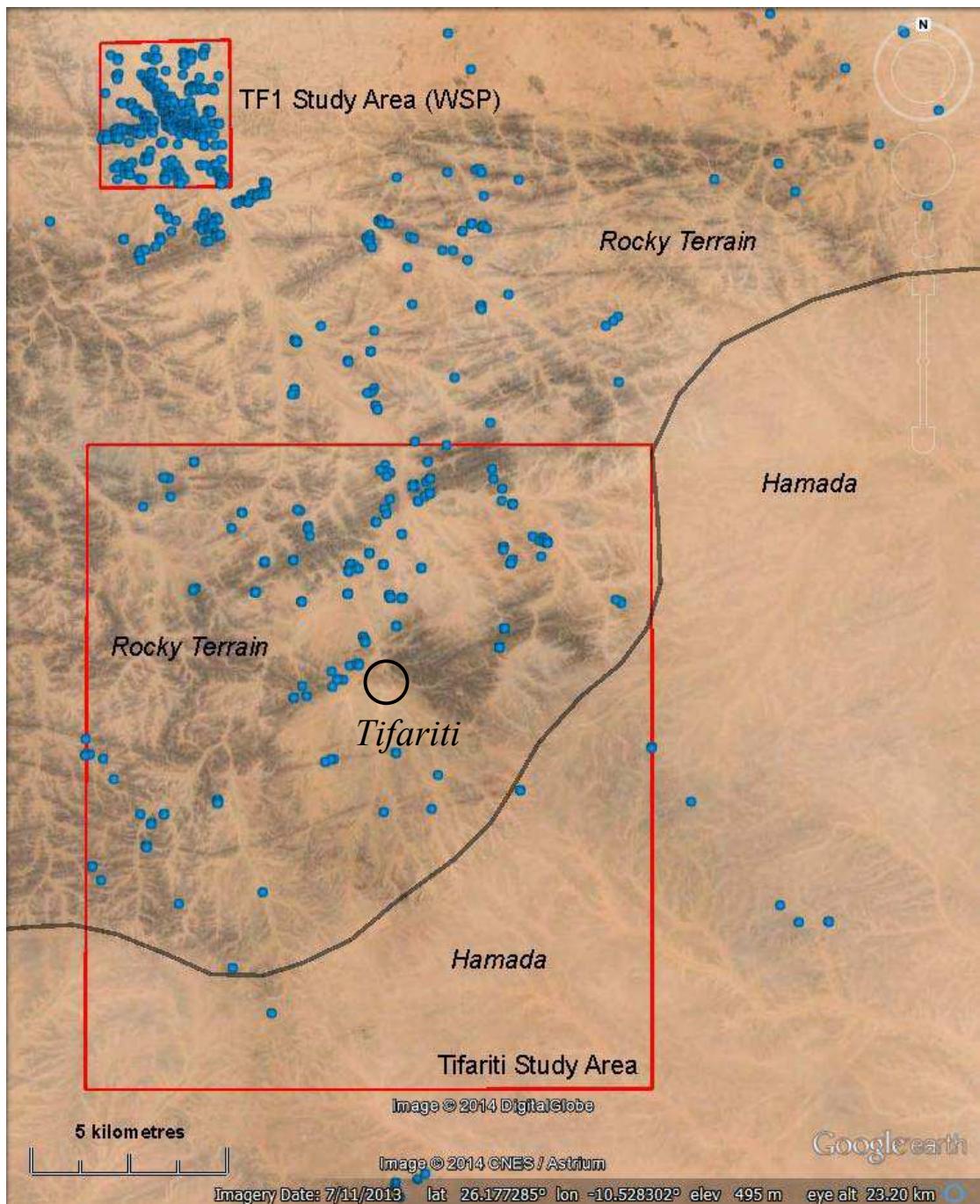
Fig. 6.2: Distribution map of funerary archaeology from the WSP TF1 Study Area (shown in the upper left) to Tifariti. The density of blue dots in the TF1 area indicates that it has been intensely surveyed on the ground. Further ground based survey has also taken place just south of the study area, while the blue dots to the south and east have mainly been plotted from Google Earth. The dots within the larger Tifariti Study Area have been plotted from limited ground survey (in 2011) and Google Earth. The dark grey line represents the approximate boundary between rocky, undulating ground to the north, and flat, *hamada* desert to the south.

Fig. 6.3: Photograph showing the vegetation in the Wadi Tifariti. This image was taken in the TF1 Study Area of the WSP.
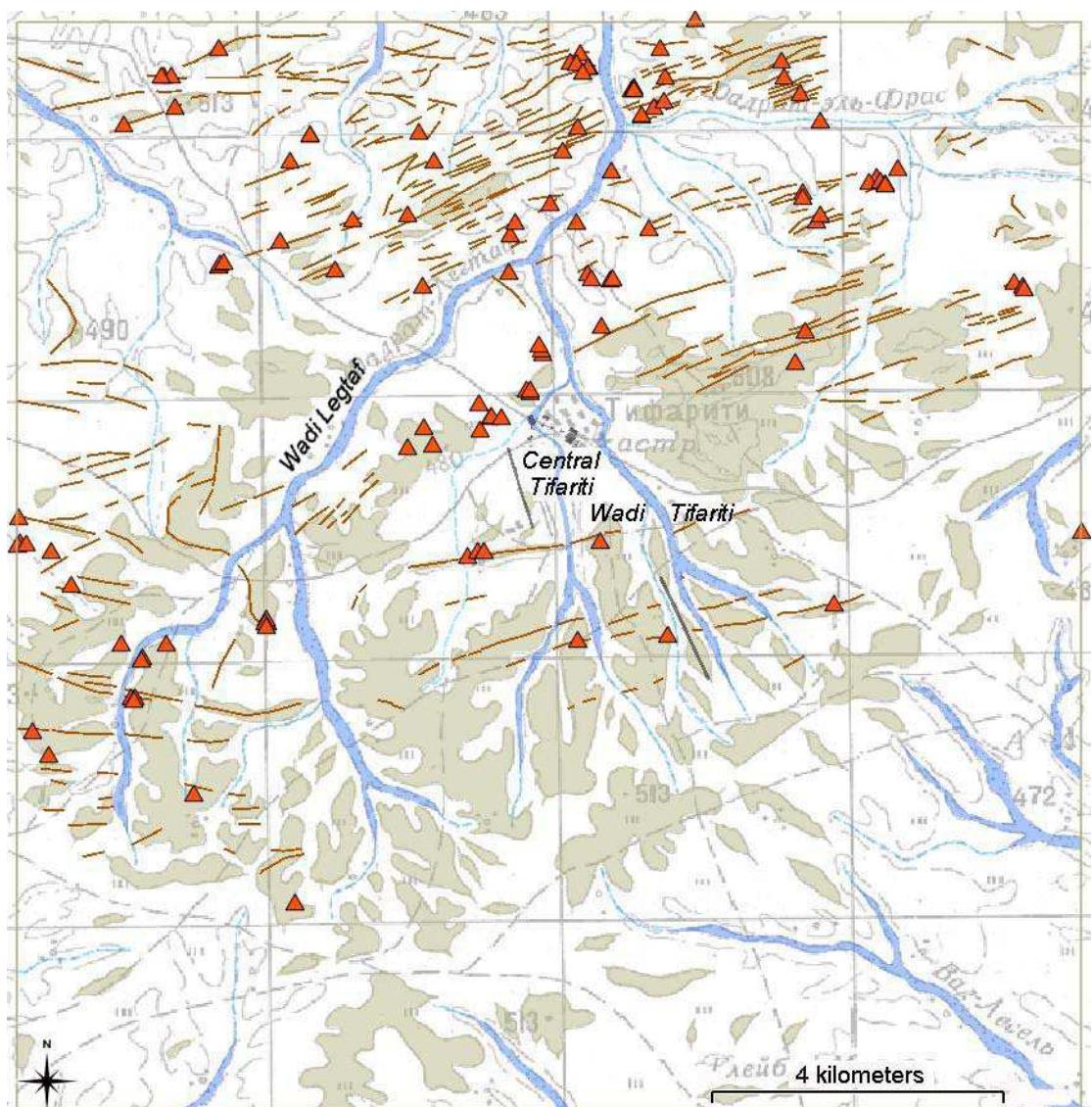
Fig. 6.4: Distribution of prehistoric remains in the Tifariti Study Area. Key: red triangles = burial monuments; blue = wadi drainage; grey-green = land at 480 metres and over; brown lines = igneous rock intrusions. The distribution of monuments has been based on fieldwork in 2011 and plottings from Google Earth. Background mapping is 1/200,000 Soviet era Russian mapping (available from http://mapstor.com/map-sets/country-maps/western-sahara.html).
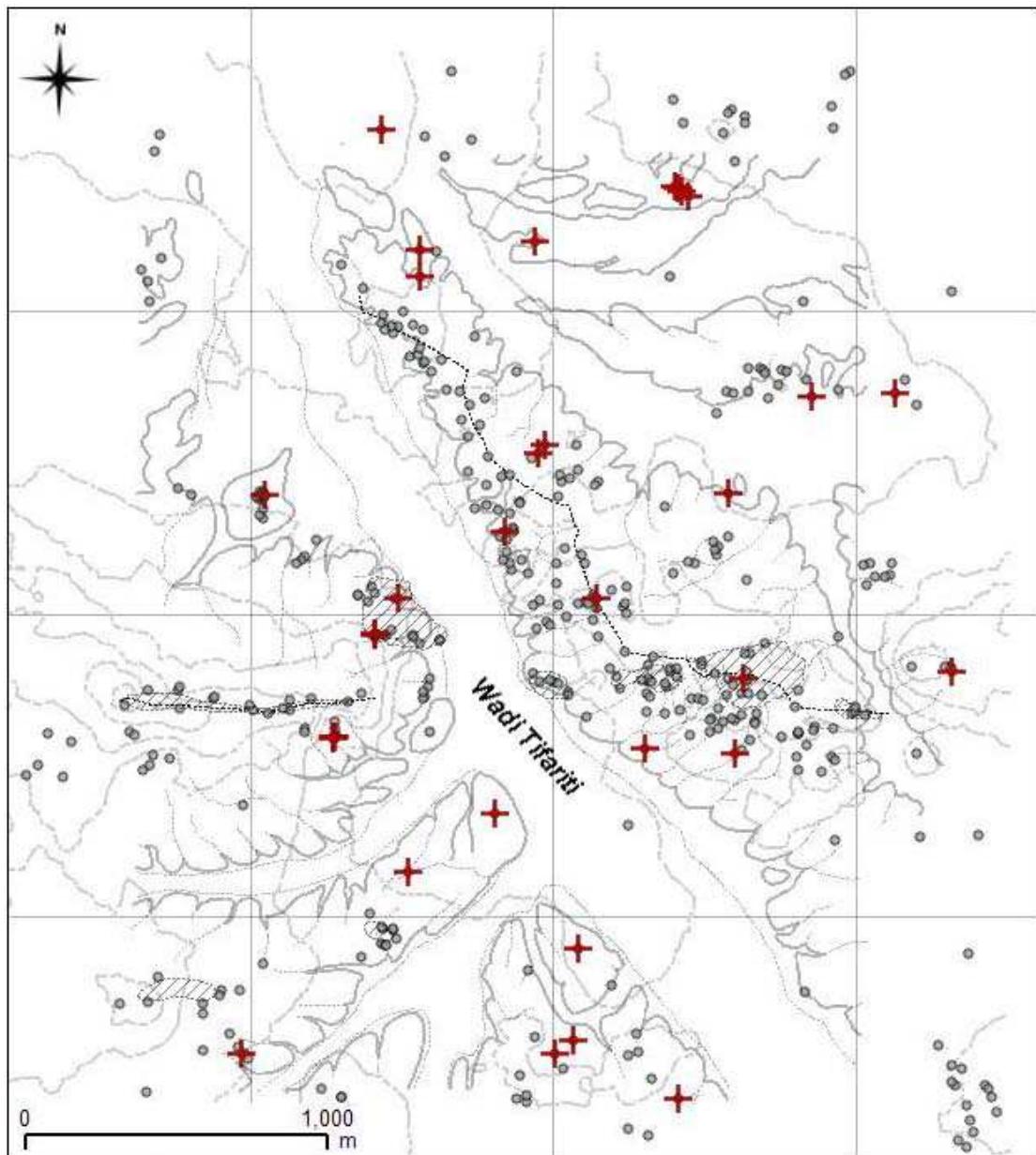
Fig. 6.5: The TF1 study area - showing the disposition of late, probably Islamic period burials, amidst earlier prehistoric funerary monuments. Key: red crosses = kerb (Islamic) burials; grey circles = prehistoric funerary remains; cross hatched areas = rocky outcrops.

Fig. 6.6: View of the impressive standing stones site, WS001 in the TF1 study area (looking north). The insert shows some of the eight Islamic period burials disposed along, and within, the western side of this prehistoric monument (looking northwest).
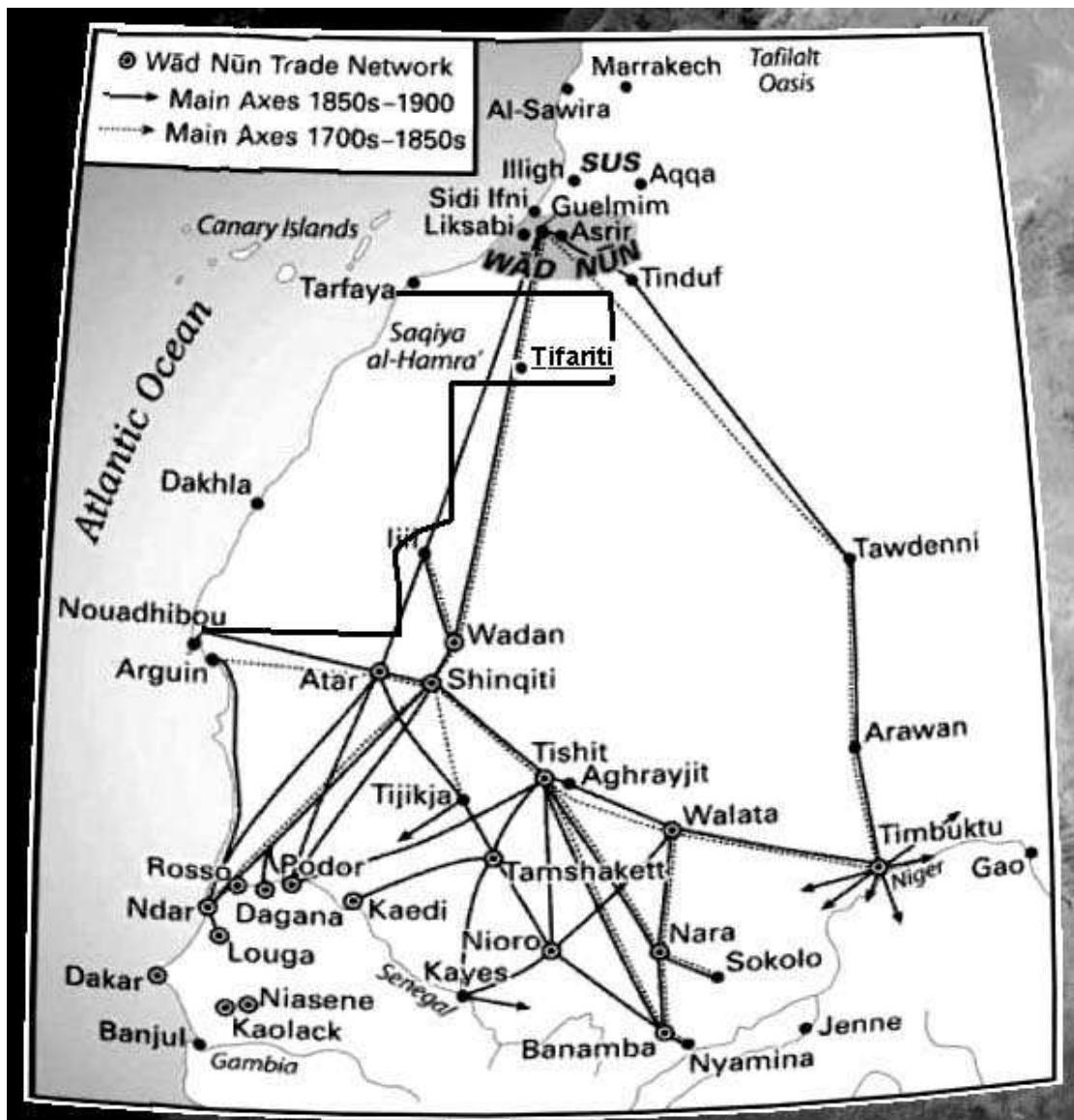
Fig. 6.7: Map of caravan routes from 1700 to 1900 in the western Sahara. Though highly schematic, this map shows a corridor of routes passing through the greater Tifariti region. It is also possible that these routes reflect trails that antedate the 18th century by many centuries. Image source: map from Lydon 2009, p. xxvii, and georeferenced over Google Earth.
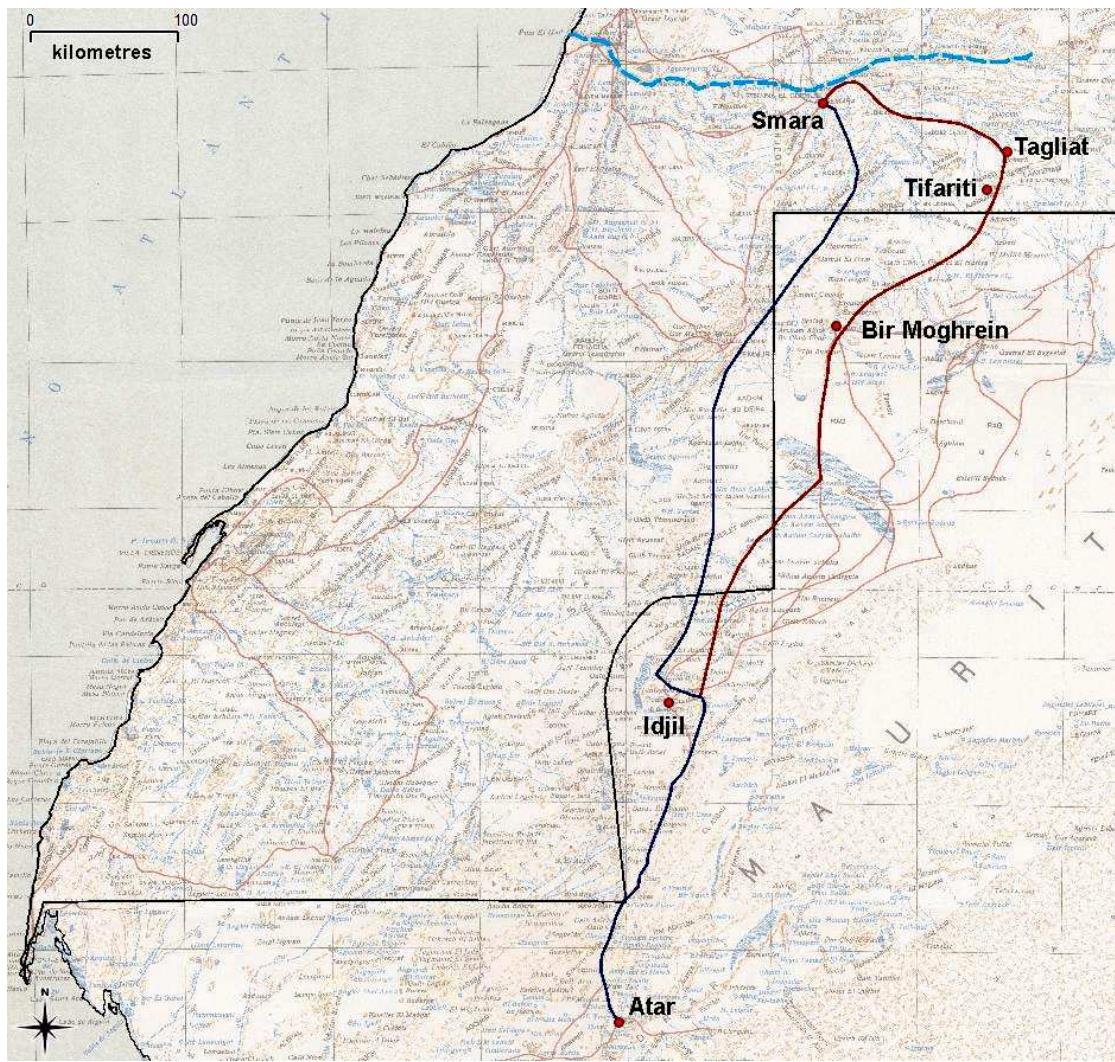
Fig. 6.8: Map showing the route taken by Lt. Col. Mouret, from Atar in the Adrar, in his raid on Smara in 1913. The outward journey is shown in blue with the return journey (though progressing all the way to Atar) shown in red. Tagliat is shown, representing the approximate location of the battle with a tribal force under Mohammed Laghdaf (along the Wadi Tagliat). As the map shows, the French troops would have passed within the Tifariti area on their return journey to Idjil, and then Atar. Source: based on Berthomé 1996, map on p. 144, but revised, taking the place name Tagliat into consideration.

Fig. 6.9: Plan of Spanish colonial Tifariti, 1964 to 1975. Key: 1 = fort; 2 = infirmary; 3 = external buildings near the fort; 4 = commandant's quarters; 5 = bake house; 6 = main water cistern; 7 = subsidiary cistern; 8 = rubbish dump; 9 = well site; 10 = 'colonia'; 11 = Islamic cemetery. Scale at lower left indicates 150 metres, image date 21/2/06, Digital Globe.

Fig. 6.10: Low level aerial image of colonial Tifariti, looking south. The numbers refer to the key in Fig. 6.8. Image source: http://www.hermandadtropasnomadas.com/displayimage.php?pos=-270 accessed 9 March 2013.

Fig. 6.11: Photograph of the fort at Tifariti taken in 2007. The view is similar to that in Fig. 3.11, but it clearly shows the damage sustained from the 1991 Moroccan air attacks.
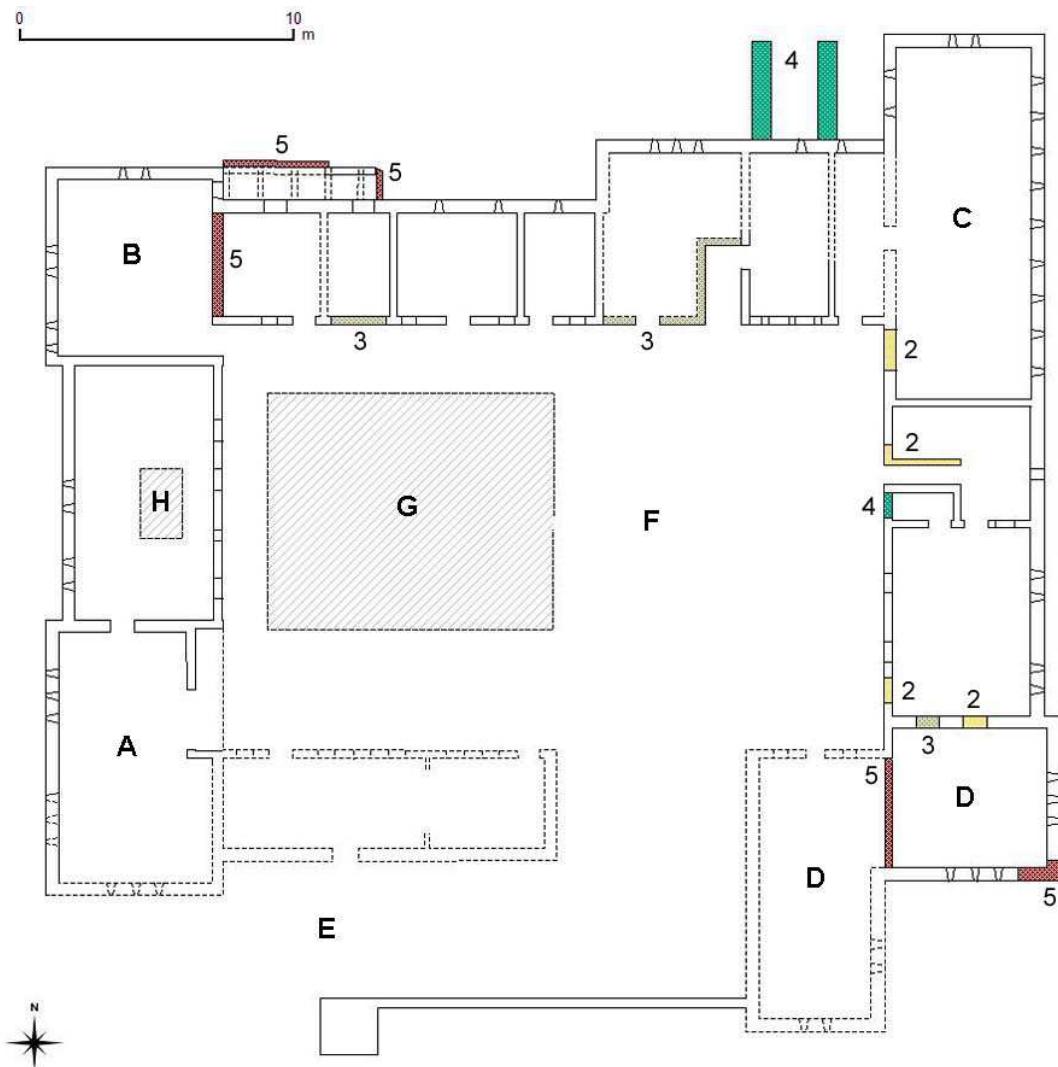
Fig. 6.12: Plan of the Spanish fort at Tifariti. Key: the black and white outline represents Phase 1 of the fort (dashed lines represent reconstructed wall outlines); 2 (yellow) = Phase 2; 3 (grey) = Phase 3; 4 (green) = Phase 4; 5(brown) = Phase 5; A = SW corner blockhouse; B = NW corner blockhouse; C = NE corner blockhouse; D = SE corner blockhouse; E = right angled entranceway; F = courtyard; G = location of menagerie; and H = location of dovecote on roof.

Fig. 6.13: Composite image of the east facing elevation of the fort at Tifariti (recorded in 2011). The southern dogleg in the fort's plan (see Fig. 6.12) was destroyed in the 1991 air attack, nevertheless, compare this elevation with the view of the contemporary fort at Hausa in Fig. 6.14.

Fig. 6.14: This photograph of the Spanish fort at Hausa was taken in January-February 1969. It shows what the east elevation of the fort at Tifariti (Fig. 6.13) would have looked like soon after its construction. Image source: http://www.sahara-mili.net/lugar/albumLugarMarcos.htm accessed 9 March 2013.

Fig. 6.15: Composite image of the west facing elevation of the fort at Tifariti (recorded in 2011), showing the damage sustained in the Moroccan air strikes of 1991. To see what this elevation must have looked like in an undamaged state, see Fig. 6.16, an image of the contemporary fort at Echdeiria.

Fig. 6.16: The fort at Echdeiria. As at Hausa, this fort was identical to the one at Tifariti, and this view shows the matching elevation to that shown in Fig. 6.15, before it was substantially damaged in the air attacks of 1991. The blockhouses at either end are clearly shown, as is the entrance to the right, where there is also a bar across it, as is similarly visible in Fig. 6.10. Image source: photograph taken in July 1974 by Adolfo Peña Herrero, available at: http://www.sahara-mili.net/person/albumPersonalMarcos.htm accessed 9 March 2013.

Fig. 6.17: View of the rear, north facing wall of the fort at Tifariti taken in 2007. For a view of what this side of the fort looked like in its original condition, compare it with Fig. 6.18.

Fig. 6.18: November 1974 view of the rear wall of the fort at Echdeiria, showing what the rear, northern wall of the fort at Tifariti would have looked like before it was damaged in 1991. Image source: photograph taken by Adolfo Peńa Herrero, available at: http://www.sahara-mili.net/person/albumPersonalMarcos.htm accessed 9 March 2013.

Fig. 6.19: South facing elevation along the north side of the central courtyard of the fort at Tifariti. Composite photograph taken in 2011.

Fig. 6.20: West facing elevation along the east side of the central courtyard of the fort at Tifariti. Composite photograph taken in 2011. The graffiti-like painting on both elevations was applied during one of the ARTifariti festivals held in Tifariti (2007-2010). See Chapter 7.

Fig. 6.21: East facing elevation along the west side of the central courtyard of the fort at Tifariti, photographed in 2011. This view almost matches that in Fig. 6.22. The graffiti-like painting on the building remains was applied during one of the ARTifariti festivals held in Tifariti (2007-2010). See Chapter 7.
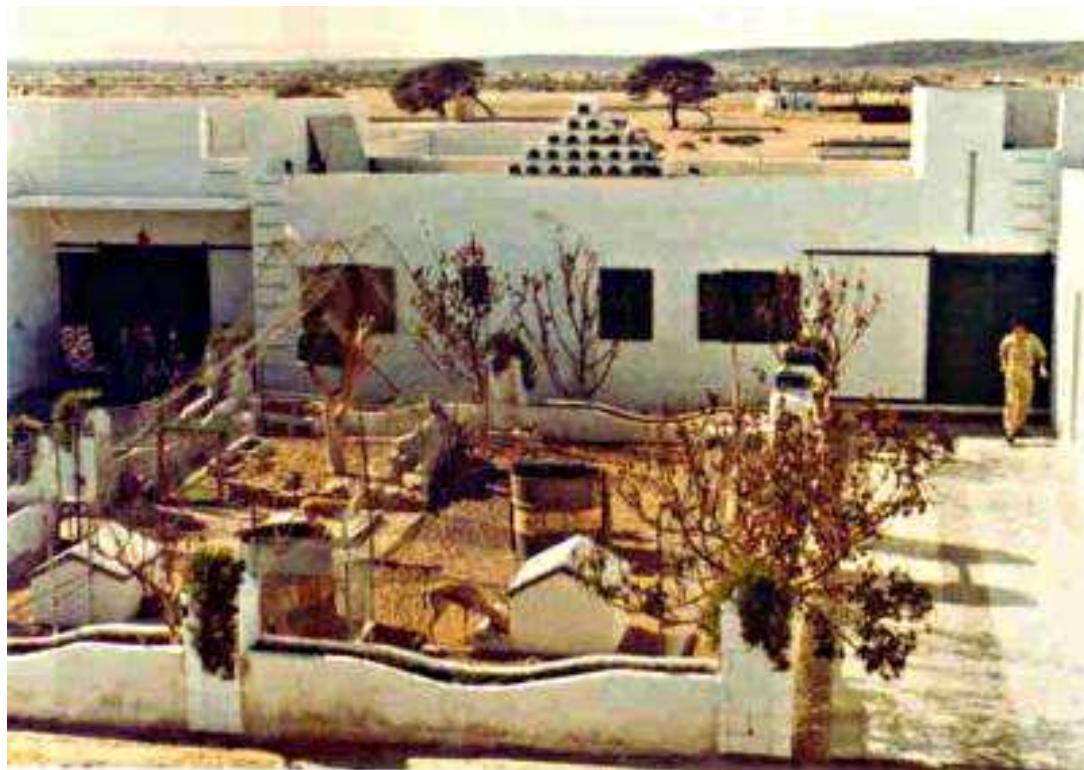
Fig. 6.22: This westward looking view is similar to that in Fig. 6.21. It shows the interior of the fort at Tifariti while it was garrisoned by Spanish troops. It also shows what can best be described as a 'managerie' in the courtyard of the fort. There is also a dovecote on the roof of the fort in the upper centre of the photograph. Image source: http://www.hermandadtropasnomadas.com/fotos/displayimage.php?pid=280&fullsize=1 accessed 9 April 2011.

Fig. 6.23: View of the gateway into the 1940s fort at Tichla. Its construction is apparently of stone with a rough render. This is in contrast to the smooth, cast concrete construction of the fort at Tifariti. Image source: photograph taken in 1971 by Juan Piqueras, available at: http://www.sahara-mili.net/lugar/albumLugarMarcos.htm accessed 9 March 2013.

Fig. 6.24: A 1970 photograph showing the central courtyard of the Spanish fort at Hausa, which was identical to the fort at Tifariti. A permanent awning with seating is visible in the background, and the soldier is standing in a courtyard with irregular paving slabs ('crazy paving'). Image source: photograph taken in 1970 by Manuel Cordero, available at http://www.sahara-mili.net/lugar/albumLugarMarcos.htm accessed 9 March 2013.
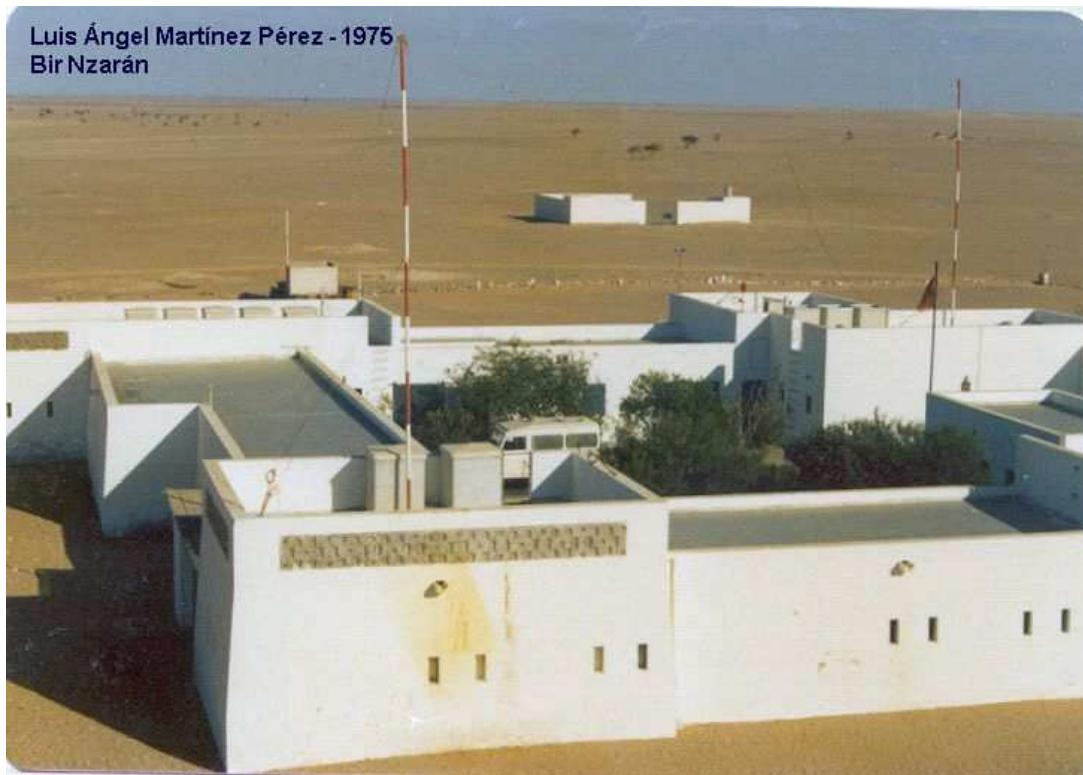
Fig. 6.25: This photograph shows how the interior courtyard of the fort at Bir Enzaren was filled with trees, undoubtedly giving the fort a cooler environment. Image source: photograph taken in 1975 by Luis Ángel Martinez Pérez, available at http://www.sahara-mili.net/lugar/albumLugarMarcos.htm accessed 9 March 2013.

Fig. 6.26: Low level aerial view of the Spanish post and fort at Bir Enzaren. The fort, which matches the fort at Tifariti is to the left, while to the right is the infirmary. Image source: http://www.amigosdeltercertercio.com/ifni/html/images/79.jpg accessed 11 March 2013.

Fig. 6.27: View of the Spanish post at Hausa, captioned 'View of the school, medical clinic and Territorial Police Headquarters in the northern town of Hausa'.[4] The medical clinic, or infirmary, is in the centre of the image. Image source: http://www.lasonet.com/sahara/sh-40.htm accessed 11 March 2013.

Fig. 6.28: View of the remains of the Spanish period infirmary in Tifariti (2011), looking southwest.

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[4] The original Spanish is: 'Vista de la escuela, el dispensario médico y la sede de la Policía Territorial de la localidad norteña de Hausa'.

Fig. 6.29: View of the Spanish period infirmary in Tifariti (2011), looking northwest. The graffiti-like painting on the building was applied during one of the ARTifariti festivals held in Tifariti (2007-2010). See Chapter 7.

Fig. 6.30: View (looking northeast) of Spanish post commander's accommodation/office at Tifariti. There is the trailer from an articulated lorry to the left of the building.

Fig. 6.31: View (looking west) of the bake house behind the fort at Tifariti. The oven is to the left. A doorway has been blocked, and the impressions of wall tiles can be seen on the internal wall, visible to the right.

Fig. 6.32: View, to the south, showing the concrete posts that supported the gravity fed pipe that provided water to the Tifariti Fort. The Bake House is also visible in front of the fort. Its northwest, channelled extension (possibly a flue) is visible with ashy ground adjacent.

Fig. 6.33: View, looking south, of the posts that carried a water pipe to the subsidiary cistern that served the Commander's quarters. The area of ground reflecting sun light in the right of the photograph is a part of the Spanish garrison rubbish dump.

Fig. 6.34: Looking west over a part of the Spanish garrison's rubbish dump.

Fig. 6.35: This might be the site of the earliest well in Tifariti. It is the site of the water source used during the Spanish occupation of the settlement, and it has obviously been dug and re-dug a number of times. It has probably been a main source of water until quite recently, but it appears to have been out of use by 2011.

Fig. 6.36: Google Earth view (in monochrome for clarity) of the remains of the *colonia* at Tifariti. There are six housing blocks north of the road, and four at the east end, south of the road. They are all neatly aligned. The remaining area to the west, and south of the track, consists mainly of the remains of mud brick buildings. The scale in the lower left indicates 50 metres. Image date, 11/7/13, CNES/Astrium.

Fig. 6.37: View of low cost housing in El Ayoun in the 1960s. These are examples of what the pre-fabricated housing in the *colonia* at Tifariti might have looked like. Image source: Norris 1964.

Fig. 6.38: View (looking to the south) of Moroccan soldier's graves in the Tifariti cemetery.

Fig. 6.39: A view looking southwest of local Saharawi graves in the Tifariti cemetary. They are surrounded by stone kerbs. Their head and footstones are large, and decorative quartz stones can be seen on graves in the centre of the photograph.

Fig. 6.40: A panorama of Mahbes, showing a large Bedouin encampment in the left half of the photograph; an identical fort to the one at Tifariti off centre to the right; ancillary post buildings beyond the fort; and an infirmary type building at the right hand edge of the photo, similar to the infirmary at Hausa. This image clearly shows the relationship between the different elements, Saharawi and Spanish, making up a Spanish period desert settlement. Image source: photograph taken by José Rodrigues Sosa in 1974, available at http://www.sahara-mili.net/images/jrdgzs/jrs001.jpg accessed 17 March 2013.

Fig. 6.41: View of a shallow 'skirmisher trench' or 'scrape'. This is a posed Polisario photograph with supposed woman combatants, but it illustrates the nature of quickly excavated, or scraped, single soldier fighting positions. Image source: SADR Military Museum, Rabuni, Algeria.
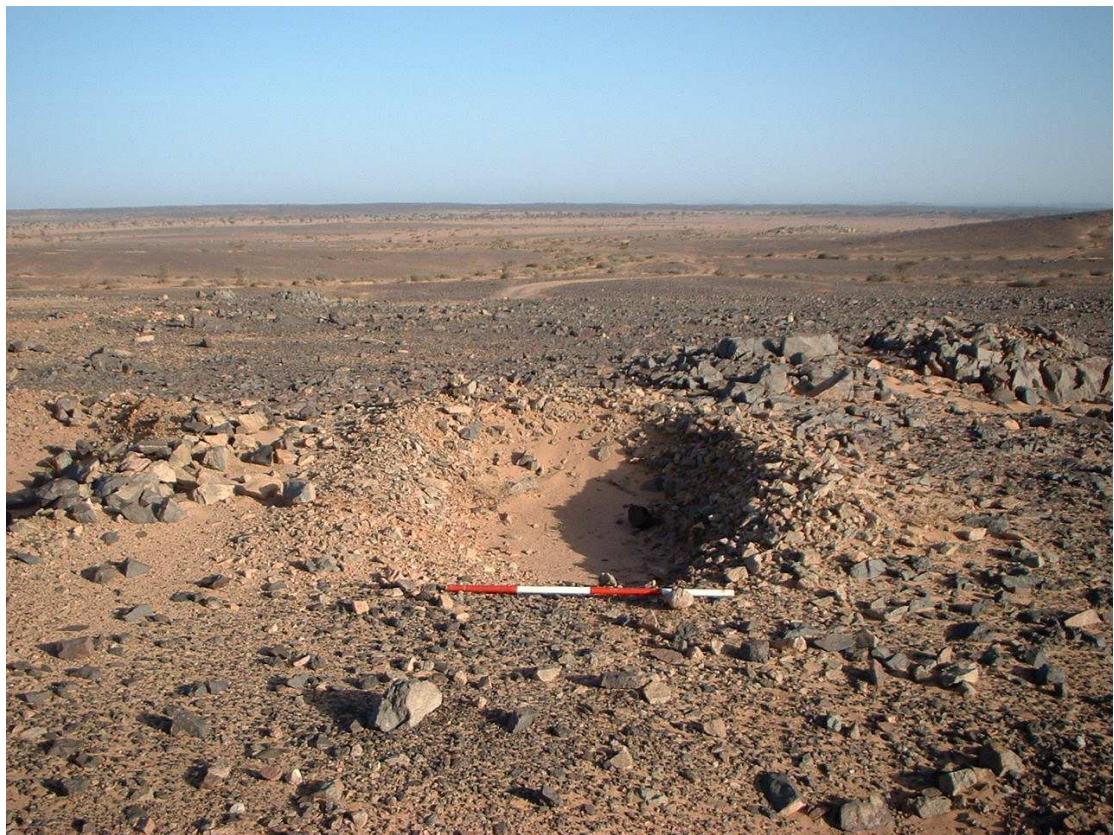
Fig. 6.42: Moroccan defences at Tifariti.View of single man foxhole, or slit trench.

Fig. 6.43: Moroccan defences at Tifariti.View of a large, or two-man foxhole, or slit trench. It has an additional, rubble stone divider between the two positions.

Fig. 6.44: Moroccan defences at Tifariti. Possible machine gun or heavy portable gun position fronted with boulder parapet.

Fig. 6.45: Moroccan defences at Tifariti. A stone parapetted, presumed, special purpose dug out. Perhaps a command or observation position.

Fig. 6.46: Moroccan defences at Tifariti. A probable mortar pit, with a smaller dugout fighting position to the left.

Fig. 6.47: A recent image of a mortar pit, freshly dug by U.S. soldiers. This was probably taken during a training exercise, nevertheless, this pit is not that different from the one shown in Fig. 6.46. Image source: http://www.ar15.com/forums/t_1_5/1545742__ARCHIVED_THREAD____Paratroopers.html&page=6 and http://imageshack.us/a/img401/334/l4d0.jpg accessed 4 February 2014.
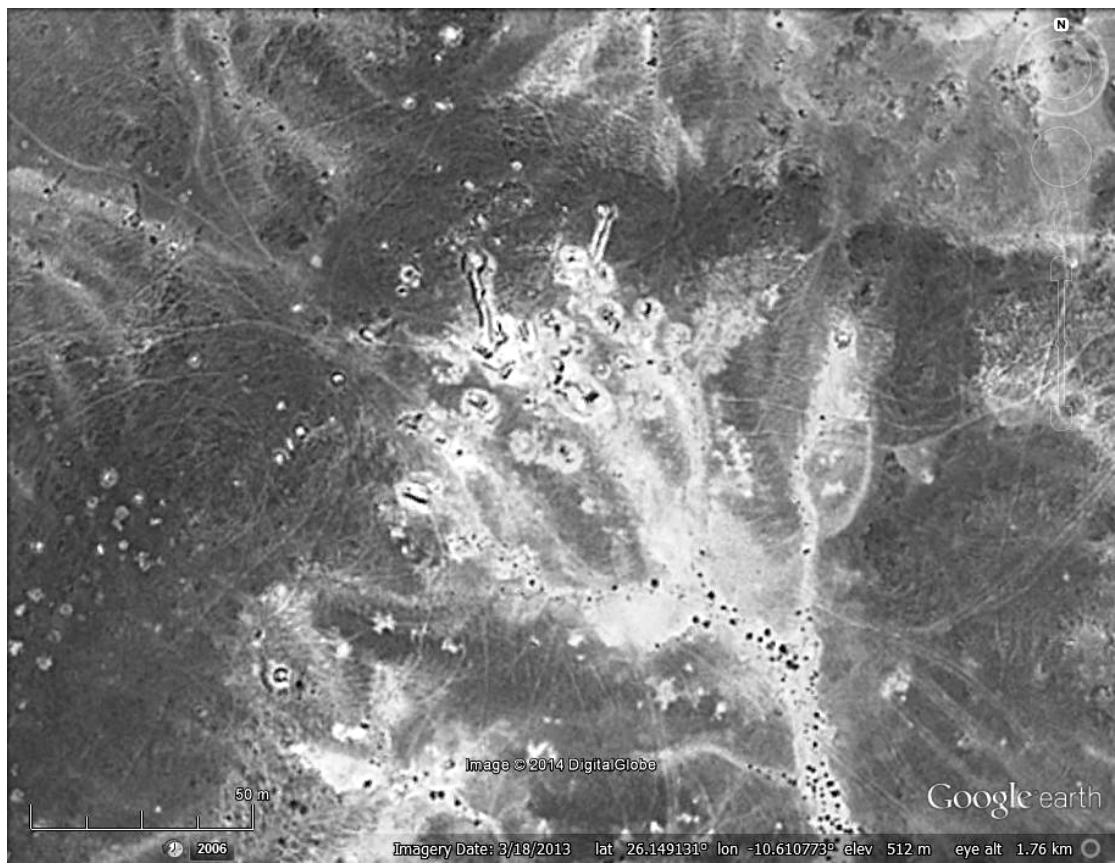
Fig. 6.48: Google Earth image (in monochrome for clarity) of Moroccan defensive positions along the western perimeter of the Tifariti box. Their aspect is to the northwest, and there are clear approach trenches, presumably to observation positions looking over the lower ground in the upper left of the image. Behind the trenches, there are further defensive dug out, and built up, positions. The scale in the lower left indicates 50 metres. Date of image: 18/3/13, DigitalGlobe.
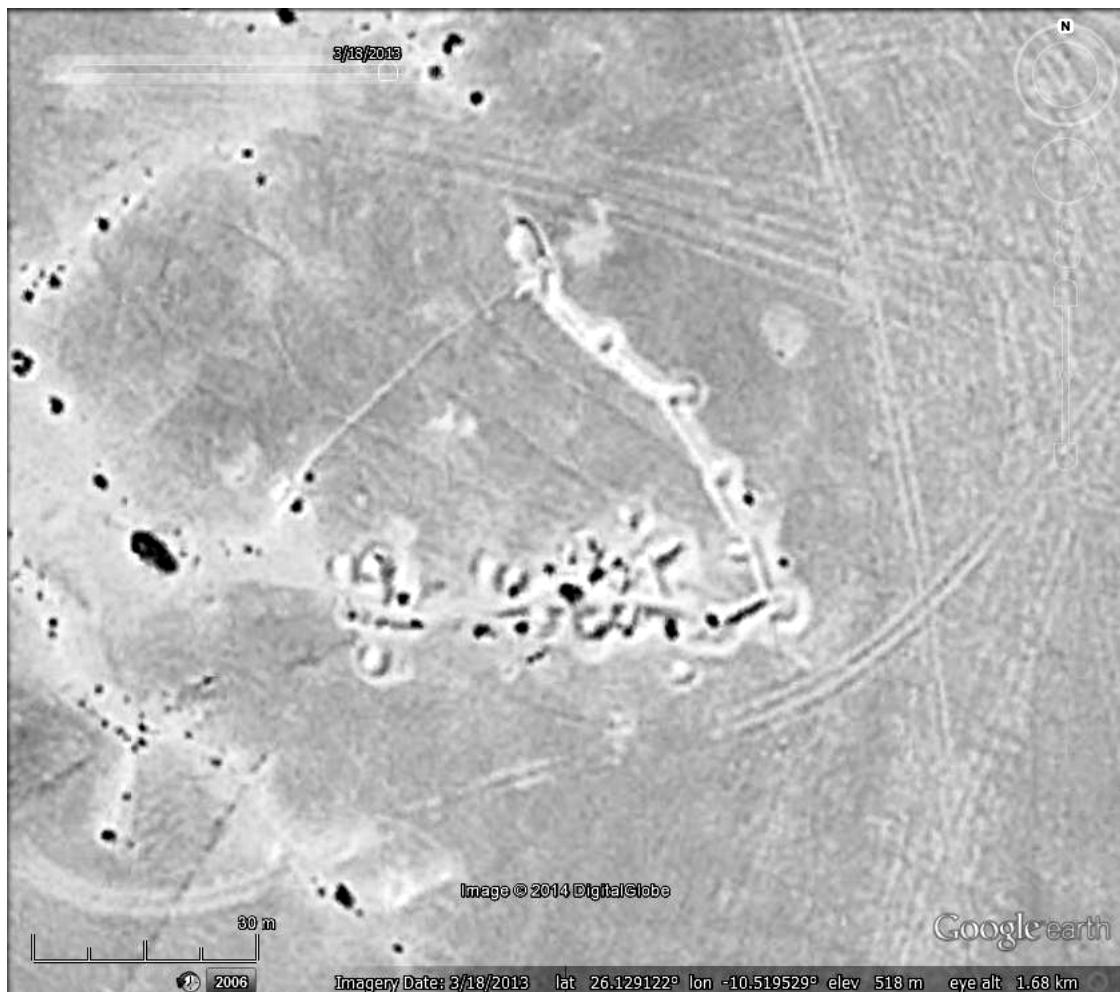
Fig. 6.49: Google Earth image (in monochrome for clarity) of dug out Moroccan fighting positions linked by trenches, located along the southern perimeter of the Tifariti box. The scale in the lower left indicates 30 metres. Date of image: 18/3/13, DigitalGlobe.

Fig. 6.50: Moroccan defences at Tifariti. View of a group of dug out fighting positions linked by a trench.

Fig. 6.51: View of Moroccan field housing at Tifariti. To the left and right of the metre scale, there are even stone *mastabas*, or benches: places where soldiers could sit outside and congregate.

Fig. 6.52: Moroccan Army field shelter at Tifariti. Just visible to the right of the metre scale is a window made out of a wooden box.

Fig. 6.53: Moroccan Army field shelter at Tifariti, with a tin can for a window just left of the metre scale.

Fig. 6.54: Moroccan Army field structure in the Wadi Tifariti at the TF1 study area. It is built mainly of mud bricks with, in this example, an internal cement render. The structure is surrounded by embanked earth, with an entry passage revetted with stones.

Fig. 6.55: Moroccan defences at Tifariti. View of a vehicular, or 'tank', slot in the Tifariti redoubt. Other similar slots are behind this one, and further behind are soldiers' bunker-like shelters.

Fig. 6.56: Moroccan defences at Tifariti. View of a vehicular slot in the Tifariti redoubt. This excavated and embanked feature is clearly revetted internally with boulders. Beyond it, going up the slope, are other dug out defensive structures.

Fig. 6.57: Moroccan defences at Tifariti. A Google Earth view of gun pits in a wadi within the Tifariti box. The pit in the centre, and the two smaller ones in the lower left, have nib-like extensions that represent crew or ammunition bunkers, or protective embankments. There are other dug out features clearly visible as well. The scale in the lower left indicates 30 metres. Date of image: 18/3/13, DigitalGlobe.
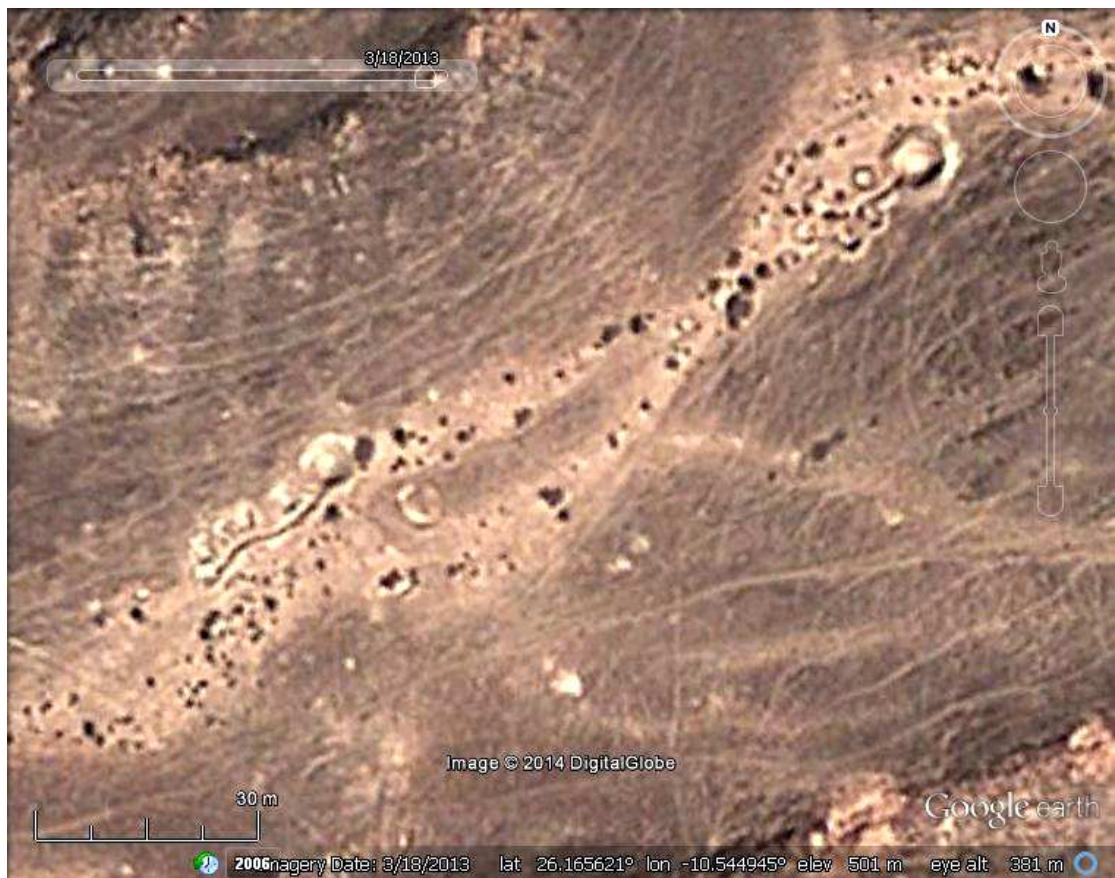
Fig. 6.58: Moroccan defences at Tifariti. Another Google Earth view of gun pits in a wadi within the Tifariti box. In these examples, which might be large mortar pits, there are long approach trenches with protective dugouts linked to them. The scale in the lower left indicates 30 metres. Date of image: 18/3/13, DigitalGlobe.
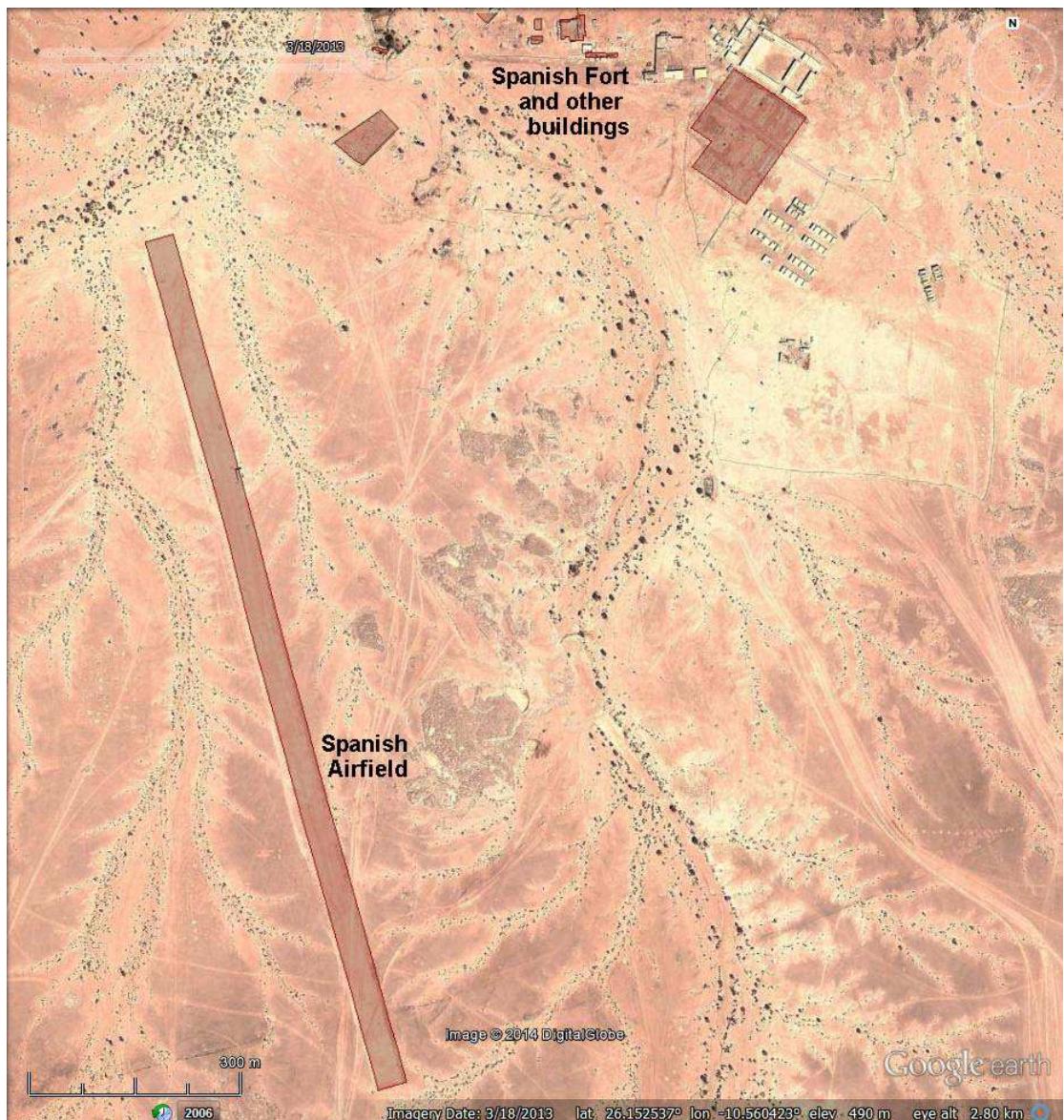
Fig. 6.59: Google Earth image showing the Spanish airstrip south-southwest of the old Tifariti Fort and colonial period buildings. The scale in the lower left indicates 300 metres. Date of image: 18/3/13, DigitalGlobe.
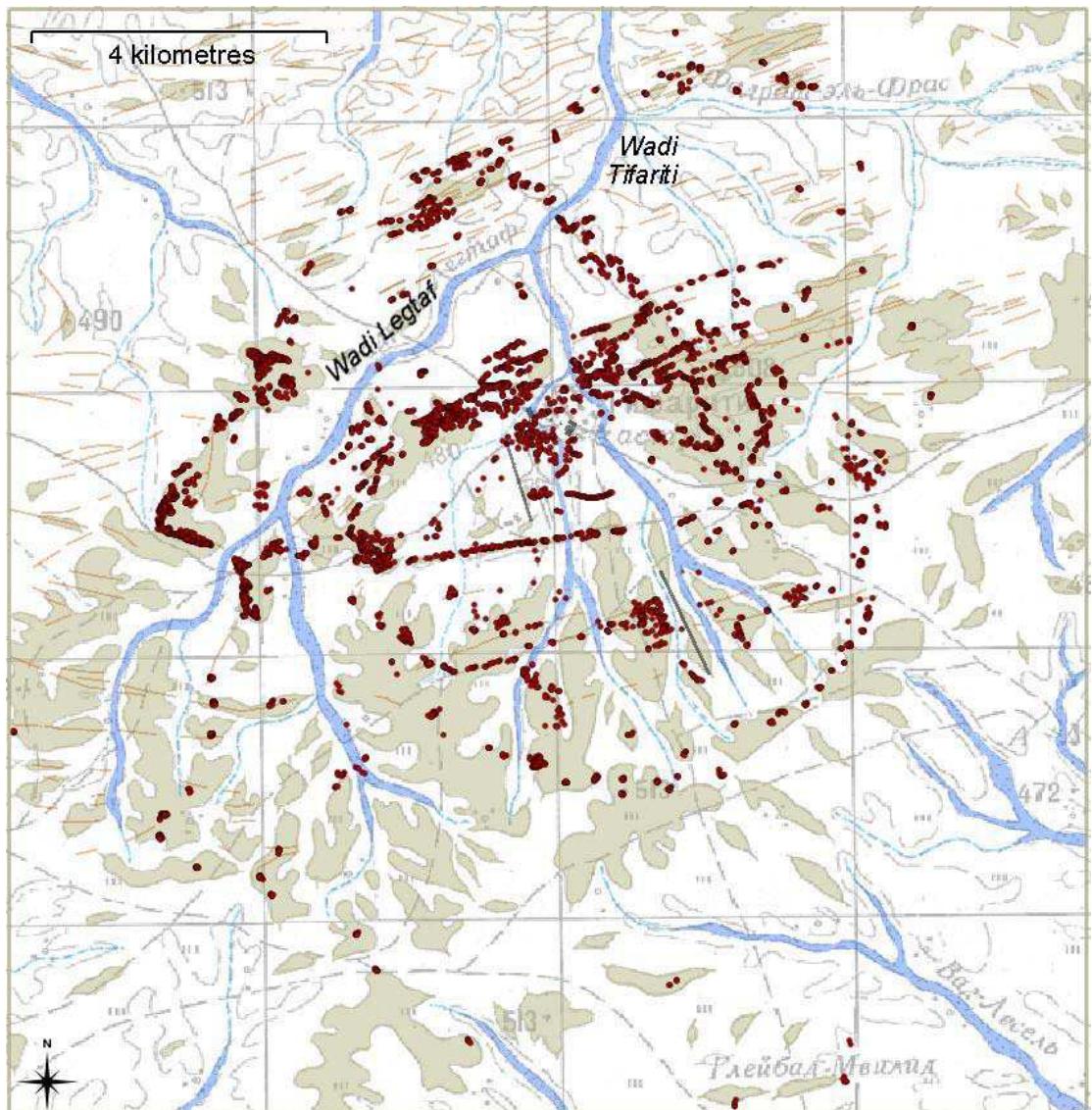
Fig. 6.60: Distribution of defensive features (red dots) around Tifariti. Also showing natural drainage and ground at 480 metres and above. In total, 7170 Moroccan defensive features have been plotted from Google Earth.
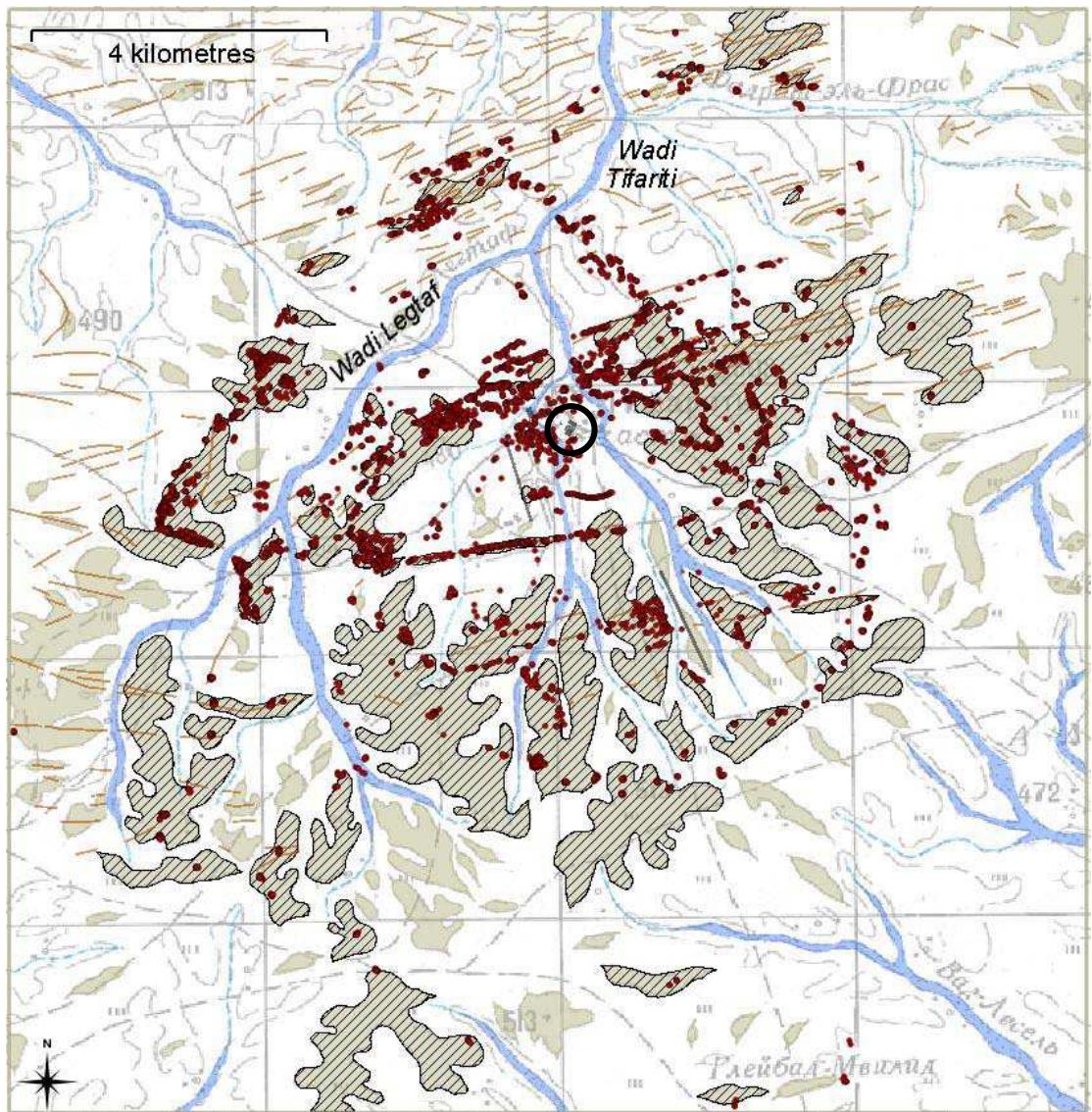
Fig. 6.61: Distribution of defensive features located over key terrain (highlighted and cross-hatched) around Tifariti (shown by a black circle). The map also shows the spread of ridges formed by igneous intrusions (light brown lines, mainly in the upper part of the map).

173
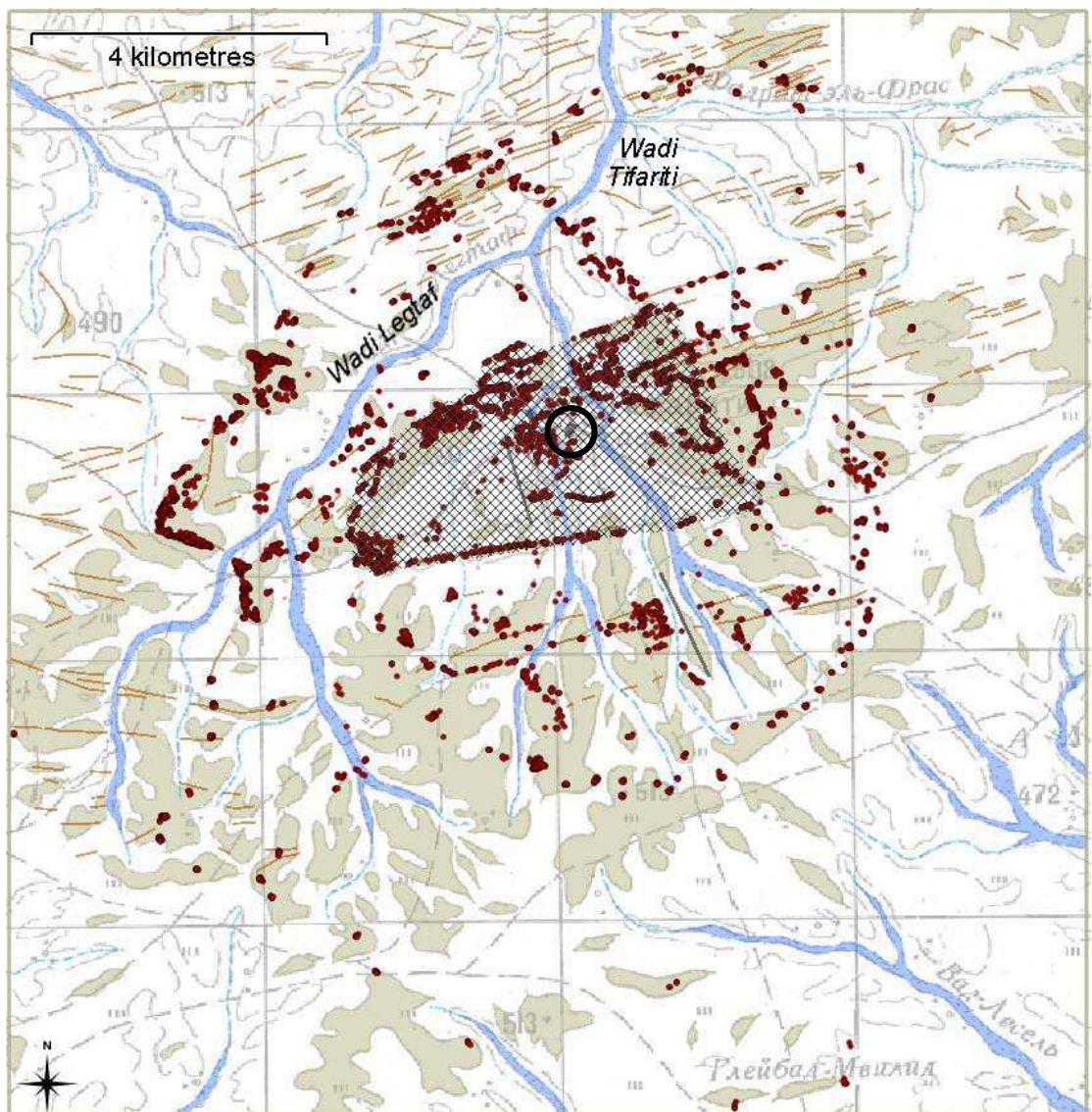
Fig. 6.62: This map indicates the disposition of the inner defensive box (highlighted with criss-crosed hatching) around Tifariti (shown by a black circle), set within the outer defences - the 'outer' defensive box.
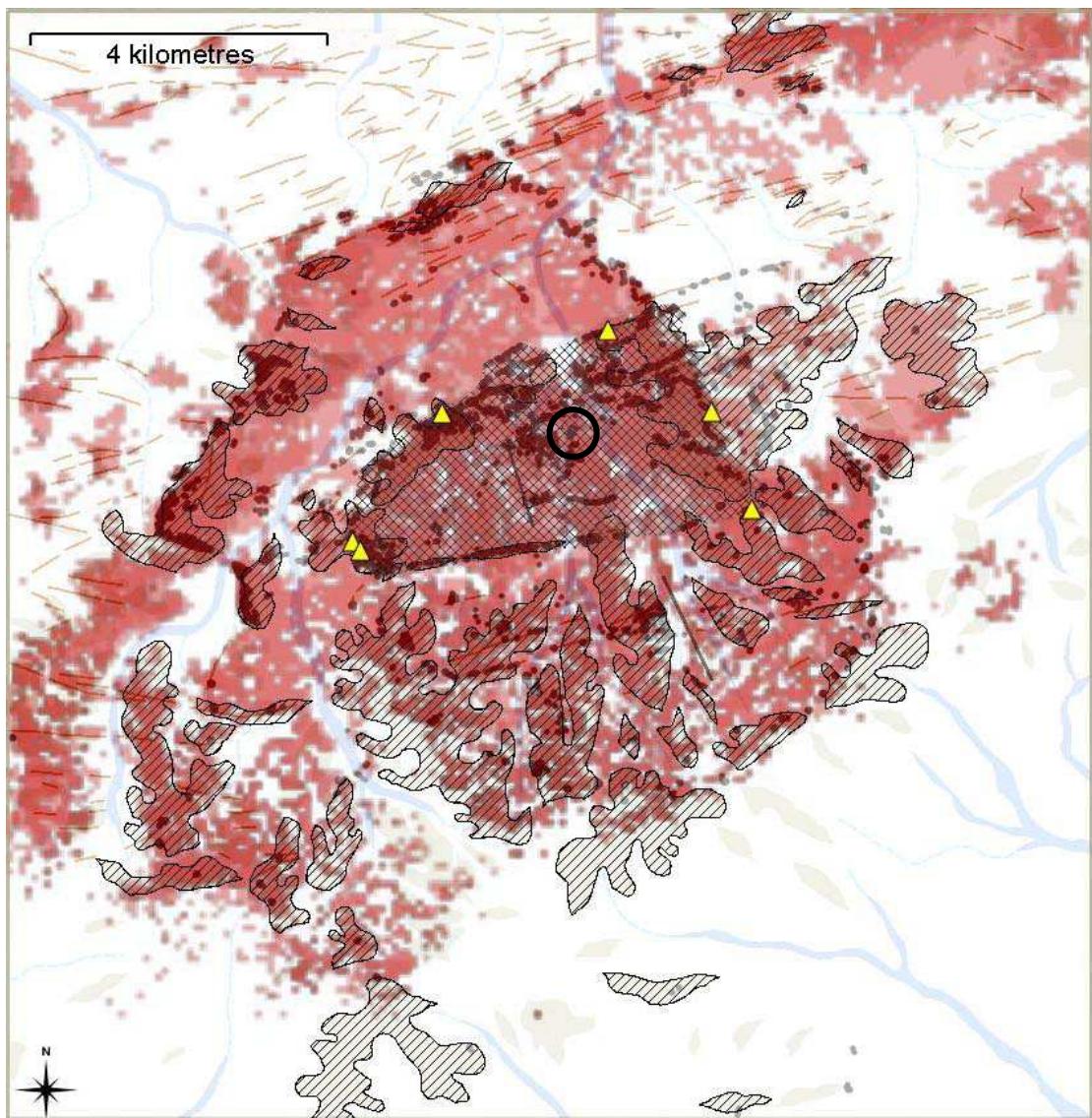
Fig. 6.63: This map shows the viewshed (in red) around the inner Tifariti defensive box. The cross hatched areas are areas of key terrain, while the criss-cross hatched area indicates the inner Tifariti defensive box. The yellow triangles are the locations from which the viewshed has been created. The white, background areas of the map are dead ground – areas that cannot be seen from the inner defensive box. The area of central Tifariti is shown by the black circle.
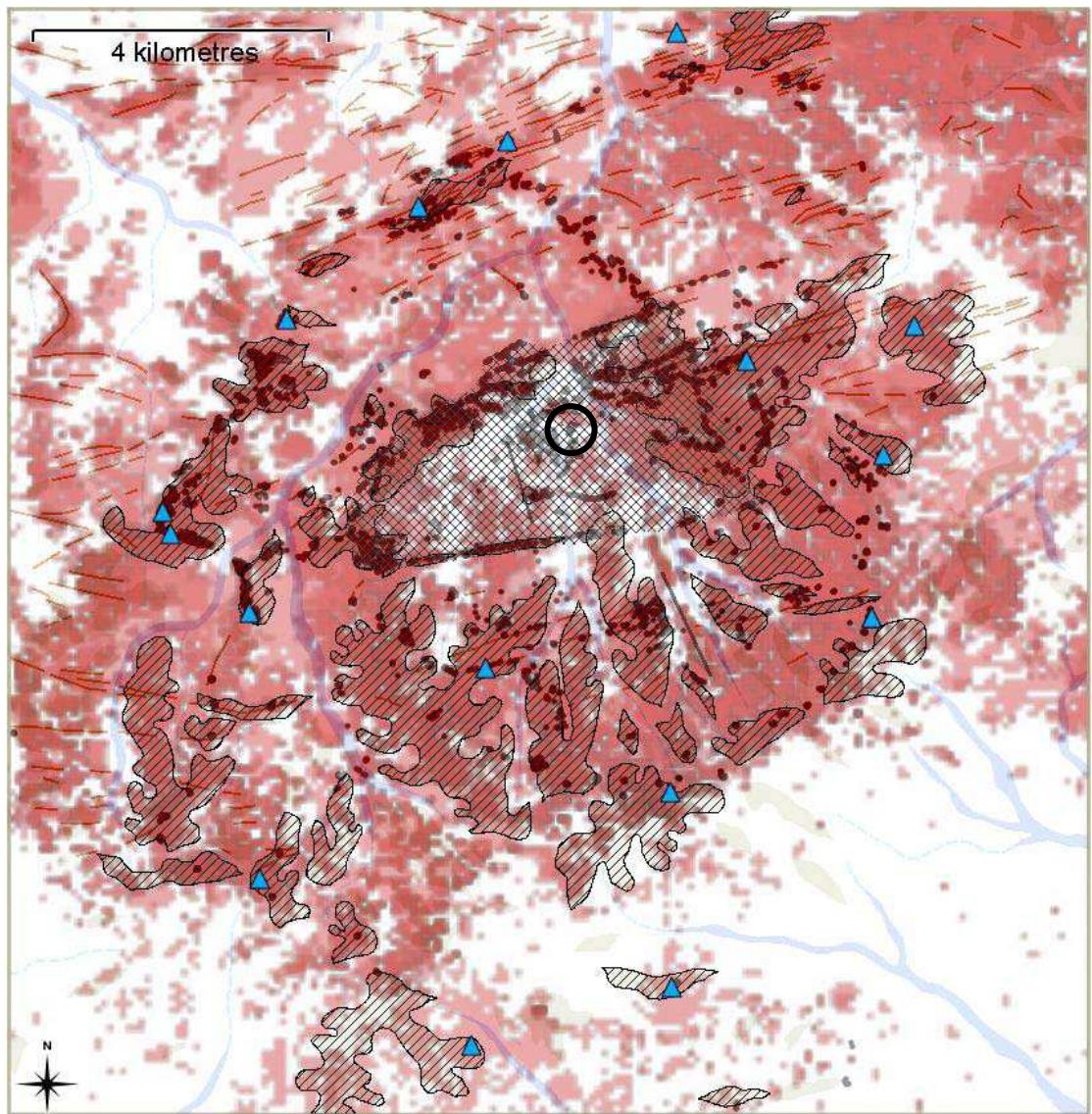
Fig. 6.64: This map shows the viewshed (in red) from the outer, Tifariti defensive box. The cross hatched areas are areas of key terrain, while the criss-cross hatched area indicates the inner Tifariti defensive box. The blue triangles are the locations from which the viewshed has been created. The white, background areas of the map are dead ground – areas that cannot be seen from the outer defensive box. The area of central Tifariti is shown by the black circle.
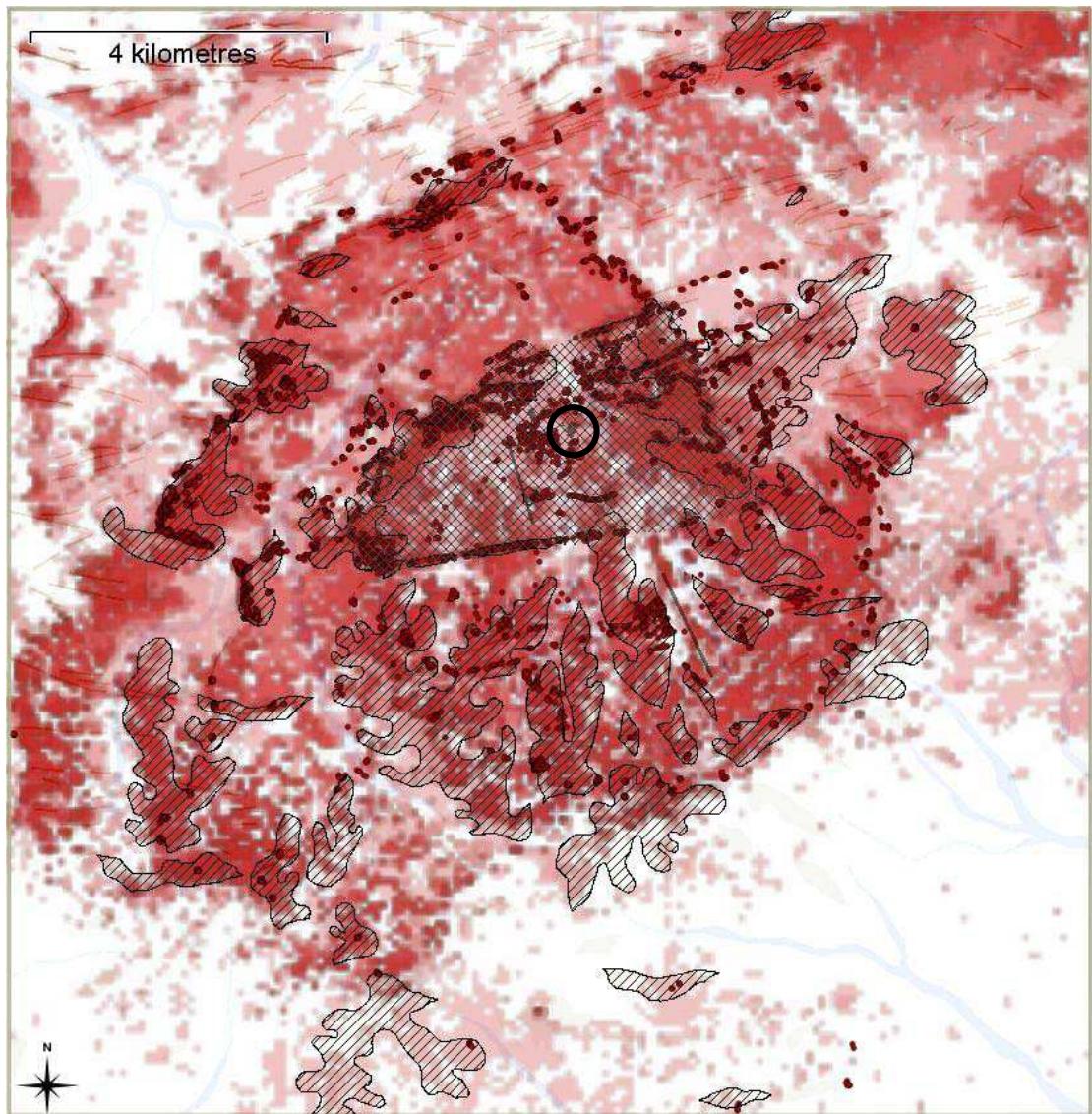
Fig. 6.65: This map shows the combined inner and outer viewsheds (in pink to red) in and around the entirety of the Tifariti box. The cross hatched areas are areas of key terrain, while the criss-cross hatched area indicates the inner Tifariti defensive box. The white, background areas of the map are dead ground – areas that cannot be seen from any of the defences. The area of central Tifariti is shown by the black circle.
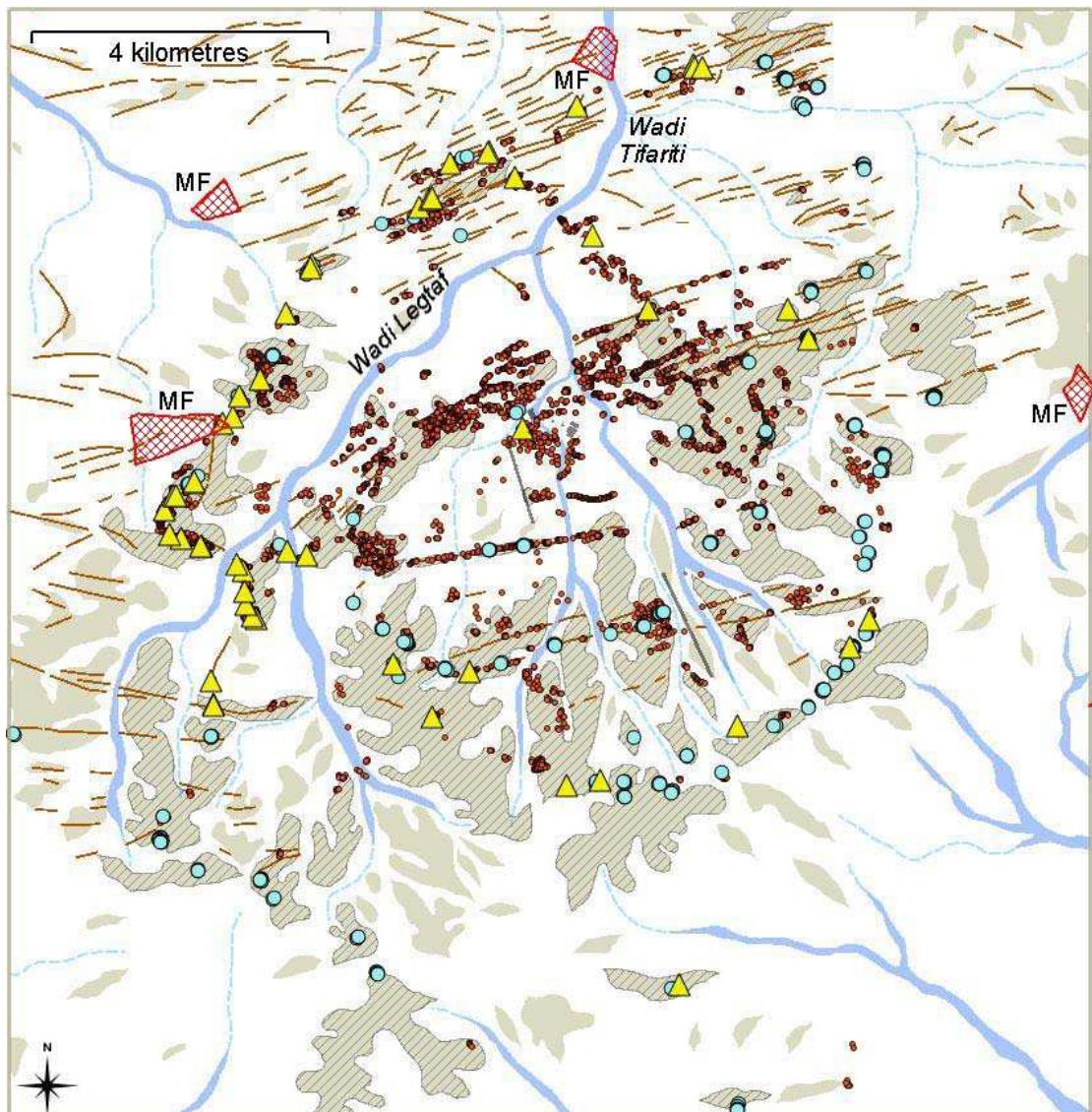
Fig. 6.66: Distribution of entrenched defences within and around the Tifariti box. Key terrain is shown cross-hatched. All defensive positions are represented by red dots. Yellow triangles represent defensive positions with approach trenches, while those shown as light blue dots represent groups of fighting positions linked by trenches. The red criss-crossed areas are minefields (MF).
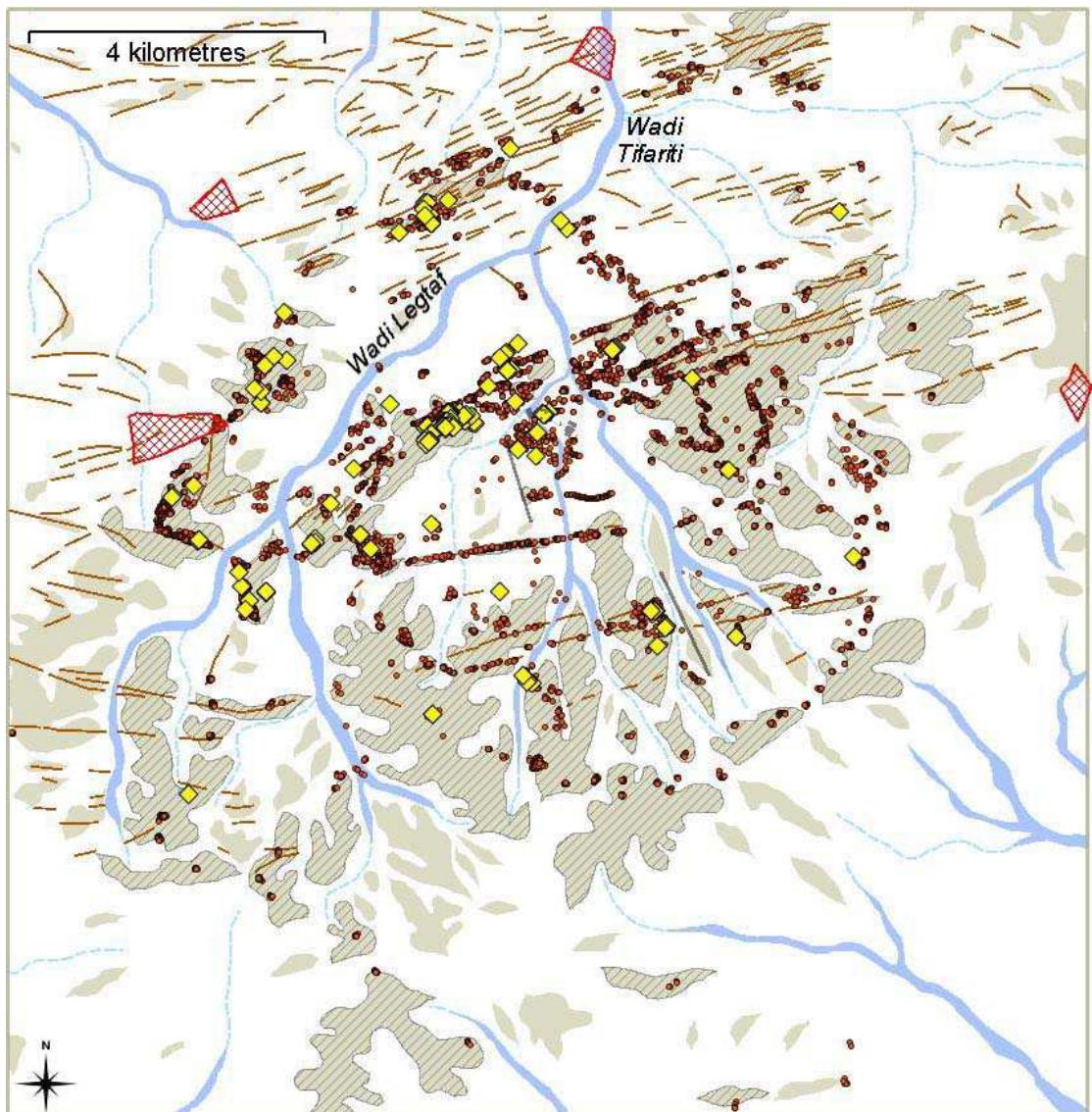
Fig. 6.67: Distribution of built up structures in and around the Tifariti box: shown by yellow diamonds. Built up structures include sangars and shelters, and/or soldiers' accommodation. All other defensive positions are represented by red dots. Key terrain is shown cross-hatched. The red criss-crossed areas are minefields.

179
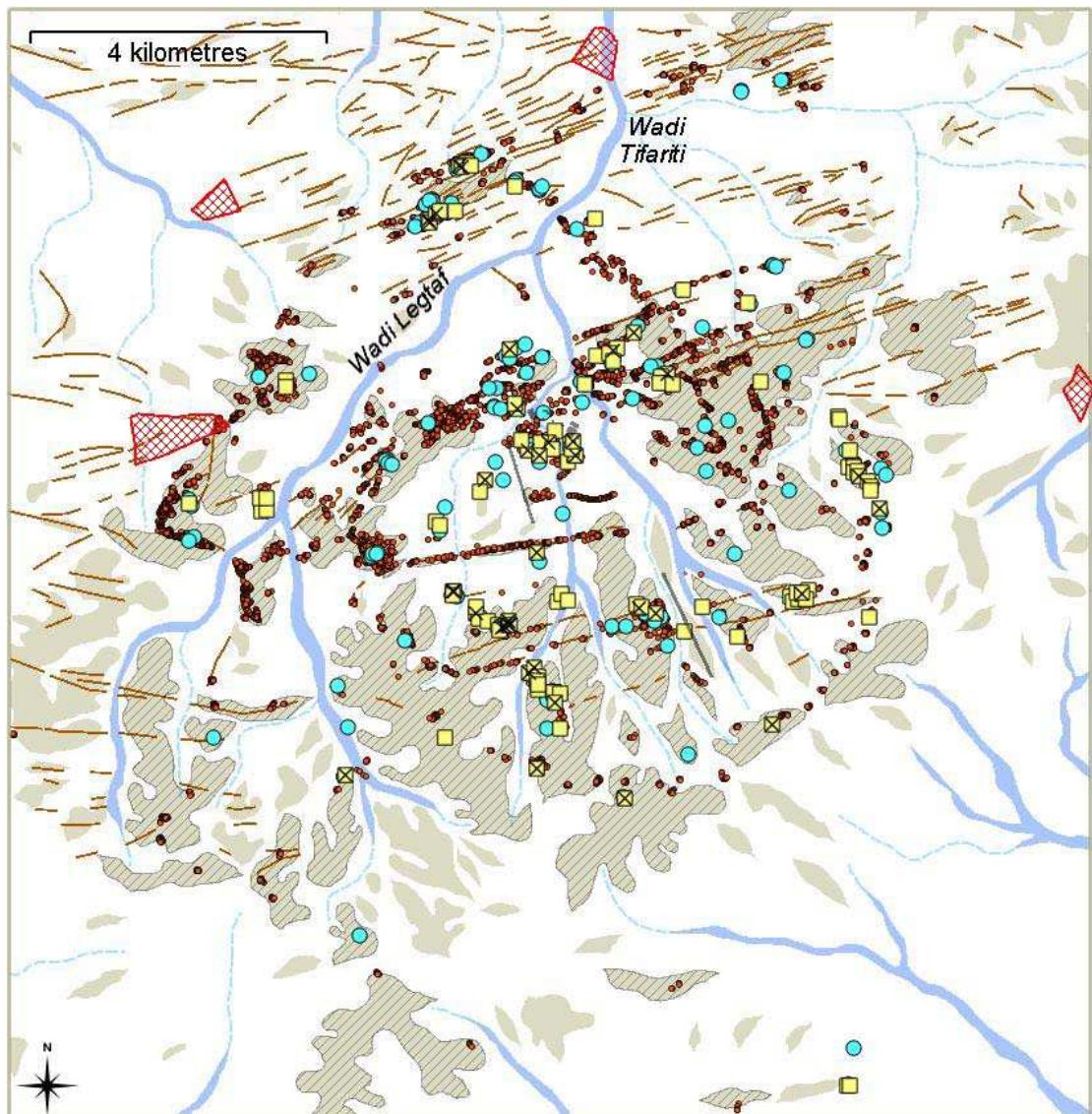
Fig. 6.68: Distribution of artillery gun pits in and around the Tifariti box. Blue dots represent gun pits up to 4 metres in diameter. Yellow squares are gun pits larger than 4 metres in diameter. Criss-crossed yellow squares represent gun pits with associated dug outs. All other defensive positions are represented by red dots. Key terrain is shown cross-hatched. The red criss-crossed areas are minefields.

180
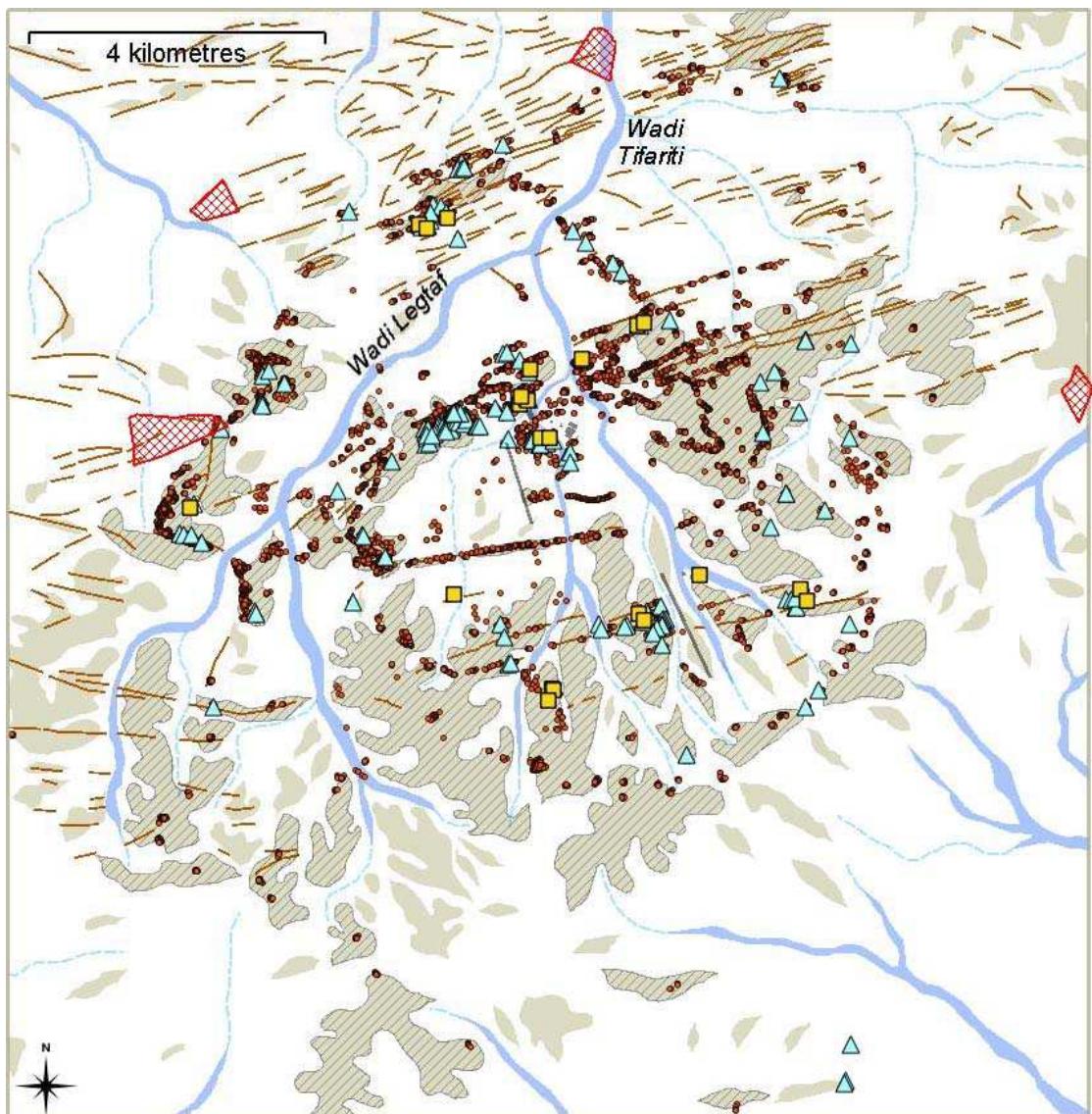
Fig. 6.69: Distribution of vehicular slots in and around the Tifariti box. Blue triangles represent small defensive slots that could have accommodated jeeps and/or trucks. Yellow squares are larger slots that could have accommodated tanks and/or self-propelled artillery. All other defensive positions are represented by red dots. Key terrain is shown cross-hatched. The red criss-crossed areas are minefields.
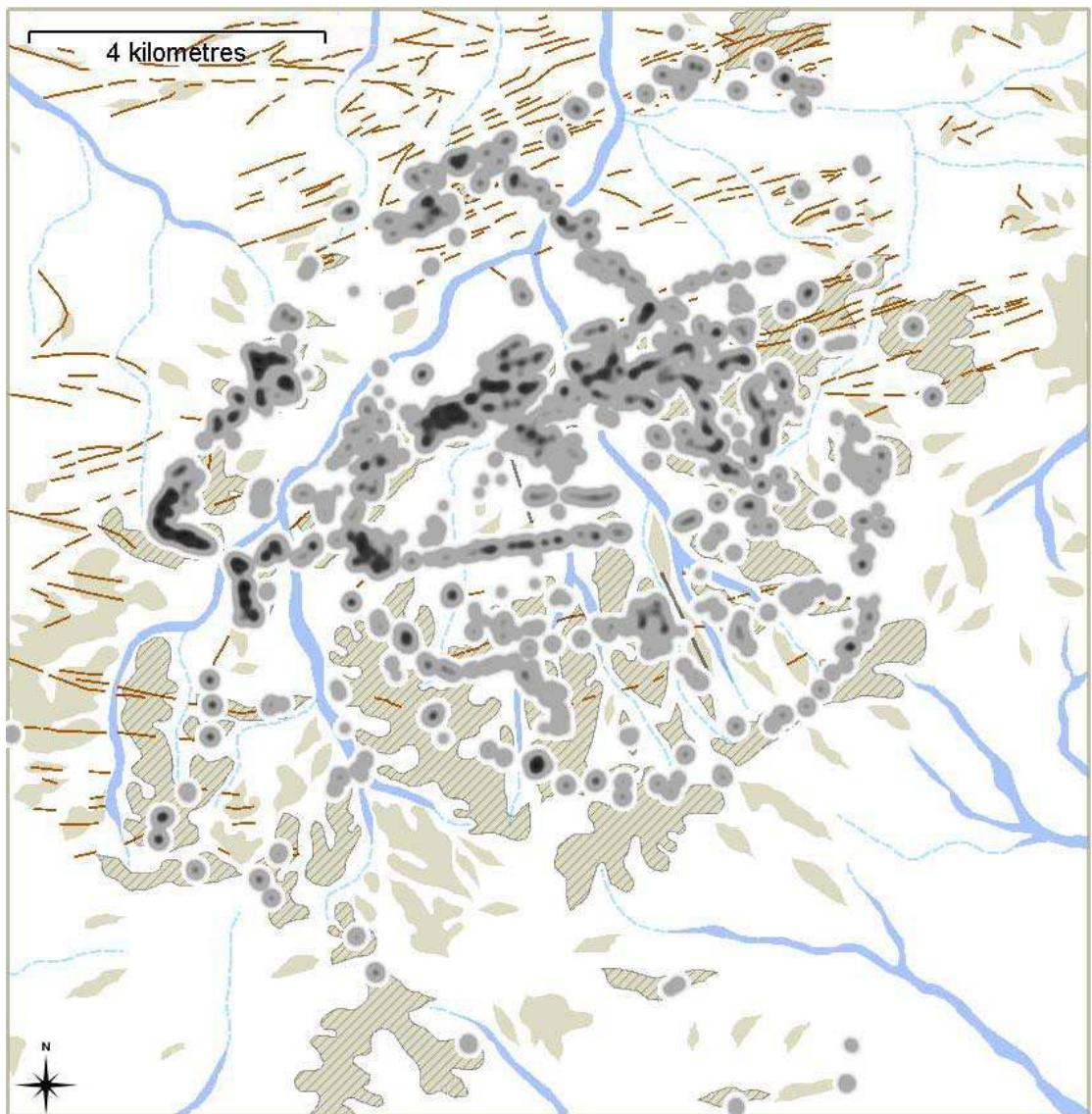
Fig. 6.70: An illustrative density plot of all the defensive features making up the Tifariti box. The darker the colour, from grey to black, represents a greater density of features: there is obviously a greater density in the northern half of the box compared to the southern half.
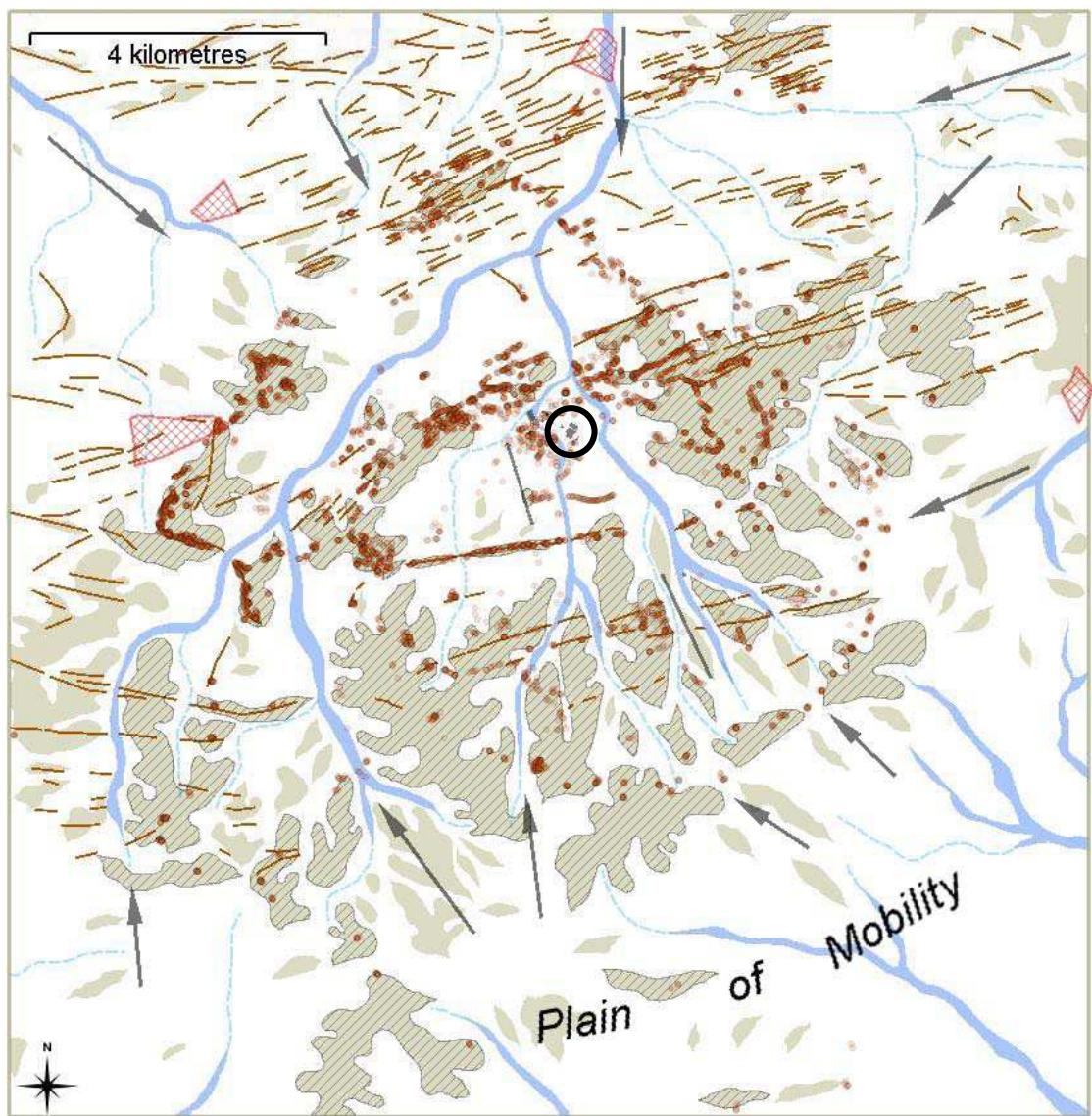
Fig. 6.71: This map indicates avenues of approach into Tifariti, shown by the grey arrows. A 'plain of mobility' existed in the open *hamada* desert to the immediate south and southeast of Tifariti. The area of central Tifariti is shown by the black circle.

183

Fig. 6.72: View of a disused Polisario/SPLA shelter in the Akhchach area northeast of Tifariti. Note how mud bricks and mortared rubble has been used to enhance the original, naturally hollowed out rock of the shelter, turning it into useable accommodation.
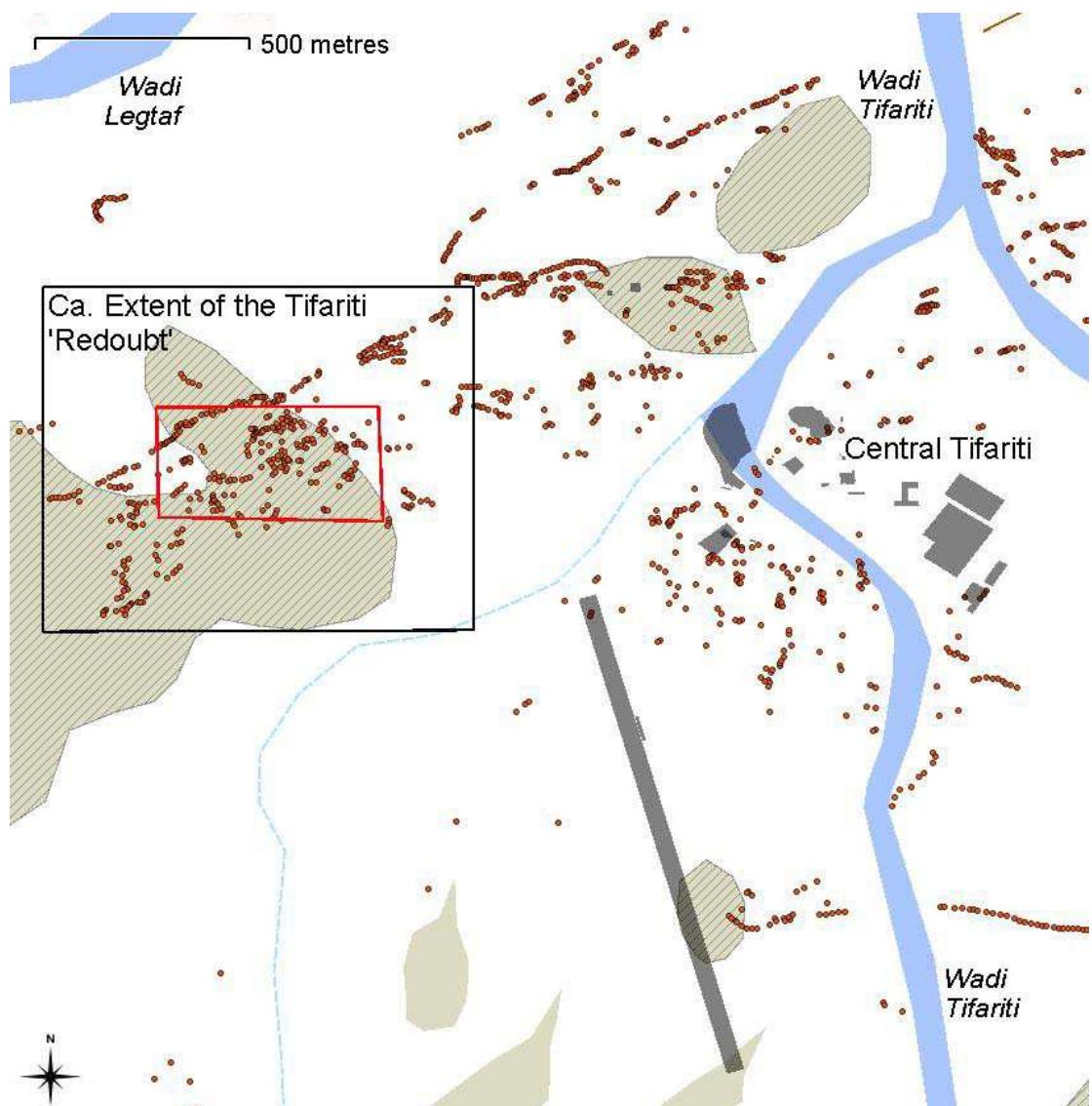
Fig. 6.73: The location of the Tifariti 'redoubt' extends within the black rectangle. The red rectangle is the extent of the detailed Google Earth view in Fig. 6.74.
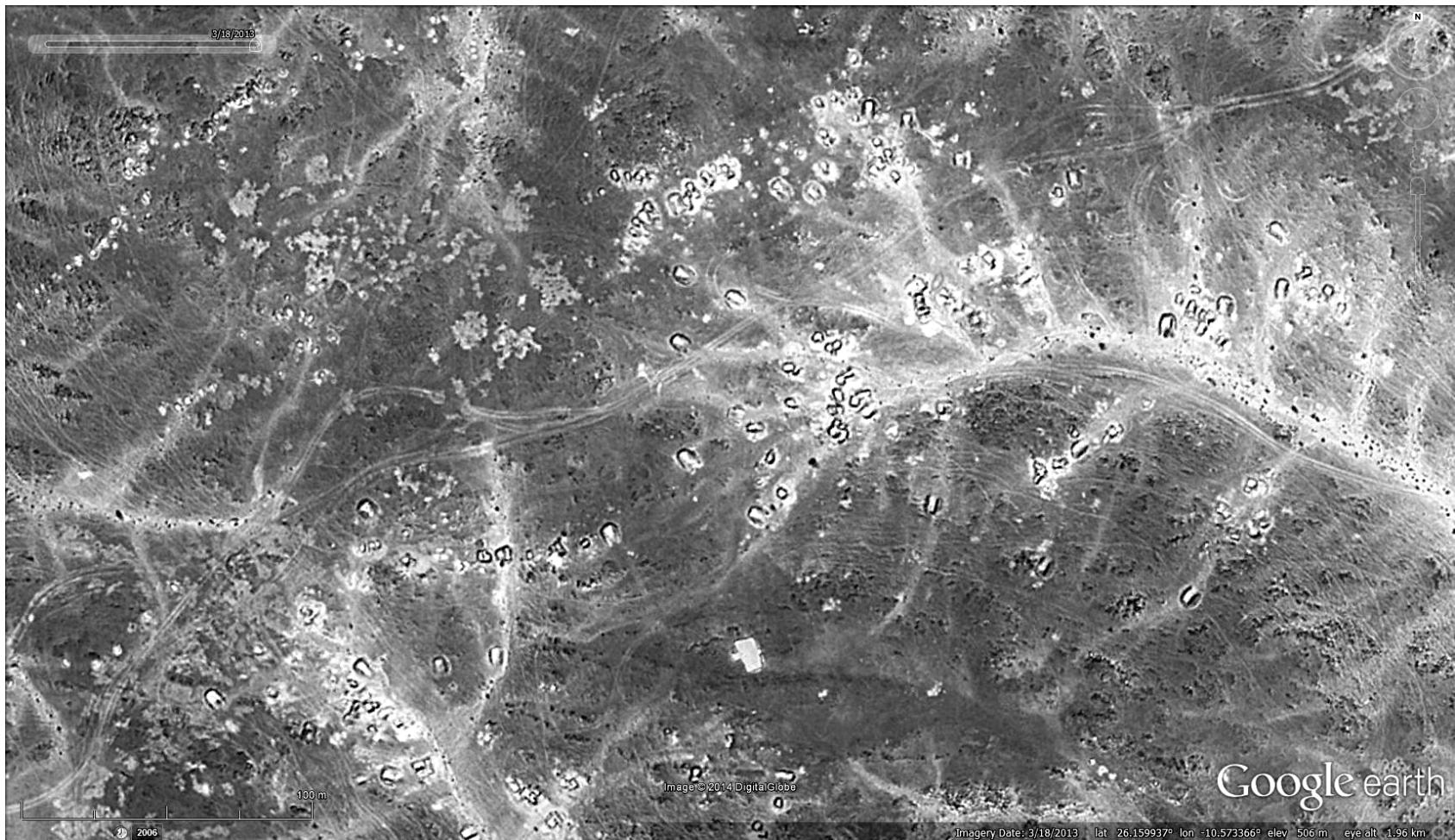
Fig. 6.74: The approximate centre of the Tifariti 'redoubt' (for location, see Fig. 6.73), as seen in Google Earth (shown in monochrome for clarity). The scale in the lower left indicates 100 metres. Date of image: 18/3/13, DigitalGlobe.

Fig. 6.75: A captured, American made, Moroccan jeep with a 105mm recoilless rifle mounted on the rear. Photo taken at the SADR Military Museum, Rabuni.

Fig. 6.76: A vehicular slot on high ground in the Tifariti 'redoubt' with a view over the surrounding terrain to the north. This is a well built feature, just large enough for a jeep type vehicle. To the right of the metre scale are the ruins of a stone shelter: presumably for accommodation or ammunition storage. A further built up structure is in the background.

Fig. 6.77: View of a vehicular slot situated in a low-lying position. This is in a solely protective position behind the crest of a ridge. This slot probably accommodated a jeep type vehicle.

Fig. 6.78: Composite panorama of buidings in the Tifariti 'redoubt'. Just left of the metre scale is a vehicular slot; behind it, to the right and left, are the remains of shelters/accommodation for Moroccan soldiers. These features are protected behind the ridge (to the northwest) in the rear of the image.

Fig. 6.79: A large prehistoric tumulus with the remains of Moroccan soldiers' shelters built into its flank, just behind and to the right of the scale bar. There is an area cleared of stones to the right as well. The ridge in the background runs southwest to northeast.

Fig. 6.80: Google Earth image (in monochrome for clarity) of a Moroccan proclamation laid out in stone, proclaiming: 'God, The Nation, The King'. This feature is located about one kilometre east of the Spanish fort at Tifariti, near the southern limit of the Tifariti 'redoubt'. North is in the upper right corner. The scale in the lower left indicates 30 metres. Date of image: 18/3/13, DigitalGlobe.

Fig. 6.81: Google Earth image of central Tifariti today. Key: 1 = site of early well; 2 = site of recent well diggings; 3 = school; 4 = school and museum; 5 = infirmary (with water cistern to the north); 6 = model farm; 7 = new housing (the 'Solidarity District'); 8 = foundations for SADR government building; 9 = LMA/AOAV offices (landmine clearance); 10 = cemetery; 11 = Mayor's office (the old Spanish infirmary); 12 = Spanish fort; 13 = Spanish commandant's quarters; and 14 = site of the Spanish *colonia*. The UN's MINURSO base is located around 2.75 kilometres to the southeast. The scale in the lower left indicates 200 metres. Date of image: 18/3/13, DigitalGlobe.
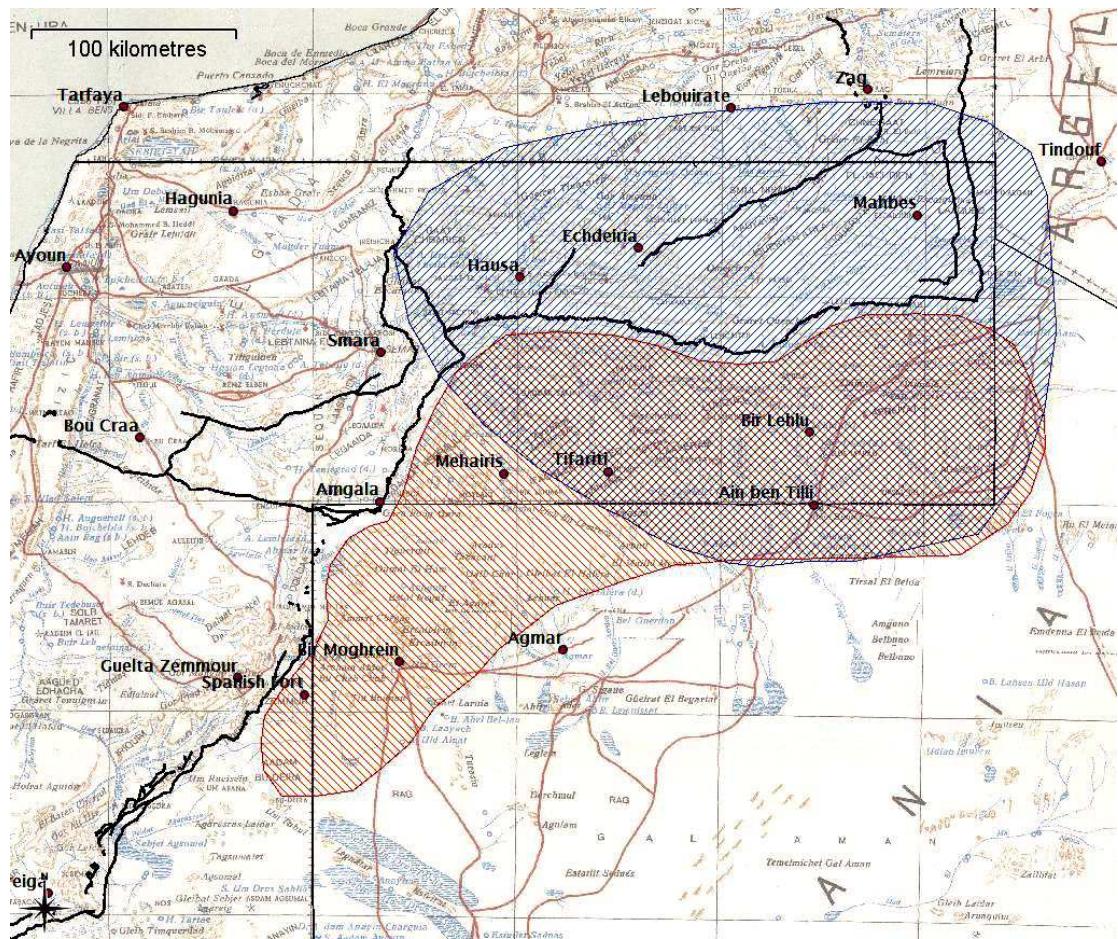
Fig. 6.82: Comparison of Bedouin pastoral ranges before (in blue cross hatching) and after the war with Morocco (in red cross hatching). Based on the testimony of Kalthoum Salma at Tifariti, 2011.
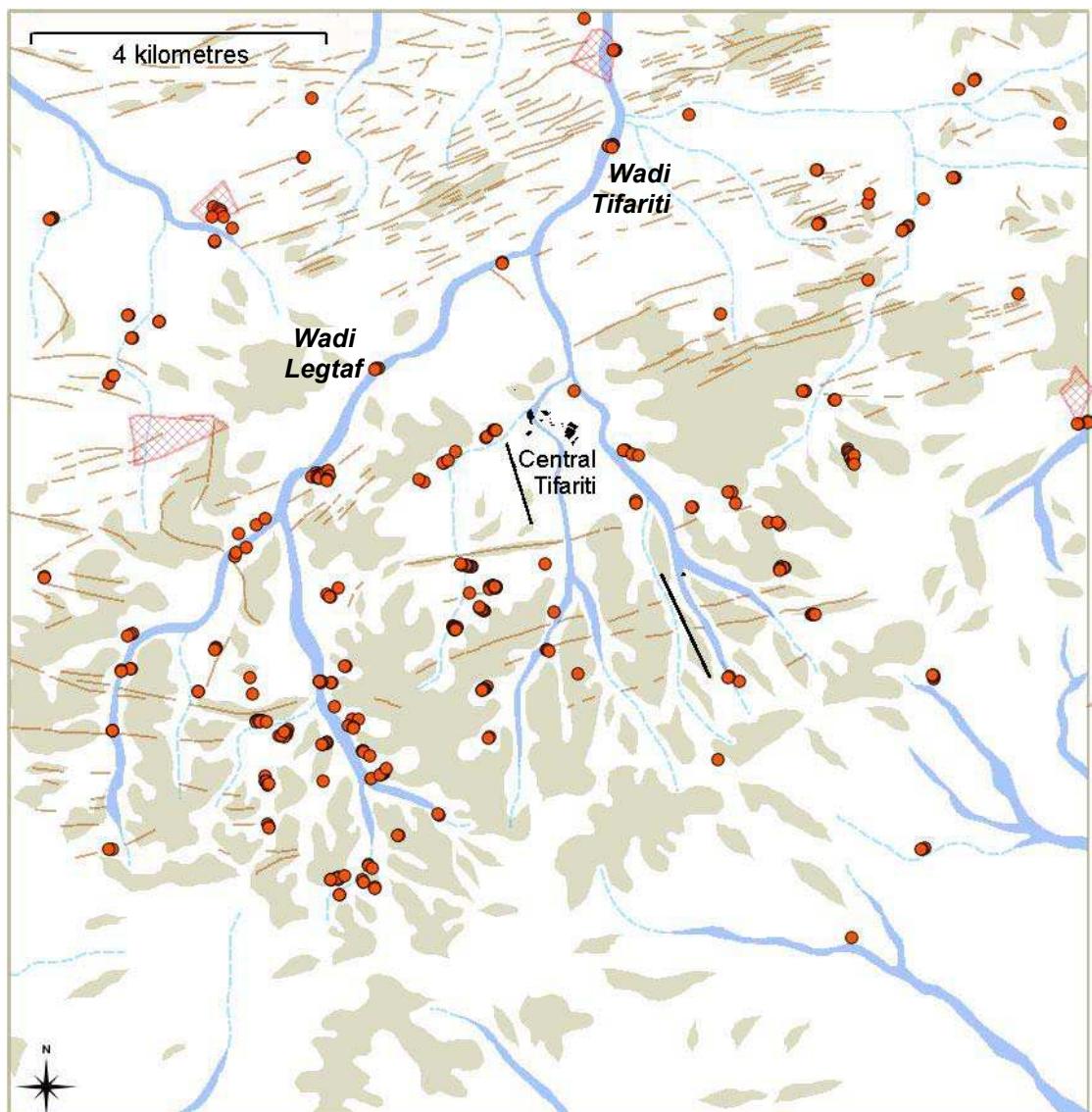
Fig. 6.83: Distribution of the imprints of tent encampments in the Tifariti Study Area (shown as red dots) visible on Google Earth imagery dated 21 February 2006: presumably representing Bedouin encampments from 1991 to early 2006. Moroccan laid minefields are also shown in red criss-crossed hatching.
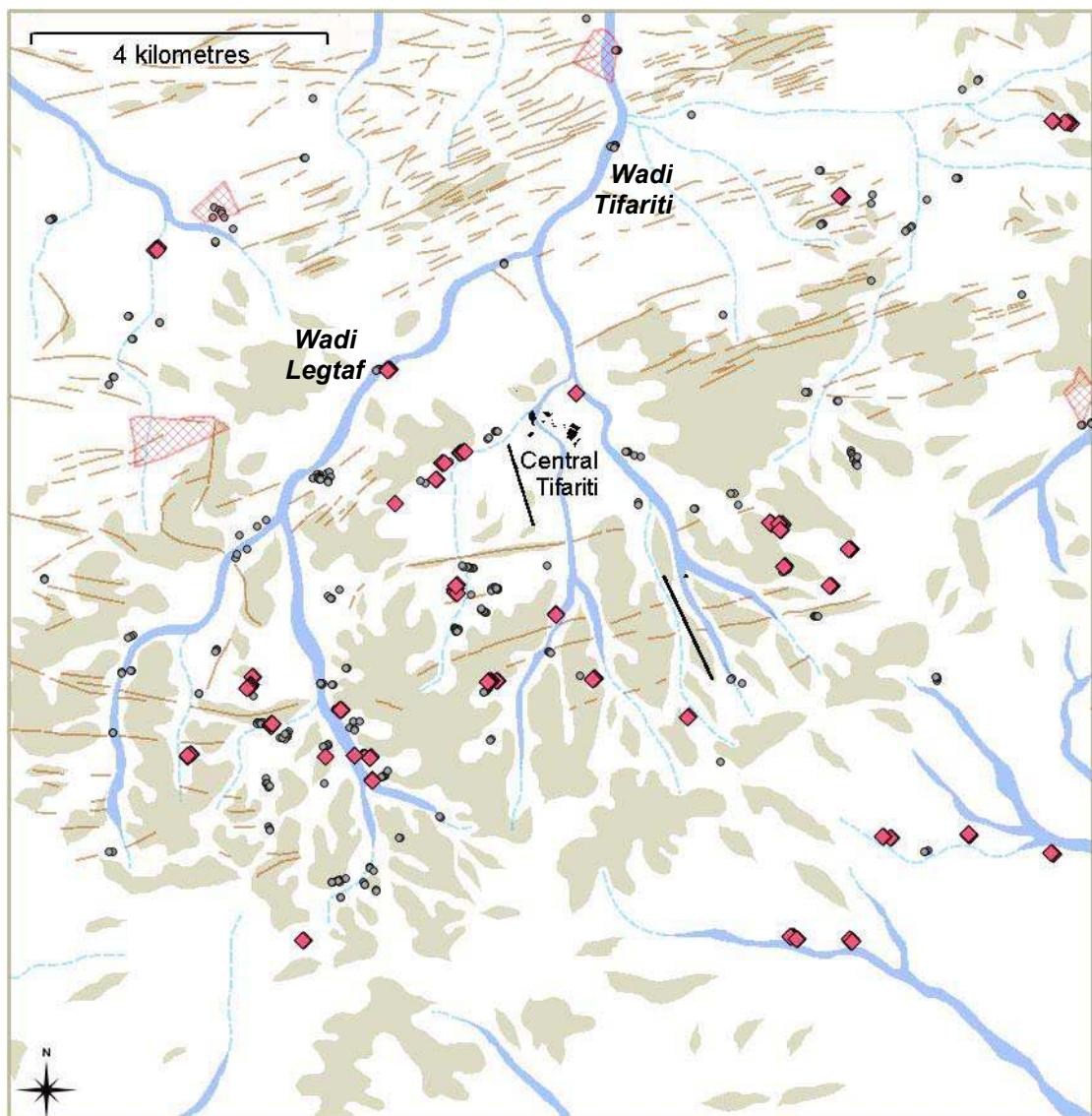
Fig. 6.84: Distribution of Bedouin tent sites in the Tifariti Study Area (shown by red diamonds) occupied and visible on Google Earth imagery dated 21 February 2006. Pre-February 2006 deserted tent sites (from Fig. 6.83) are shown as grey dots.
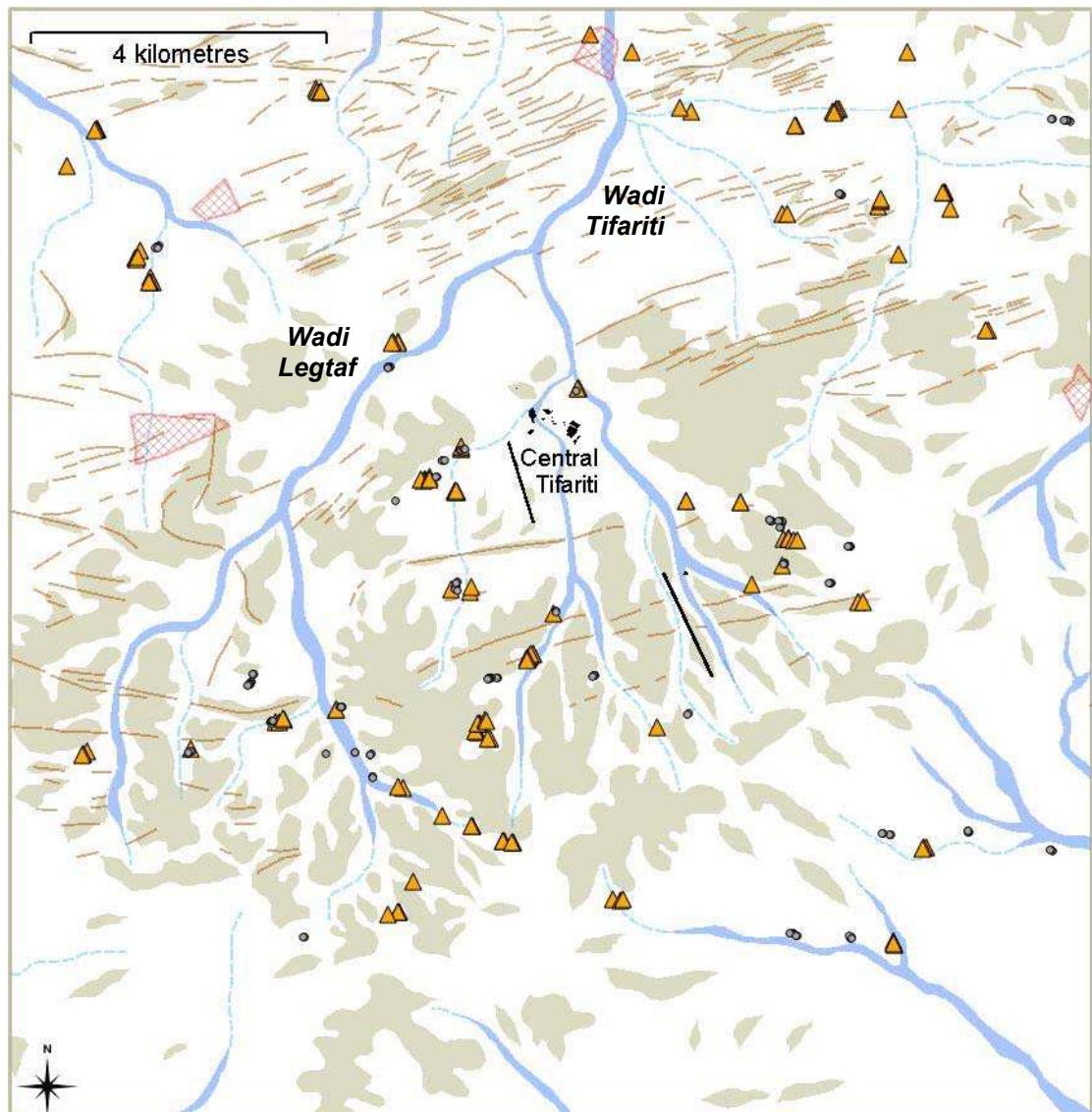
Fig. 6.85: The imprints of tent sites visible on Google Earth that were set up after 21 February 2006 but were deserted by 14 May 2008. Tent sites that were visible on 21 February 2006 (from Fig. 6.84) are shown as grey dots.
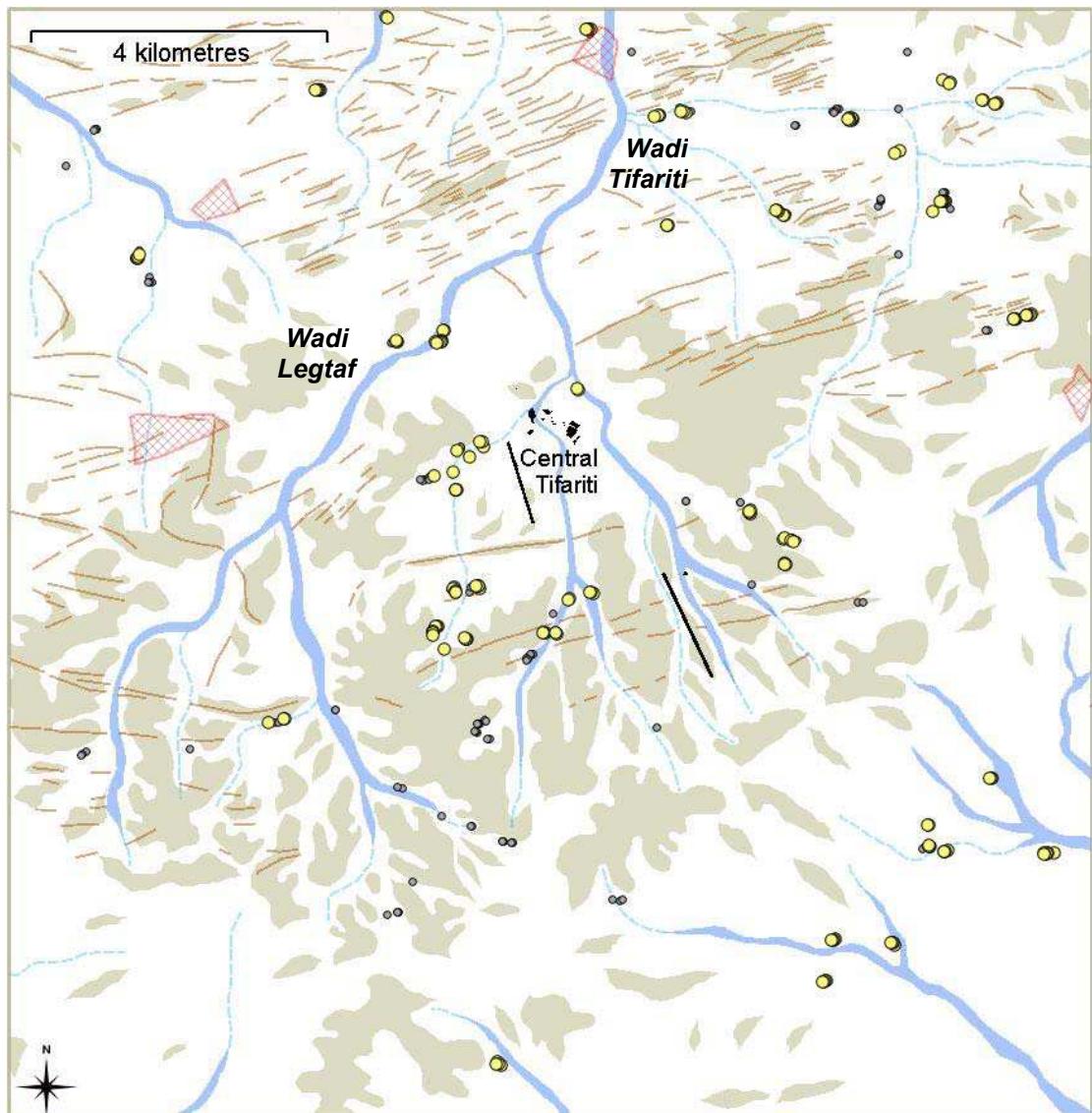
Fig. 6.86: Tent sites, occupied and visible on Google Earth as of 14 May 2008. Deserted tent sites that were set up after 21 February 2006 but were deserted by 14 May 2008 (from Fig. 6.85) are shown as grey dots.

Fig. 6.87: Examples of the traditional (top) and modern (bottom) Saharawi tents. Source of upper image: http://www.aliceinwonderlands.com/Africa/sahara.htm and http://www.aliceinwonderlands.com/Africa/saharaimages/1nomad_family_s_tent-2-300.jpg. Bottom image by Martin Dewhurst, available at http://www.flickr.com/photos/gsr/428297944/in/photostream/ both accessed 12 February 2014.

Fig. 6.88: Google Earth view (in monochrome for clarity), in the Tifariti area, of the impressions (footprints) left from modern tents after a tent site has been abandoned. There is an unroofed building to the immediate left of the tent impressions. The scale in the lower left indicates 25 metres. Date of image: 18/3/13, DigitalGlobe.
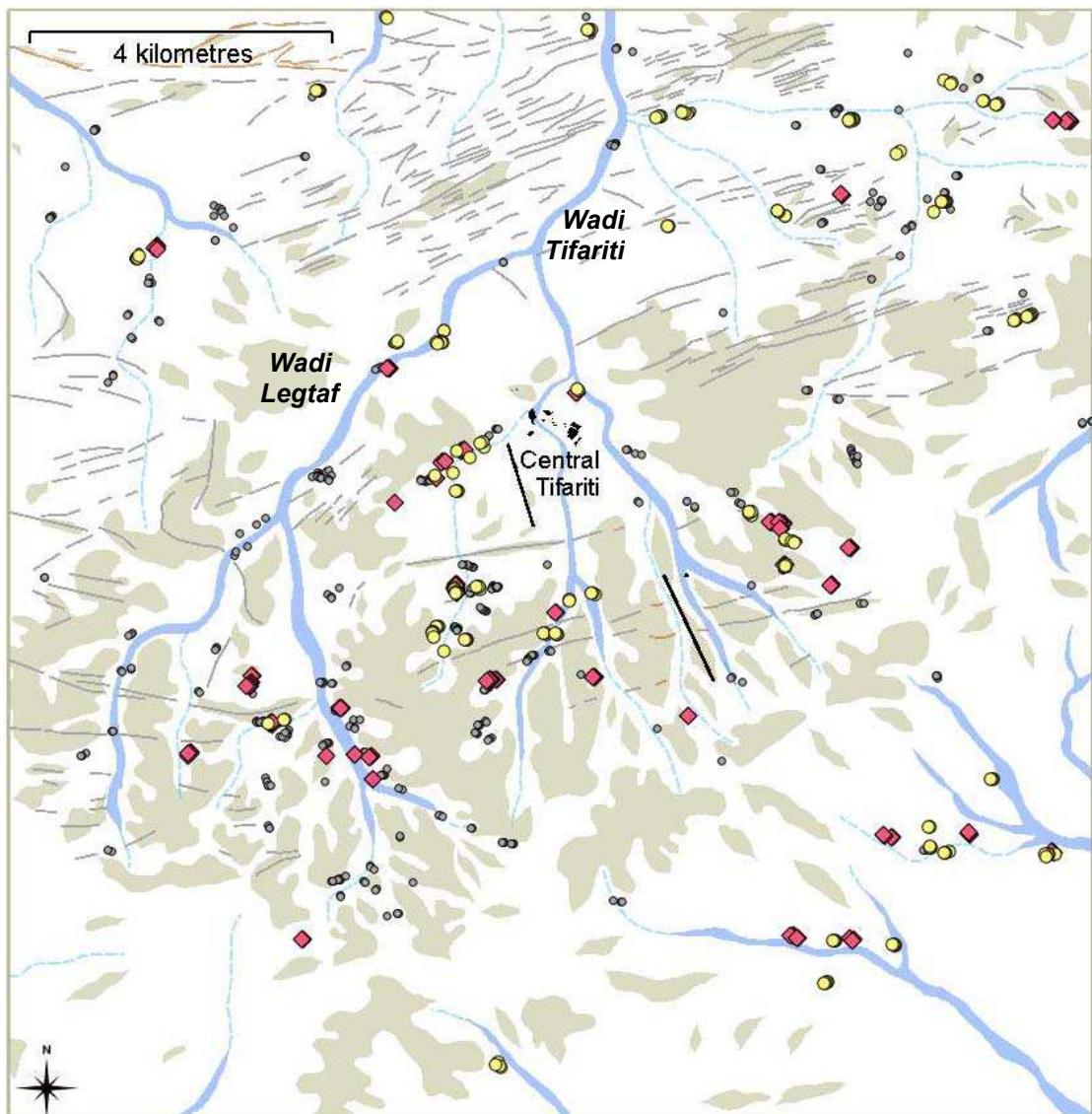
Fig. 6.89: Distribution of tent sites as of 14 May 2008 overlying tent sites of 21 February 2006 - showing overall shift towards the northeast. Yellow dots = 2008 tent sites. Red diamonds = 2006 tent sites. Grey dots = tent sites prior to 2006, and tent sites set up after 2006, but not occupied in May 2008.

200
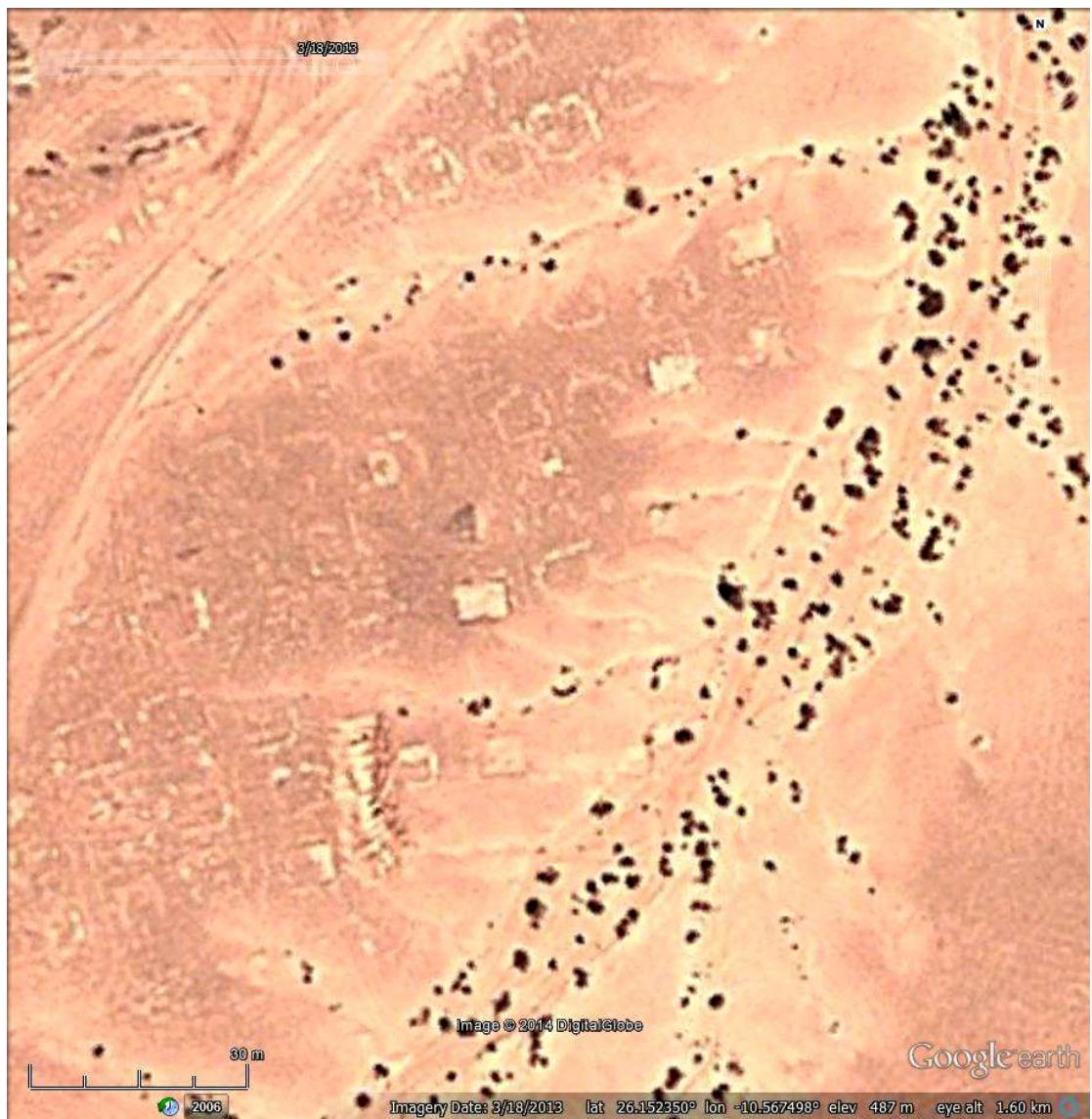
Fig. 6.90: Google Earth image of impressions of tent emplacements set up for Polisario National Congresses held at Tifariti. The scale in the lower left indicates 30 metres. Date of image: 18/3/13, DigitalGlobe.

Fig. 6.91: View of Tifariti with tents from one of the Polisario Congresses. Image source: http://blogdebanderas.com/2012/01/21/coleccion-de-banderas-del-sahara-occidental/ accessed 13 February 2014.
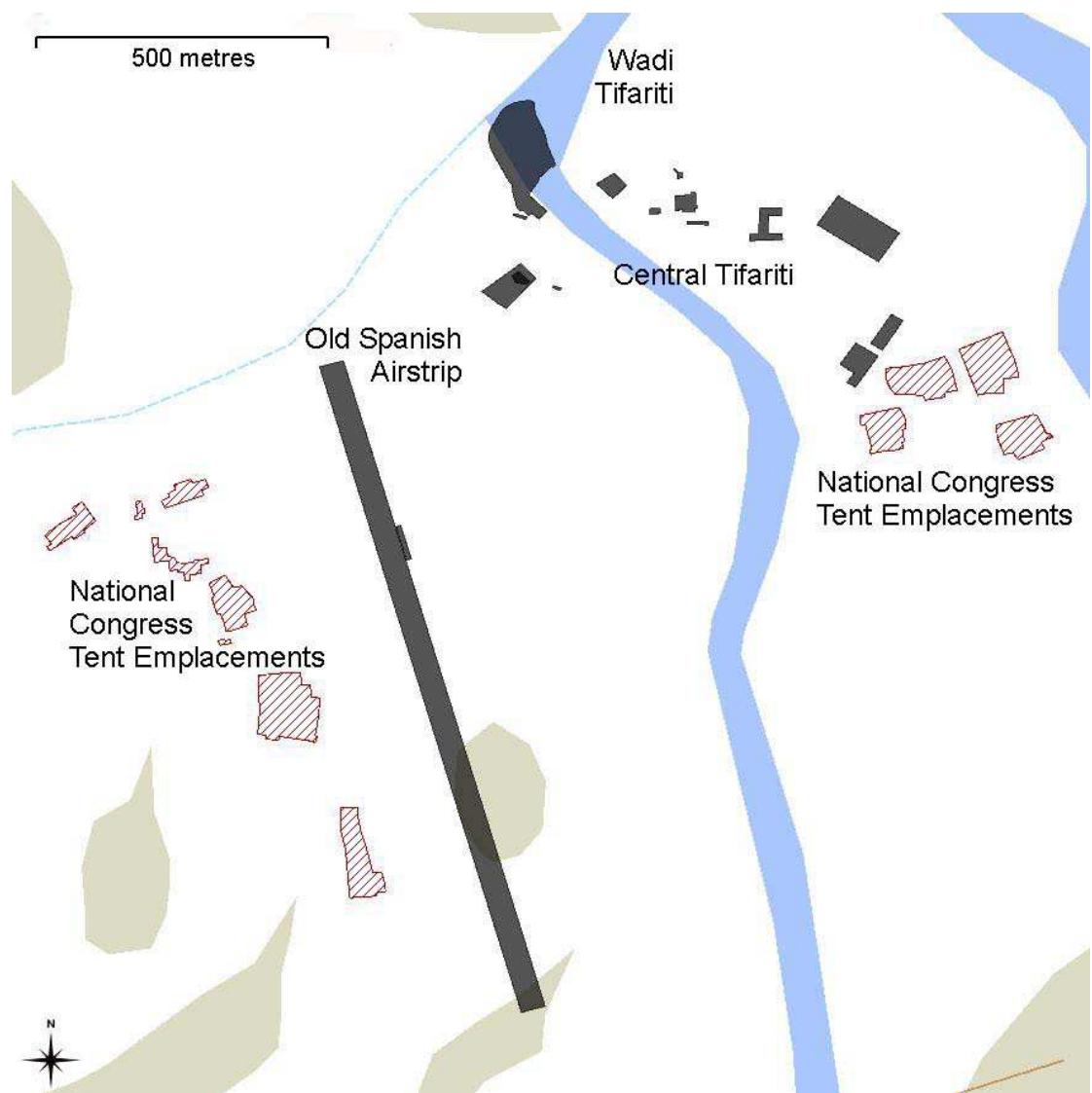
Fig. 6.92: Plot of tent locations for Polisario/SADR National Congresses held at Tifariti in 2003 and 2007. Also showing the old Spanish airstrip that is used for SPLA displays and marches.

Fig. 6.93: View looking north along the old Spanish airstrip. Now the parade ground for the Polisario/SADR National Congresses held at Tifariti every four years. Spectator stands are to the right.

Fig. 6.94: Map of Western Sahara in front of the stands at the Tifariti parade ground.

Fig. 6.95: Stone representation of the Saharawi flag on a northeast facing hillside just west of central Tifariti. Image source: http://www.lasonet.com/sahara/sh-247.htm accessed 13 February 2014.
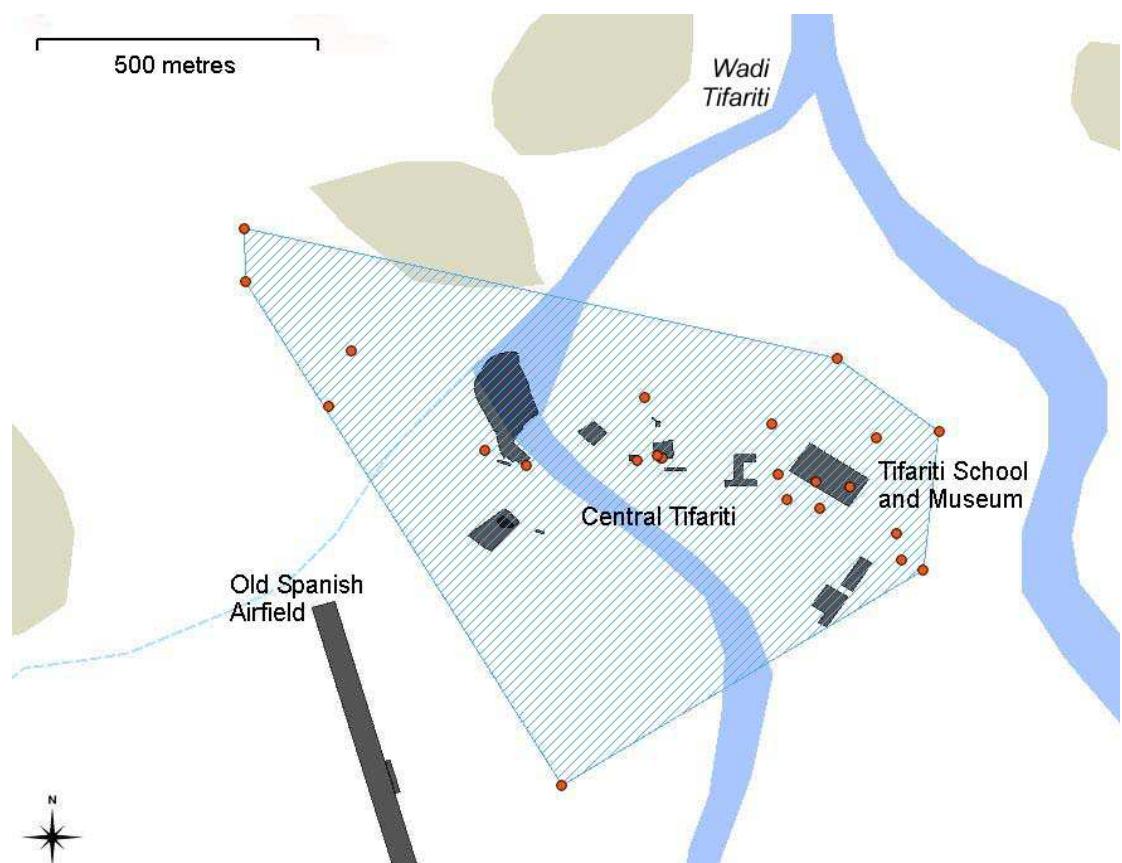
Fig. 7.1: Distribution of sites of all visible out-of-door ARTifariti artworks, recorded in 2011.
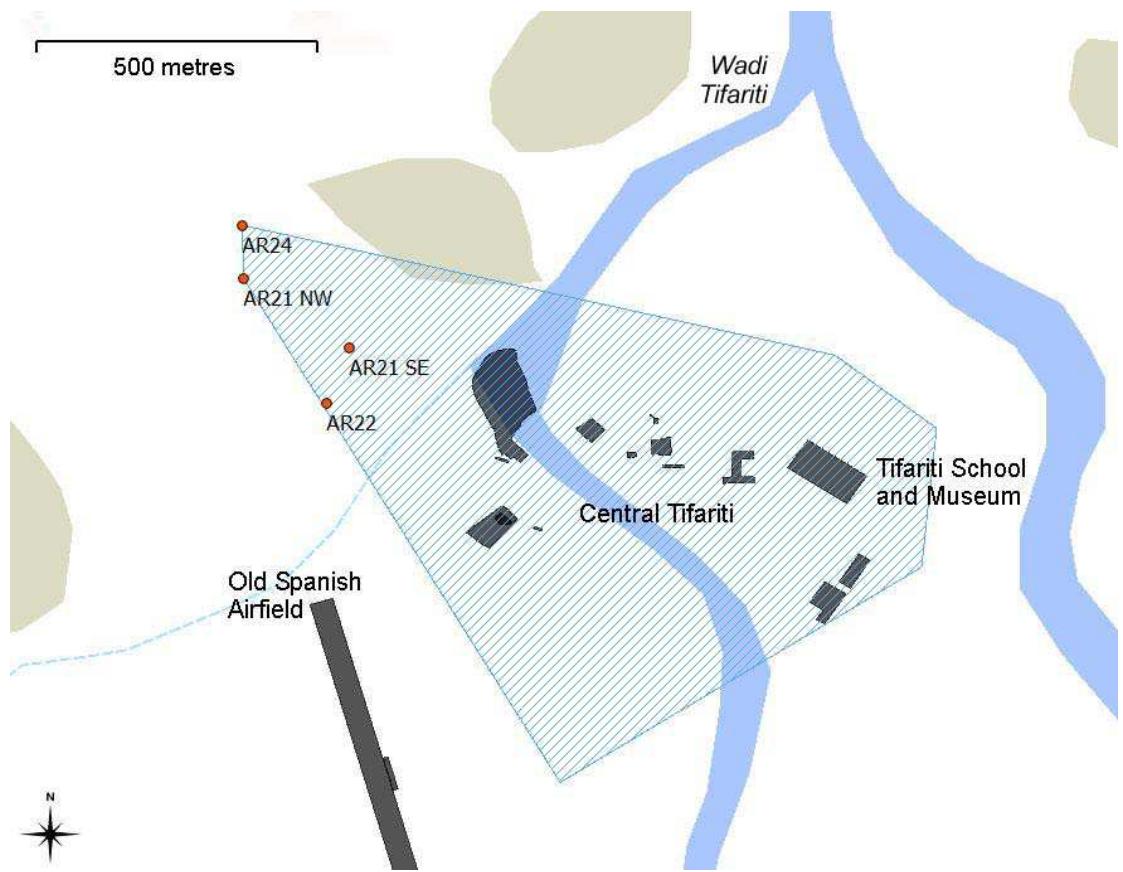
Fig. 7.2: Distribution of artworks from ARTifariti 2007 recorded in 2011: AR21, AR22, and AR24. (Note: AR21 is a linear artwork shown only by the positions of its NW and SE ends.)

Fig. 7.3: *Breakfast at Tifariti* (AR22) by Fernando Pinteño (ARTifariti 2007), looking southeast. Image source: ARTifariti.
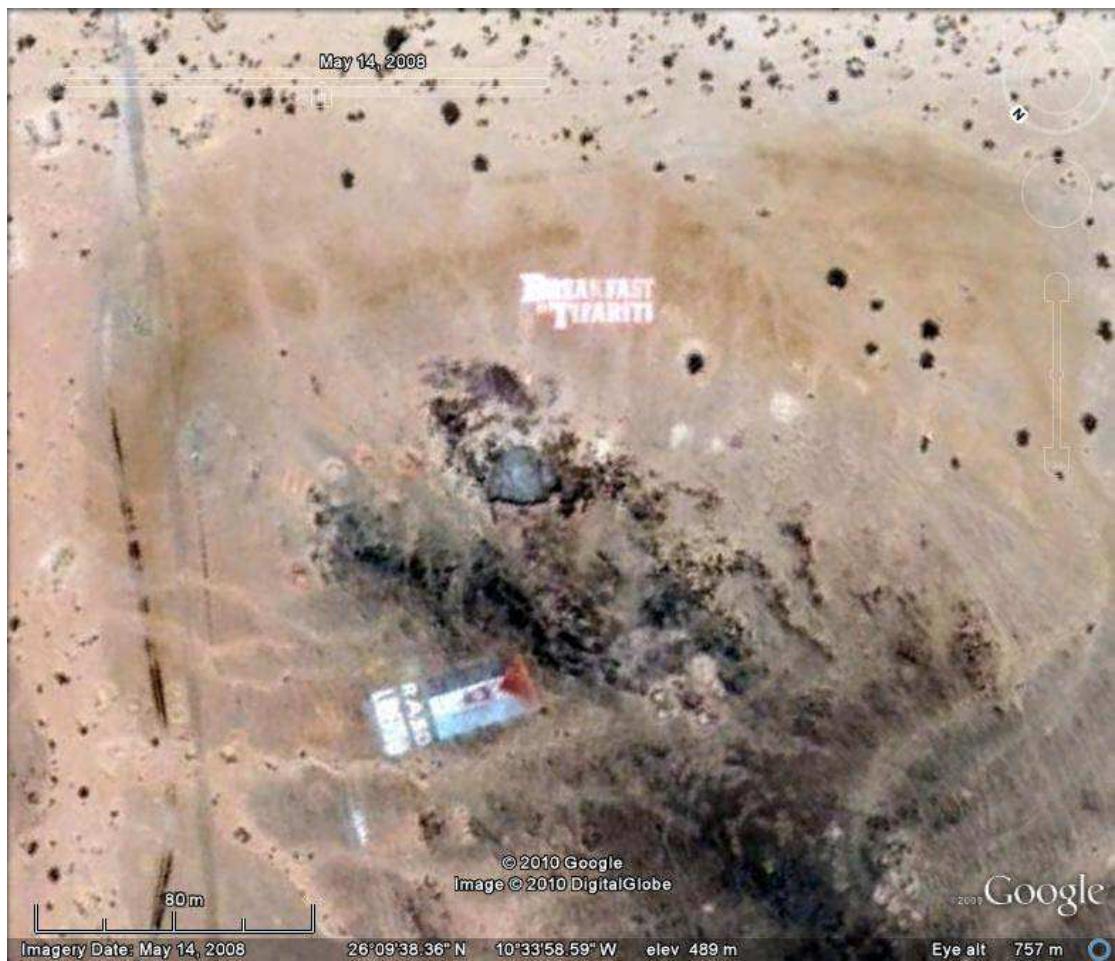
Fig. 7.4: Google Earth image of *Breakfast at Tifariti* (AR22). North is to the lower left. Some dug out positions from the Moroccan military occupation are visible, as is the SADR flag, laid out in painted stones on the northern flank of the high ground in the centre of the image. Scale bar at lower left indicates 80 metres. Date of image 14/5/08, Digital Globe.

Fig. 7.5: *Camino del Retorno* or *The Way to Return*, also known as *Camino del Aaiún* or *The Way to El-Ayoun* (AR21) created by the contributors to ARTifariti 2007 and 2008. This view is westerly, while the linear artwork extends to the northwest. Photographed in 2011. Photographed in 2011.

Fig. 7.6: View to the northwest along *The Way to El-Ayoun* (AR21). Photographed in 2011.

Fig. 7.7: *Proyecto de Eliminacón 1 or Removal Project 1* by Carlos de Gredos (March 2007) on the *Cerro Gallinaro* headland, Avila, Spain. Image source: photo by Carlos de Gredos, available at http://cerrogallinero.com/la-coleccion/obra-efimera/proyecto-de-eliminacion-1/ accessed 1 May 2013.

Fig. 7.8: *Proyecto de Eliminacón 2* or *Removal Project 2* (AR24) by Carlos de Gredos (ARTifariti 2007). This artwork is situated amidst Moroccan fortified positions at the eastern end of the Tifariti 'redoubt'. Image source: ARTifariti.
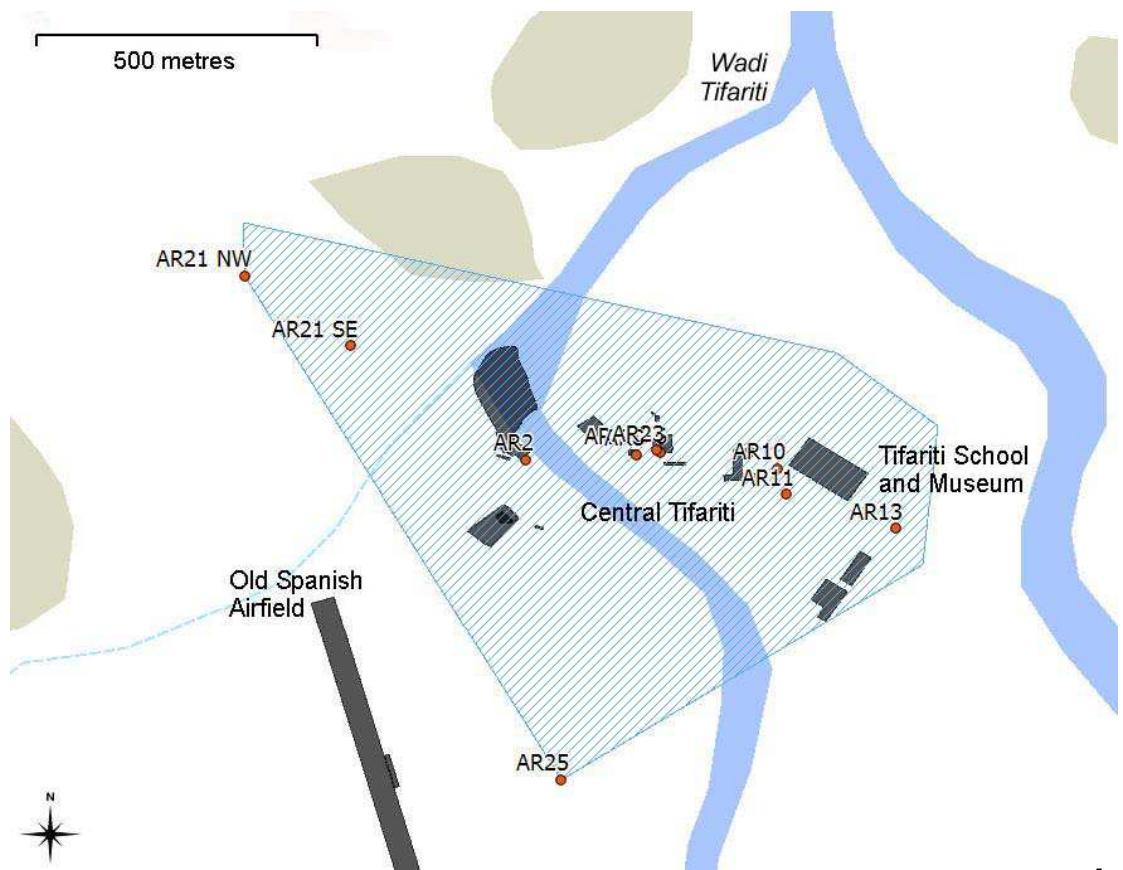
Fig. 7.9: Distribution of ARTifariti 2008 artworks recorded in 2011: AR2, AR3-5-6,[5] AR8, AR10, AR11, AR13, AR21, AR23and AR25. (AR21, which was created in 2007 is also shown since it was worked on in 2008 as well.)

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[5] AR3-5-6 is a single, location only, designation for some of the artwork carried out at the old Spanish fort. It includes AR3 and AR3a, AR5 and AR6. AR23 is also a single locational designation, including AR23, and AR23a to AR23d.

Fig. 7.10: *Caballo de Troya Saharaui* or the *Saharawi Trojan Horse* (AR13) by Rolando de la Rosa (ARTifariti 2008). The sculpture is facing eastwards. Image sources; main photo: Nick Brooks; insert, detail of right front leg of the piece: ARTifariti.

Fig. 7.11: The head of the sculpture, the *Saharawi Trojan Horse* (AR13). The head has been made from shrapnel and its mane is made up of spent gun cartridges. Image source: photo by Nick Brooks.

Fig. 7.12: *El Muro de la Vergüenza*, or *The Wall of Shame* (AR10) by Federico Guzman (ARTifariti 2008). This piece is situated outside the LMA/AOAV offices in Tifariti. Image source: ARTifariti.

Fig. 7.13: *Victimas Inocentes* or *Innocent Victims* (AR8) by Karim Sergoua (ARTifariti 2008). An artwork painted onto the ruined, east facing, sloping roof of the colonial period Spanish Infirmary. Photographed in 2011.

Fig. 7.14: *Gritos bajo los escombros de Tifariti* or *Cries under the ruins of Tifariti* (AR23) by Abd el Kader Belhorissat (ARTifariti 2008), painted onto the ruined roof of the southwest corner of the old Spanish Fort at Tifariti. Image source: ARTifariti.

Fig. 7.15: *El renacimiento de un pueblo* or *The Rebirth of a Nation* (AR23a) by Djeddal Adlane (ARTifariti 2008). This piece has been painted onto the east facing wall of the western range of the old Spanish fort at Tifariti, and facing into the central courtyard. Image source: ARTifariti.
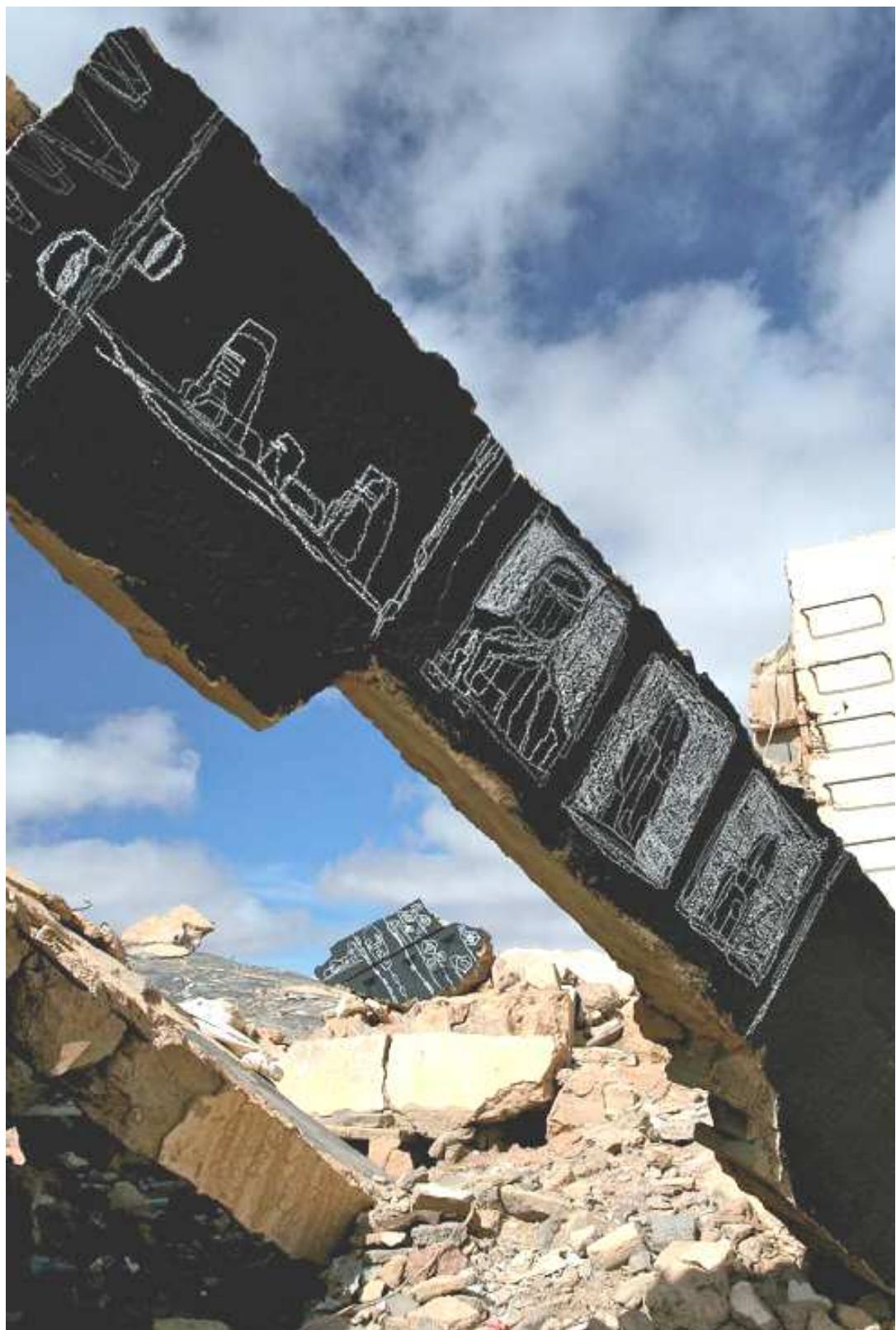
Fig. 7.16: *Un orden estblecido* or *An established order* (AR23b) by Barris Syphax (ARTifariti 2008). This piece is located just to the north of *The Rebirth of a Nation,* in the northwest courtyard corner of the old Spanish fort. Image source: ARTifariti.

Fig. 7.17: Wall painting simply entitled *S/T* (AR23c) by Azzouz Seïf El Islem (ARTifariti 2008), located on the south facing external wall of the southeast corner of the old Spanish fort at Tifariti. Image source: ARTifariti.

Fig. 7.18: View, looking east, of a wall painting on the south facing side of the old Spanish fort, entitled, *No me muevo hacia atrás* or *I do not move backwards* (AR3) by Bessaï Zineddine (ARTifariti 2008). Image source: ARTifariti.

Fig. 7.19: Silhouette portraits of the Algerian delegation of artists at ARTifariti 2008. The piece is simply entitled, *El Grupo* or *The Group* (AR3a). Images source: ARTifariti.

Fig. 7.20: Graffiti like paintwork on the south facing wall of the north range of the Spanish fort (AR23d); carried out by members of the Algerian group of artists attending ARTifariti in 2008. Image source: ARTifariti.

Fig. 7.21: *Viajando al Paraíso* or *Travelling Paradise* (AR11) by Maria Ortega Estepa (ARTifariti 2008). This mural was painted onto the façade of a building constructed on the foundation platform of a Spanish period *colonia* pre-fabricated house. It faces southeast. Image source: ARTifariti.
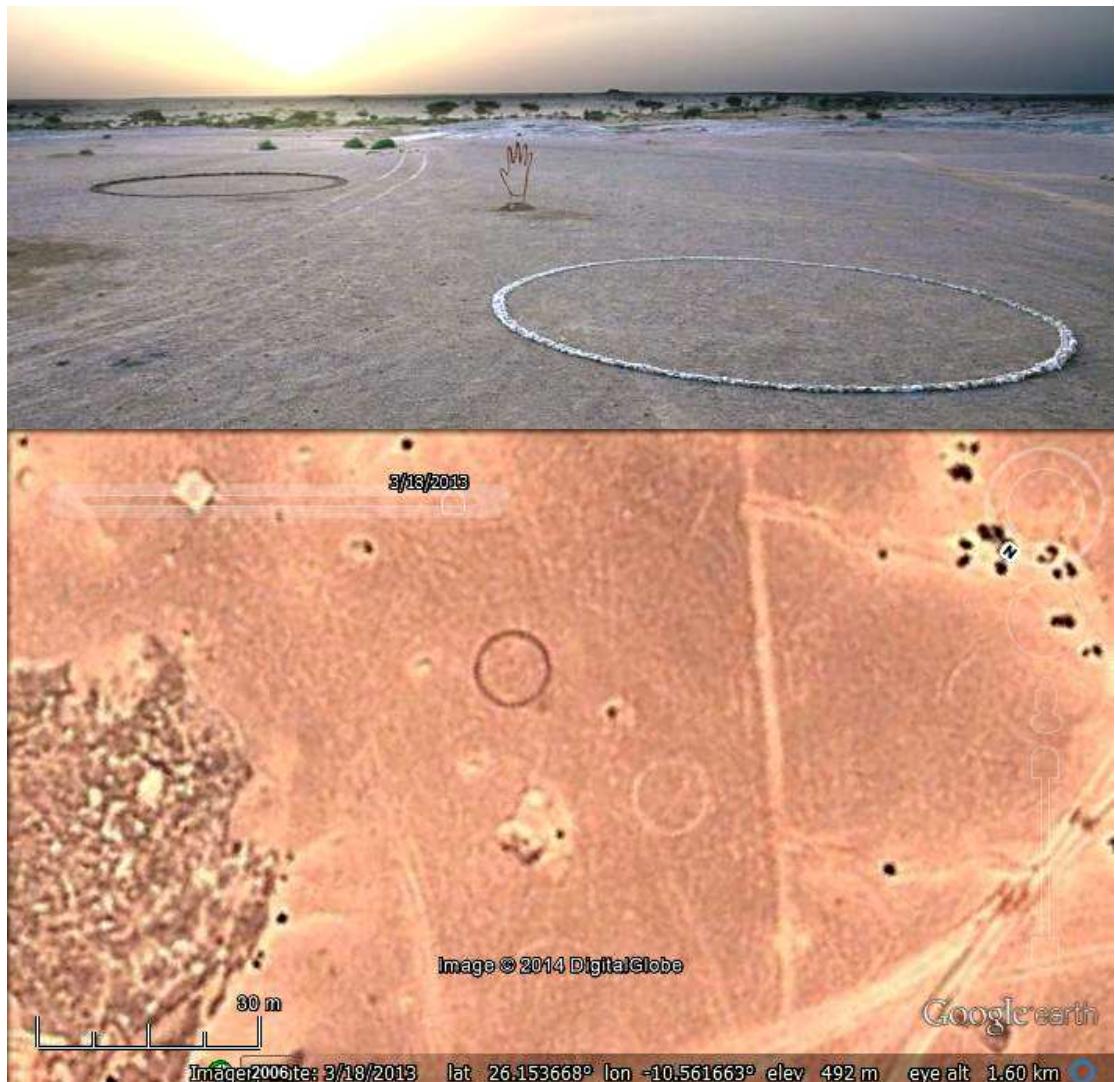
Fig. 7.22: *La sombra del gnomon* or *The shadow of the gnomon* (AR25) by Guillermo Roiz (ARTifariti 2008). Upper image: the hand is 'the gnomon', able to cast a shadow over the two stone circles. The circle in the foreground was made from quartz while the other circle was made from red stones. The lower, Google Earth image shows the two circles of this artwork clearly. North, for both images, is in the lower left. The scale bar in the lower left of the Google Earth image indicates 30 metres. It is a DigitalGlobe image, dated 18/3/13. Source of upper image: ARTifariti.

Fig. 7.23: Distribution of ARTifariti 2009 artworks recorded in 2011: AR1, AR7, AR8, AR12, AR19, and AR20.

Fig. 7.24: *Muro de la Vergüenza 'F Word' Tour 2010* or *Wall of Shame 'F Word' Tour* (ARTifariti 2009) by Francis Gomila. Plotted on Google Earth and posted on *vimeo*. Image source: from http://vimeo.com/9645169, accessed 16 May 2003.

Fig. 7.25: *Fósforo: Piss for peace* or *PHOSPHOR: Piss for peace* (ARTifariti 2009) by Francis Gomila and Bettina Semmer. A GPS track plotted at Tifariti and uploaded onto Google Maps, showing the ancient alchemy symbol for phosphorous. Image source: from http://piss4peace.digitalshrines.com/#home, accessed 16 May 2013.

Fig. 7.26: *Ficción o realidad* or *Fiction or Reality* (AR8a) by Kenza Mebarak (ARTifariti 2009). Wall painting and accompanying installation applied to the old Spanish period infirmary, now the office of the mayor of Tifariti. Image source: ARTifariti.
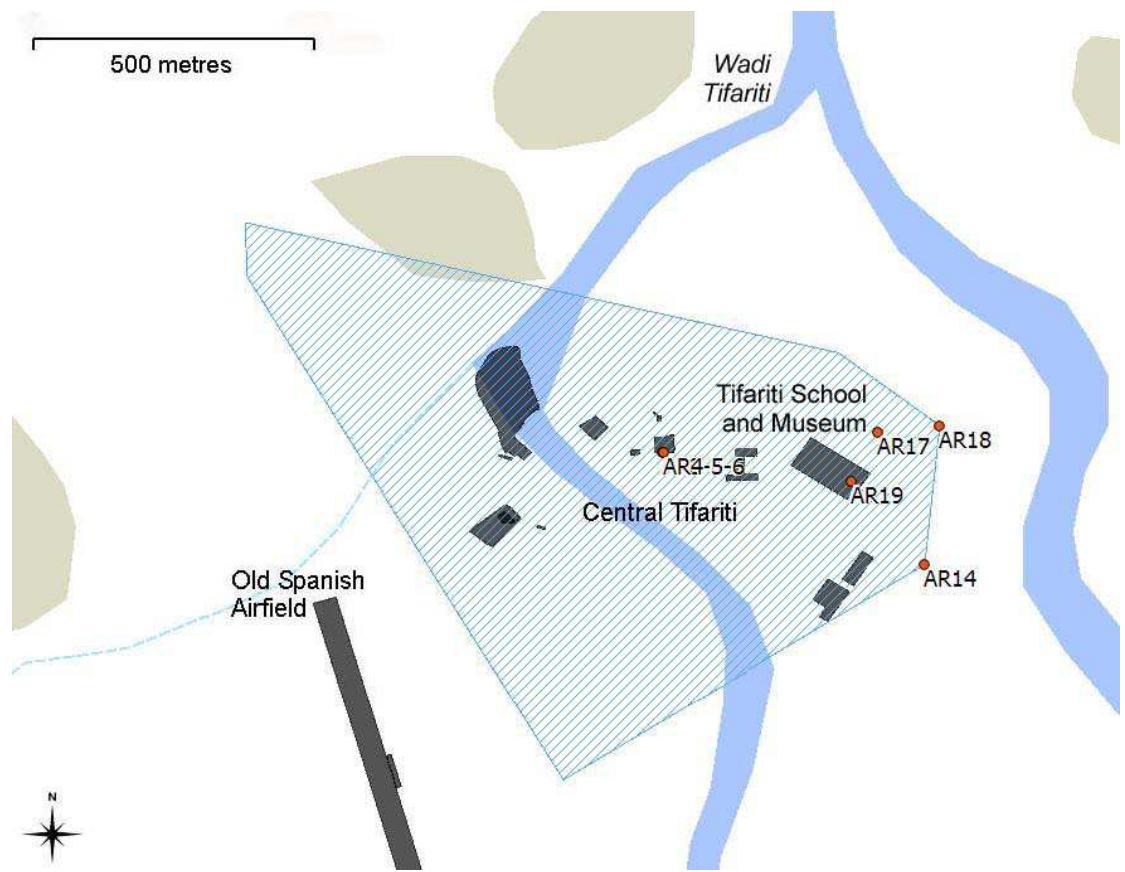
Fig. 7.27: Distribution of ARTifariti 2010 artworks recorded in 2011: AR3-5-6, AR4, AR14, AR17, AR18, and AR19.

Fig. 7.28: Portrait of *Nayem El Garhi* (AR4) by Federico Guzman (ARTifariti 2010), killed by Moroccan security forces at the Saharawi *Gdeim Izik* protest camp in Moroccan occupied El-Ayoun in 2010.

Fig. 7.29: *U'm Dreiga*, or *Oum Dreiga* (AR18) by Mohamed Moulud Yeslam (ARTifariti 2010). Referred to as a Saharawi 'Guernica', dedicated to the Saharawi civilians killed at Oum Dreiga and Tifariti during the Moroccan invasion of Western Sahara. Image source: ARTifariti.
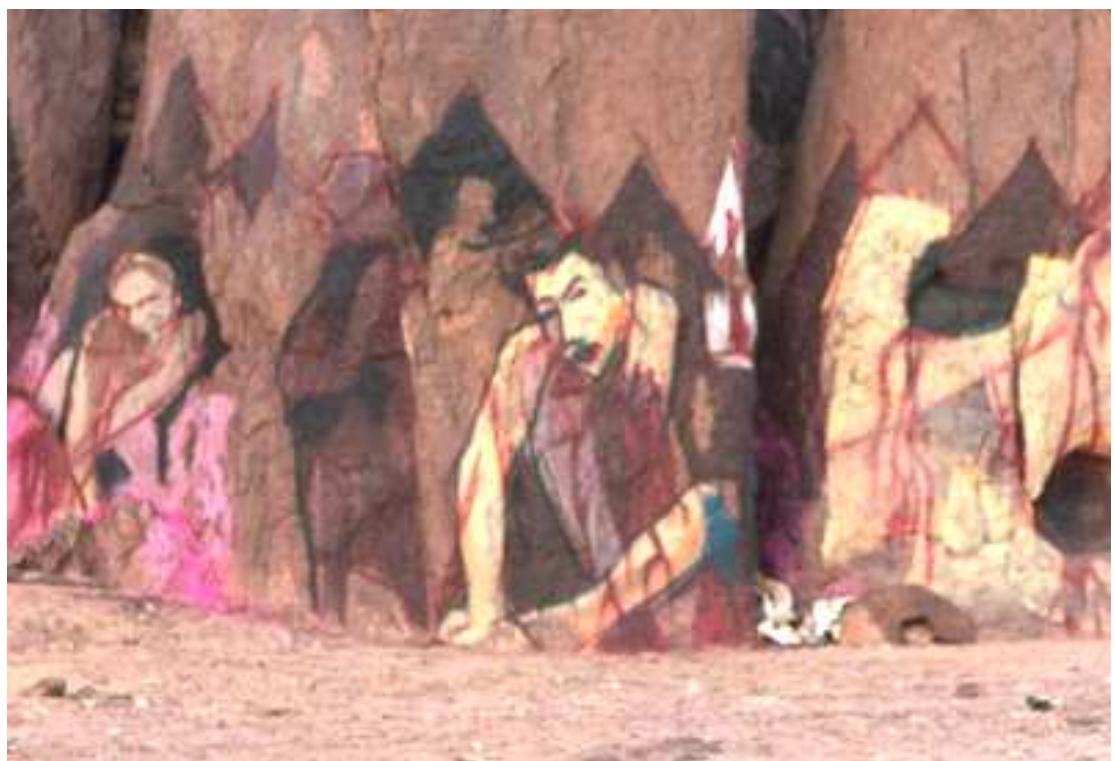
Fig. 7.30: Detail from *Oum Dreiga* (AR18) showing figures squatting outside traditional Bedouin tents carrying out 'daily chores'. Image source: ARTifariti.
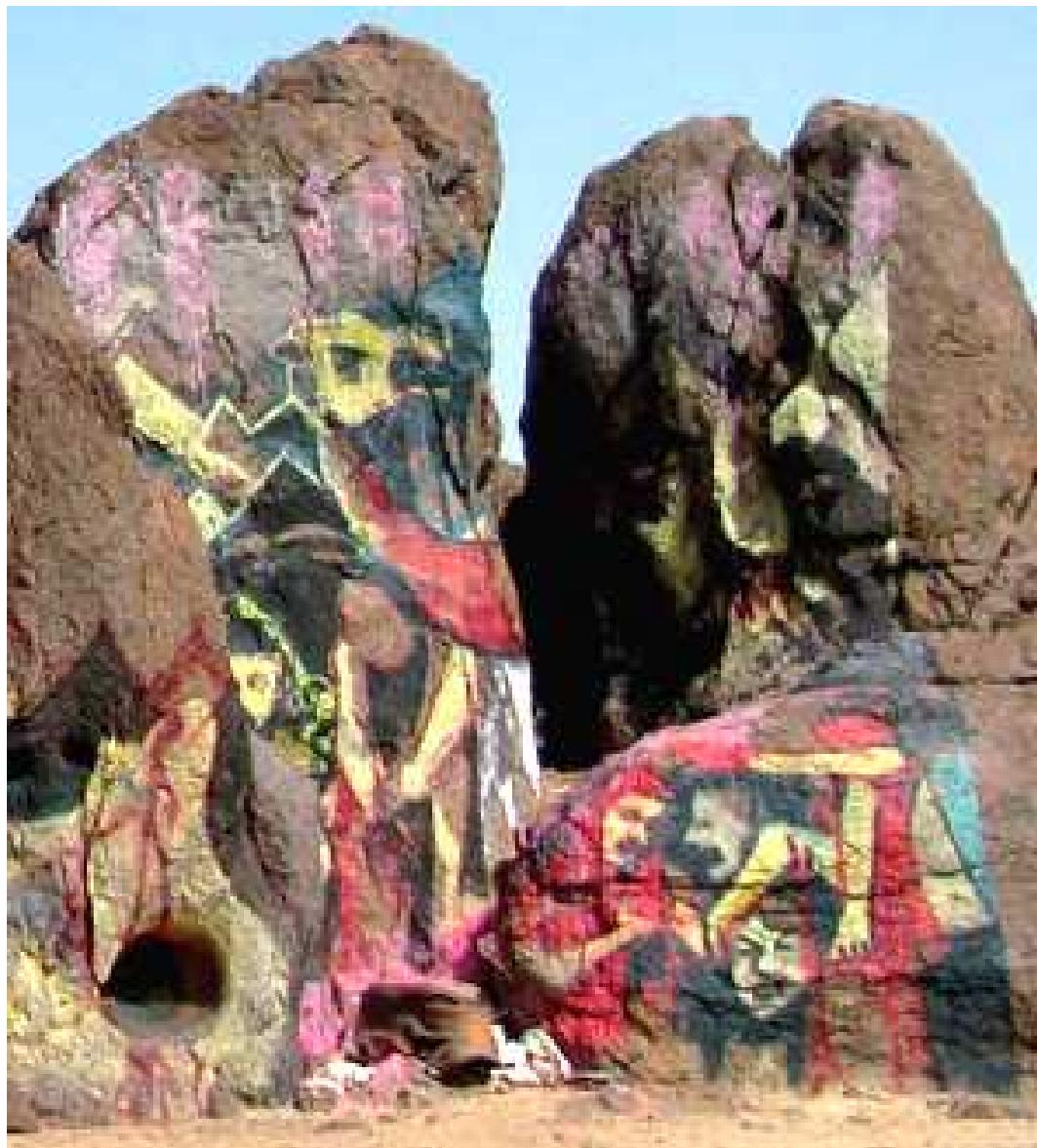
Fig. 7.31: Detail from *Oum Dreiga* (AR18) showing figures in agony, with the purple colouring above them representing a Moroccan napalm attack. Image source: ARTifariti.

Fig. 7.32: Detail from *Oum Dreiga* (AR18) showing the artist next to one of the two large faces that are on either side of the artwork. Image source: ARTifariti.

Fig. 7.33: Detail from *Oum Dreiga* (AR18) showing a crow or raven clasping a Saharawi baby. Image source: ARTifariti.

Fig. 7.34: *'The Massacre of Gdaeim Izik'* - with crows or ravens eating Saharawi children. Image source: http://mouludyeslem.blogspot.co.uk/search?updated-min=2012-01-01T00:00:00-08:00&updated-max=2013-01-01T00:00:00-08:00&max-results=2 accessed 18 May 2013.