Cape Town's million plus black township of Khayelitsha: Terrae incognitae and the geographies and cartographies of silence

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A B S T R A C T

The earth's inhabited areas are uneven in knowledge about peoples, landscapes and activities. The unevenness is attributed to the collection and dissemination of place-based knowledge by colonial powers, countries with long traditions of print knowledge, including the production of maps, and also the production of electronic information. This paper explores the concepts of *terrae incognitae* and the geographies and cartographies of silence about Khayelitsha, a township outside Cape Town that has more than a million residents. It examines geographical knowledge using Google hyperlinks and Scholar, placemarks (DigiPlaces) and Street View as well as information from travel sources. Reasons for the lacunae are discussed as well as working strategies to increase our awareness about the township's human and environmental conditions.

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"Like the earth of a hundred years ago, our mind still has its darkest Africas, its unmapped Borneos and Amazonian basin." Aldous Huxley (1954: 83).

Introduction: geography and knowledge

Geography is an earth-based discipline based in large part on observation and naming. The geographical knowledge we derive can come from field work, the construction and interpretation of maps, aerial photographs and satellite images and from our print and speech cultures (Livingstone, 2010). Maps are a major part of this knowledge accumulation, but so are the prose, poetry, photographs, sketches and drawings that have been constructed by scientists, surveyors, residents, local and itinerant travelers presenting, preserving and advancing knowledge about places and landscapes they observe, visit and reside. These knowledge-based worlds may be local and distant landscapes, sacred and ceremonial sites, places of exchange and also of the imagination. Many features visited, described and mapped for the first time by print cultures had names; many did not. Naming is part of the lexicon and memory of the local or resident group. If there were names for features, many might appear on the maps constructed by the residents or perhaps later by outsiders. If there were no names, the outsider might attach a "foreign" name to a dominant human or physical feature. Also the name attached to a place or feature could be changed by an outside or invading group. In short, the naming was attached to power and ownership, and especially the power of the occupier, who was the producer of place knowledge, viz., a map or a text. The above procedures were adopted by many colonial and imperial geographers, administrators and cartographers (Akerman, 2009; Edney, 2009; Harley, 1992; Noyes, 1994; Safier, 2009; Turnbull, 1996). Political changes can also lead to new maps and representations (Zeigler, 2002).

The direct results of geography/knowledge production and the geography/naming processes are that we have uneven densities both of the accumulated geographical knowledge of texts (narratives) and maps, including names on the land. The highest accumulated place knowledge densities about a subject (a cultural event, a plant community, specific land use or city) is where we haves the longest period of recorded information. Coastlines and islands in the low and middle latitudes are examples where the density of places and place attributes have been recorded by those occupying the same spaces for centuries or millennia. Sacred sites, major ports and major intersections on continental and transcontinental crossroads would be additional places where place name densities are high. Low densities would appear in places seldom visited or irregularly used for human transportation, agriculture, mining and defensive purposes. The same applies to harsh environments and sparsely settled areas where local names often persist, even with occasional outsiders entering for seasonal and extractive economies or military conquests.

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Another category of locations with low place name densities would be places that are feared by outsiders. Landscapes of fear may be genuine, for example, persistent conflicts or dreaded diseases, but fears expressed by those who believe that *what* is in those spaces/places and *who* is in them are not places they wish to venture, describe or even map (Tuan, 1991). The quote by Huxley at the outset is applicable here. Colonial outsiders sought control over these "foreign" spaces by drawing lines from a distant location; very often they were ignorant of what was on the ground. The direct impacts of these stereotypes and placeless knowledges were *terrae incognitae* and "empty spaces" on official maps. However, the "gaps" did contain place knowledge to those who lived there. These gaps resulted both in "cartographic silences" and "geographical silences." When administrators and cartographers they knew or reported nothing, they "filled in the spaces" often with "beasts or the sea and the land" which were meant to terrify others, even competing colonial rivals. Cartographers were especially successful in their missions by using words like "wilderness" (or "wild" places) for forests and inserting threatening creatures in jungles or drawing cartouches of exotic inhabitants along map borders. Many of these place stereotypes and mythologies were perpetrated by sensational journalists, government agencies, state cartographers and even scholars (for examples, see Bowden, 1992; Mitchell, 2000).

Local inhabitants would not have produced the same "place name maps" as colonial administrators and cartographer. They knew where places were because they were part of their heritage and daily life. Even if some heritage names were replaced or erased by new occupying powers, a process resulting in "palimpsest landscapes," their grounding in familiar spaces meant they could successfully navigate "what was where" without official signage and maps.

What is important in understanding this "geography and knowledge" nexus in a larger context is not only *what we know*, but also *what we do not know* about places. This nexus is just as relevant today in looking at historical place knowledge about a region or city as it is with high tech information gathering and labeling in contemporary settings. A combination of these writings, observations, and memories, and even digitized information, yields a knowledge base that is very uneven. That is, the "knowledge fabric" is full of holes and gaps or silences, both geographic and cartographic.

The purpose of this paper is to investigate the "knowledge geography" of one of South Africa's largest Black Townships, Khayelitsha, and specifically address "what we know" about it from several major information sources: travel guides, Google Search engine hyperlinks, and a recent aerial photograph of the township. These sources are standard ones that travelers, planners and scholars would utilize to study what we know about places. Whatever specific or detailed information is available will be part of Khayelitsha's "knowledge fabric." If is detailed, the results will tell us something; if there are major and minor gaps, we need to study the reasons for these as best we can and seek ways to improve the township's knowledge base and human condition.

Our uneven geographies and cartographies

In our examination of the uneven geographical knowledge about Khayelitsha, a black township near Cape Town, two concepts are very informative. The first is taken from John K. Wright's (1947) Presidential Address to the Association of American Geographers on "Terrae Incognitae: The Place of Imagination in Geography." Writing four decades before geographers and other scholars began discussing the imperial politics and power of cartography and naming, he addressed the importance of using our imaginations

and creative insights to explore those unknown worlds on the ground at all scales. The second is Brian Harley's 1988 article entitled "Silences and Secrecy" (Harley, 1988) which introduces us to the theories behind the "silences in maps," silences that often intentional adopted by the states producing maps. They are more than simply "blank spaces" on maps, but are integral and deliberate parts of map construction, including censorship, by the knowledge producers (states) themselves. The knowledge produced and represented on the map, including the silences, is also related to "the sociology of power and the idea that knowledge is power" (Harley, 1988: 58). In a related article (Harley, 1989) he uses Foucault's theories about power and representation to illustrate how states and state cartographers often deliberately deceived or manipulated map readers and users for imperial commercial and military purposes. Silences are not alternative parts of map language, but essential parts of it (Crampton, 2001; Wood, 1993).

Wright and Harley acknowledge that official the "knowledge" content includes illustrations and descriptions about places, landscapes and regions. A certain amount of temporal and geographical unevenness in that knowledge produced and images disseminated is expected. In this regard Wright (1947: 3) states that "If we look closely enough...the entire earth appears to be an immense patchwork of miniature *terrae incognitae*." In a contemporary context, we can still state that while we "fill in" some of these gaps through field observations, dynamic computer models and high resolution satellite imagery, gaps and silences still remain. For example, we have much more knowledge about some cities and parts of cities than others.

Khayelitsha: *terrae incognitae*

In early 2011 the senior author was a visiting professor at the University of Western Cape, a black and colored university founded during the South Africa's apartheid years. He traveled extensively around metropolitan Cape Town, participated in field trips and took several excursions led by local tour operators. From these experiences he learned about the region's rich heritage, cultural diversities, and social and political problems in post-apartheid years. One place he visited and wished to learn more was Khayelitsha, an informal Black township about 30 km (18 mi) east of Cape Town, south of a major road N2 (Fig. 1).

Estimates of the township's population vary from 1. 0–1. 6 million; we use 1 million knowing it is grossly understated. Khayelitsha was founded in the early 1980s as a product of forced removal under various apartheid Acts (Cook, 1985). It is also a settlement that many lifelong white residents of metropolitan Cape Town have never visited, or probably wish to visit, even if thousands drive by it daily on N2. Khayelitsha is probably considered by outsiders as a homogeneous Black township, a place of rampant poverty, high rates of HIV/AIDS, violent crime and lawlessness, squatter settlements, fear, confusing and disorganized street patterns, poor services and infrastructure and a destination for many new refugees. While many of these descriptions have some degree of accuracy, even casual observations driving through and around Khayelitsha reveal the township is far from uniform. There are some good and new government housing areas, a shopping center, a visitors' center and small industrial plants, but also large areas of shacks, absent play spaces, extreme poverty and informal economies.

Our curiosity into Khayelitsha's geographies and cartographies led us to ask and study three questions. First, *what do we know* about Khayelitsha, or perhaps, *what don't we know*, about this massive township? That is, what information is readily available for the outsider and the insider? Second, how might we grasp some notion about *what is known* about it? That is, where might we turn
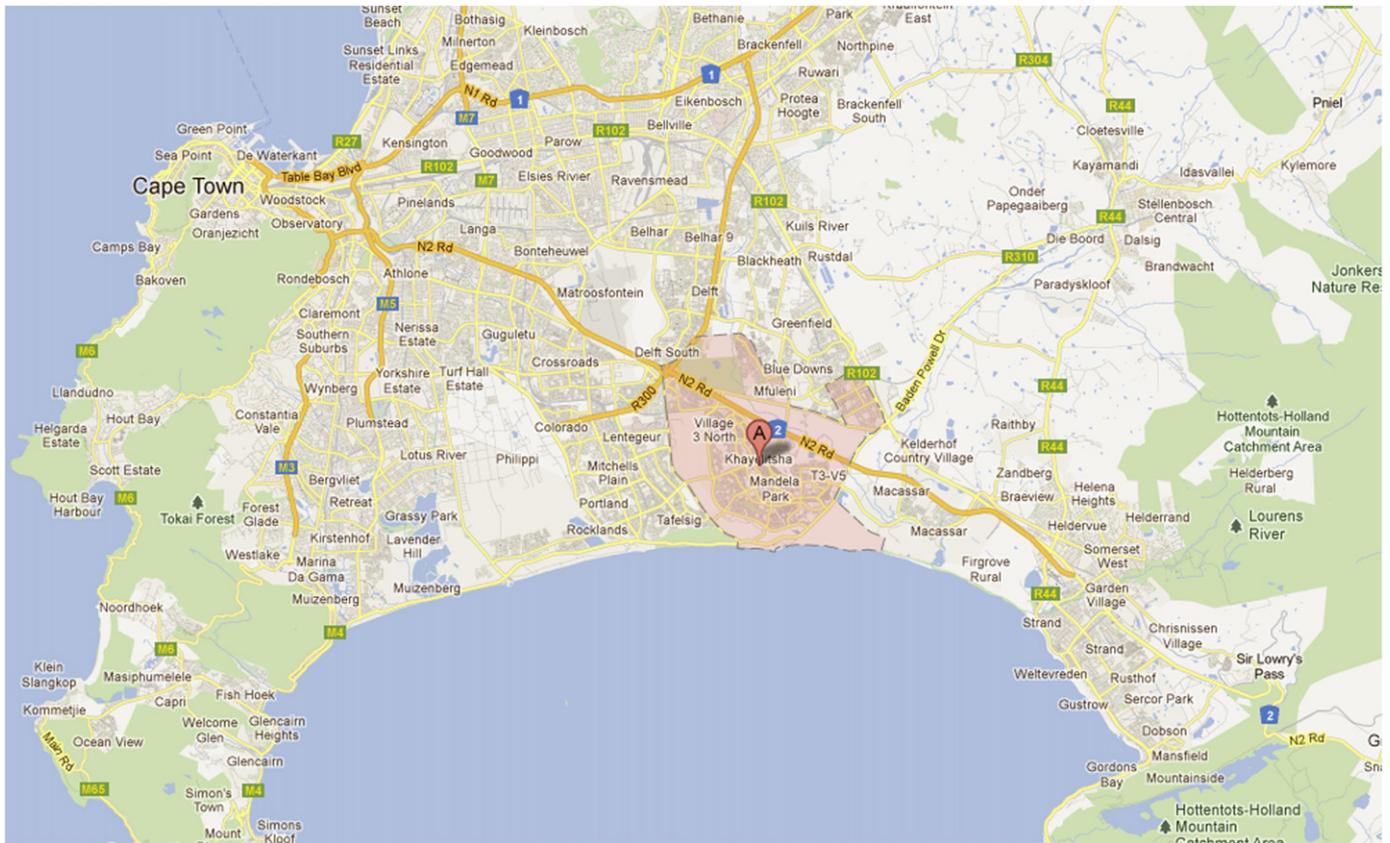
Fig. 1. Map of Cape Town region including Khayelitsha (Source: Google Maps, 2012).

to obtain information? Third, what maps are available and what do they show *and* not show? For outsiders seeking to come to grips with an understanding Khayelitsha's heritage, present and future, we are reminded of Cloke's (2004) intellectual and personal struggles trying to understand the geographical, social, and political legacies of injustice while at the same time engage in an intellectual and a caring/compassion research project that might improve the township's human conditions. Recent scholarly into Khayelitsha and other townships (Christopher, 2001a, 2001b; Ngxiza, 2011; Oldfield, 2004), albeit limited, suggests opportunities for more local research to improve the human condition. However, Otter's (2008) journalistic account of living in the township also provides some good place-based knowledge of the daily struggles facing the township's residents.

We adopt the "knowledge fabric" concept to investigate what we in the scholarly community *know* about Khayelitsha. Our "fabric" is composed of words or narrative sources as well as images. The words may come from scholarly research efforts, from travelers (insiders and outsiders), from tourists (domestic or international) and those familiar with places. Additional knowledge comes from maps and photos. In this light a number of questions arise. What kinds of official maps exist? Who makes them? What photos are readily available to the public? What places are most represented? Are they of familiar or unfamiliar places? And who takes and publishes the photographs? Are they from those residing in Khayelitsha, from outsiders, first time observers or those with lengthy experiences? Answering these will provide some knowledge perspective or base about Khayelitsha, even if an unrepresentative and incomplete snapshot. We use the following information sources: place names and place name densities, Khayelitsha "at night," travel literature, electronic entries from the

Google Search Engine, Google Scholar, Google Street Images and placemarks in the Google database.

Streets and place name density

We were provided a large aerial photo (approximately 1 m^2) of Khayelitsha published in February 2011 by the municipal authorities (City Maps, Strategic Development Information and GIS, 2011). The map, 1:9000 scale, displayed major streets, roads and paths as well as police stations, libraries, schools, and government hospitals. There are some areas where there are streets named and many others were they are not (Fig. 2). In regards to "names on the land," that is, marked streets, a drive through the township will yield two major observations. First, there are many parts where there is absolutely no signage, especially on minor streets or at intersections. Second, elsewhere there is dense signage. There are over 1100 officially named streets on the above map, many more areas with only a few street names, and other areas nameless. The better housing areas in the older parts of Khalyelitsha and major transport arteries have the most named streets.

The uneven density of named streets likely reflects several decisions. These would include the influx of new residents who arrive monthly from rural South Africa, but also from Zimbabwe, Mozambique, the Congo and even Nigeria, and settle in new areas. A second reason may be the apprehension of officials to actually place signage in the "un-named places" in the township. This reason may be based on fear to install signs in certain areas or also the likely possibility of theft and vandalism to installation. A third reason may be the lack of any neighborhood or community unit that is willing to cooperate with township planning, security and fire prevention officials.
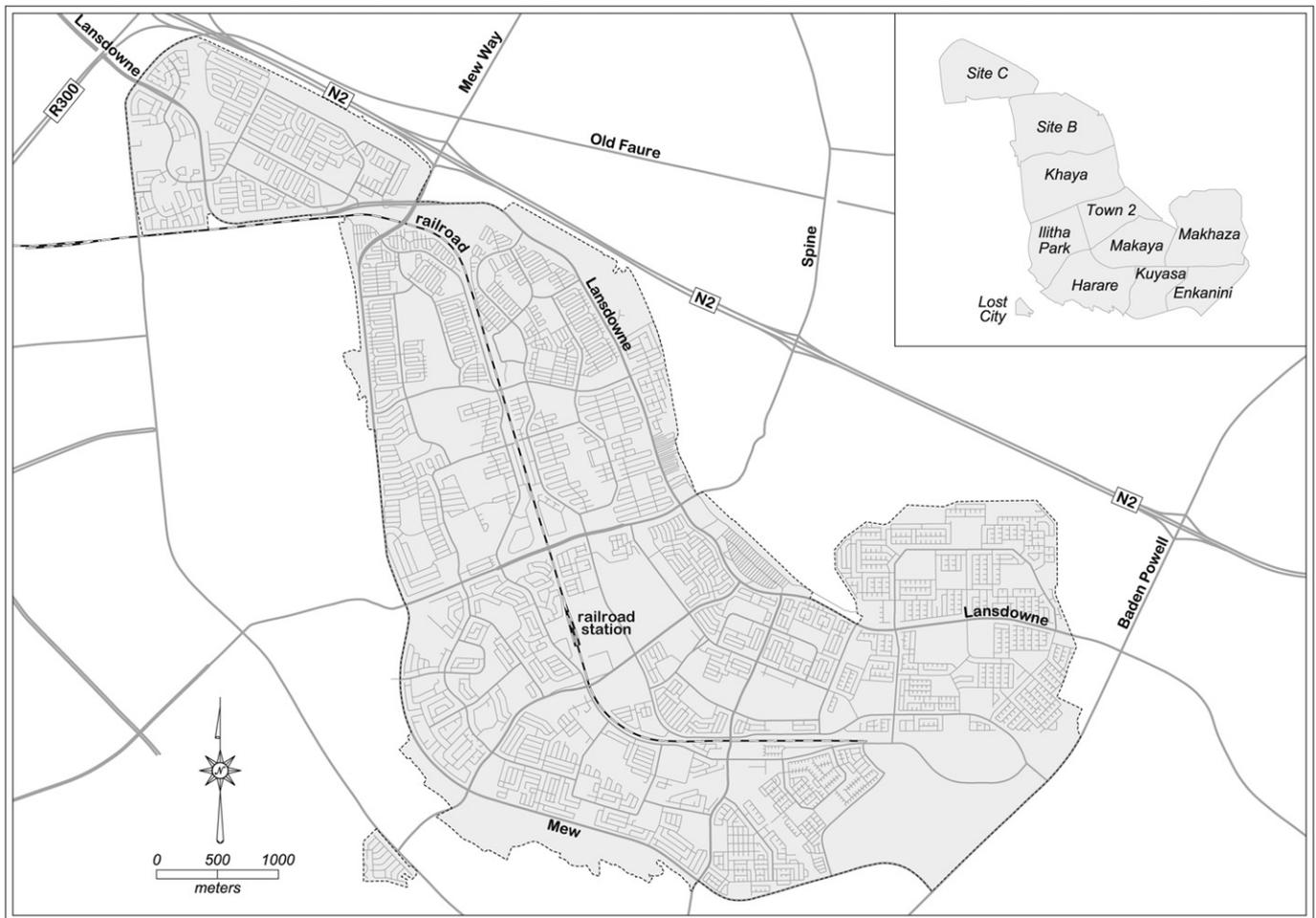
Fig. 2. Major sections of Khayelitsha and streets (Adapted from: city maps. Strategic development information and GIS).

The neighborhoods with the most names were Khaya, Site B, Makhaza and Site C. Victoria Mxenge, Mxolisiphetani, Khaya and Griffiths Mxenge have the highest clustering of streets named. Neighborhoods bordering on N2 also had high densities. Medium density areas include Umrhabulo Triangle and Iiitha Park. Neighborhoods with no street names include southern Harare, Silverton north of Griffiths Mxenge, eastern Kyuasa, Enkonino and Barnet Molokwana Corner (north of Lansdowne).

We classified and mapped Khayelitsha into four categories based on street name density: high, medium and low density and an absence (Fig. 3). The map illustrates the points made earlier, viz., that there exist large areas on this planning map with no official place names. These "blank places on the map" become problem areas when there are fires (not an irregular phenomena) and also major crimes. Cape Town and Khayelitsha (not sure who has official control) police are often reluctant to enter the area, as are fire fighters. The problems are not only unnamed streets, but also narrow streets which are difficult for fire trucks and ambulances to enter. Also trucks may be long distances from water sources. Often fires are left to burn out. Victims of crimes may also be long distances from hospitals and clinics, which add to the difficulties of emergency teams entering the area.

Khayelitsha at night

All places have both daylight and nighttime geographies. Geographers and historians have studied nighttime urban
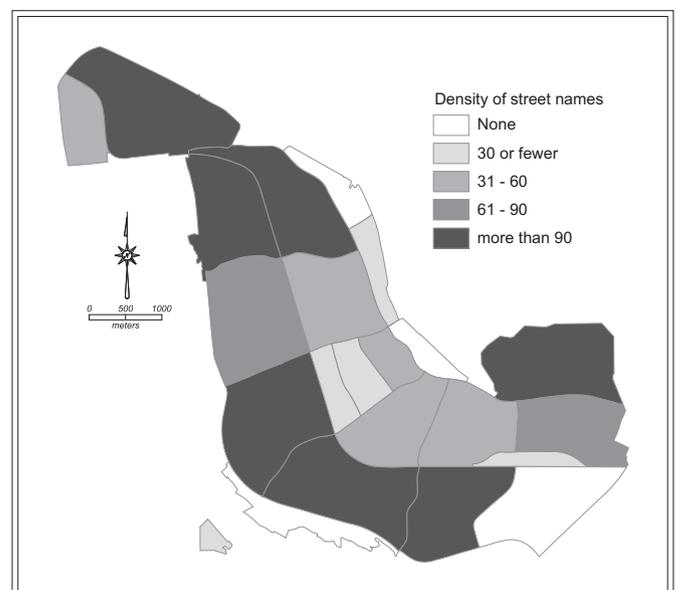

Fig. 3. Density of street names in Khayelitsha (Adapted from: city maps. Strategic development information and GIS).

geographies mostly from lighting technology and economic/industrial perspectives (Dewdney, 2004; Jakle, 2001; Melbin, 1987). Other examples of nighttime geography include Agnew, Gillespie, and Gonzalez (2008) on nighttime imagery and U.S. military actions in Baghdad and Sutton, Goetz, Fildes, Foster, and Ghosh (2010) on Australian cities' urban sprawl. Seldom have social justice issues surfaced, an exception being Jakle's (2001: 248) brief mention of the social class irregularities in U.S. central cities and suburbs following the 1960s civil rights struggles. During daylight one can observe many place features, including built environments, economic and economic activities and interactions and also distinctive physical features. The daylight landscape is likely to be a collage of colors (buildings, signage, clothing, and human diversity) that disappears at night unless the landscape is lighted. A lighted landscape at night, whether viewed from ground or from a low flying aircraft will have some distinctly different features. A well-lighted landscape bespeaks much about wealth, class, political order and security.

The geographies of the night have other sides, viz., places that are poorly lit, irregularly lit or even without electricity. Poorly lit areas are not an uncommon feature in many large metropolitan areas of the Third World, nor are power outages (day or night). Blackouts may occur at regular intervals, but just as likely at unexpected times and in unexpected places. A third category of the lighted landscape identifies areas with no electricity, that is, no access to the power grid. At night, these places will be completely dark because the government or private sector has not "hooked them up" to the grid, or because residents cannot pay for access, or because authorities may wish residents remain powerless (politically as well as energy-wise).

Applying these "lighted landscape" categories to Khayelitsha would likely yield patterns not altogether dissimilar from the place name densities. There are parts of Khayelitsha that have

streets as well lighted as those in Gugulethu and Langa. But there are also places where there are occasional street lights and other areas where there are no electric power lines. And these are places that are completely dark at night. Our efforts to obtain a detailed large scale map of Khayelitsha at night were in vain. The familiar global "Earth at Night" map shows the most lighted places at night are cities that use high volumes of electricity for households and businesses. Densely populated urban areas of North America, Europe, East Asia and Australia are clearly visible from satellite imagery. The night skies of South Africa exhibit sharp differences: Johannesburg, Durban and Cape Town clearly show up as do Port Elizabeth, Kimberly, Pietermaritzburg and East London.

Fig. 4 is a satellite photo of the Cape Town area, including Khayelitsha where the individual pixels (squares) are a measure of reflectance or relative brightness. The squares are large because of the low resolution and also the zooming in from such a high elevation. Some areas of southern Cape Town show up as an area of high lighting reflectance or brightness as do Blue Downs and the northern part of Khayelitsha along N2.

Travel books and websites

Books for travelers are additional sources of place based geographical knowledge. Travel information often is accompanied by maps showing major hotels, museums, and parks but also photos. Travel guides are prepared, written and published by "gatekeepers," that is, groups who may have some associations with local tourist promoters, transport carriers and official tourist offices. These gatekeepers play influential roles in what tourists observe and *do not* observe. If a place is cast in a negative light, it may color the impression of the visitor even before she/he observes it. If a place is omitted entirely from the repertoire or the tourist
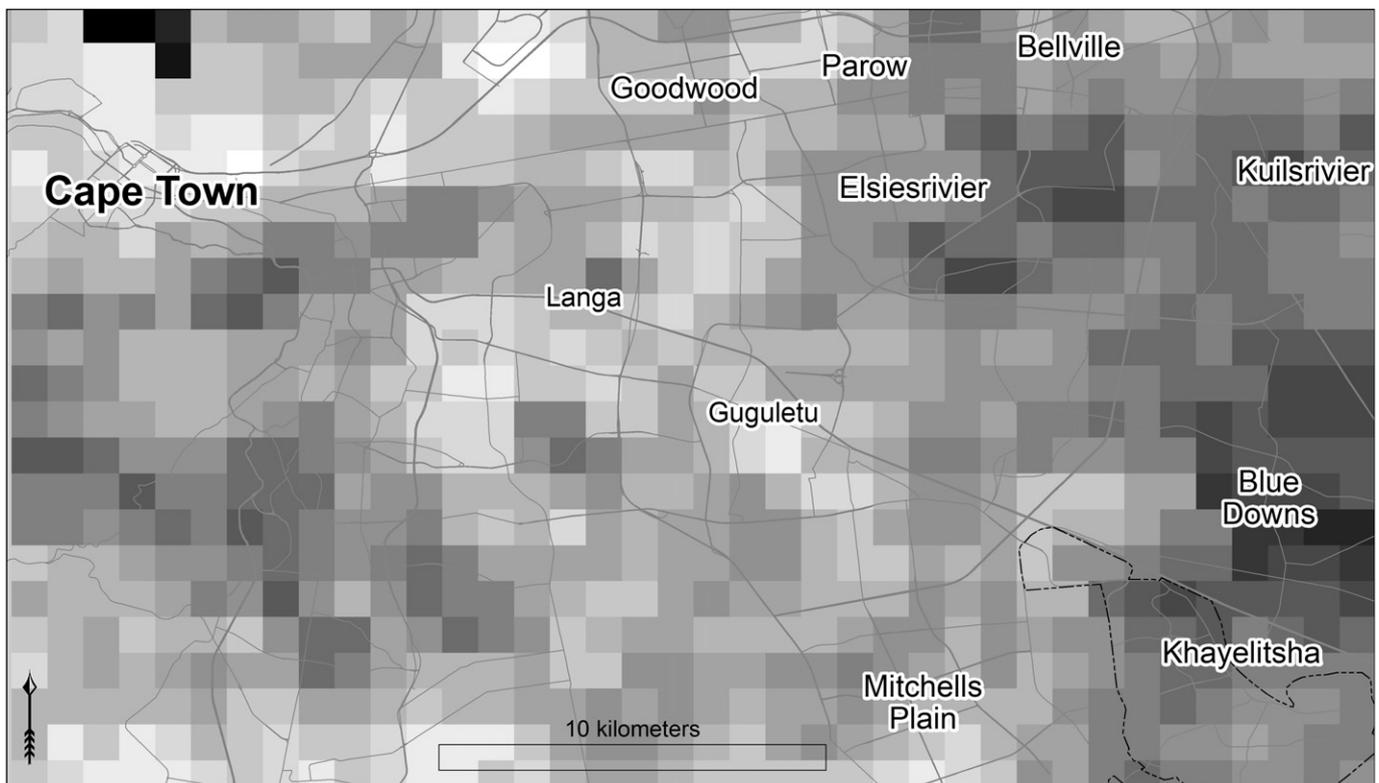

Fig. 4. Relative brightness of Cape Town and environs. Source: NOAA 2012.

literature, it may be a deliberate omission by the author and/or local tourist promoters.

We examined several recent travel books for information (images, maps and words) about Khayelitsha. Fodor's Exploring South Africa's (2006) includes a close-up photograph with this caption "Shanties in the Cape Flats show a very different view of Cape Town" (p. 68). This is the only page with any text; it states the following in describing Khayelitsha, Langa and Gugulethu: "The most outstanding of the three trips In the area is Khayelitsha which sprang from nothing to become a shanty city of over 1 million people in the space of a very few years. Serious efforts are being made to provide better conditions, but steady urban drift ensures that as soon as one area is sorted out, another squatter camp springs to replace it." In this same book there are 22 pages with references to Cape Town, 15 about Johannesburg, 10 about Durban and 2 about Stellenbosch. Another Fodor Guide, South Africa: The Practical Illustrated Guide (2009) has no references to Khayelitsha nor does Michael Brett Eyewitness Travel, South Africa (2009) of Time Out's Cape Town. Winwllands and the Garden Tour (2008). Fodor's South Africa (2010) includes only this statement about Khayelitsha (p. 40): "Though separated from the city by highways, the continually expanding townships of Khayelitsha, Nyanga, Langa and Gugulethu are integral to Cape Town's life, housing the majority of the city's nonwhite workers and influxes of immigrants." This same source includes 14 pages with information on Stellenbosch, 9 on Franschook, 8 on Port Elizabeth, 8 on Soweto, and 6 on Pretoria in addition to 100 on Cape Town and the Peninsula, 63 on Durban and 56 on Johannesburg. DK's Eyewitness Travel: Top 10 Cape Town and the Wine Industry (2008) includes only two references to Khayelitsha. On p. 74 we read: "Practically uninhabited until the 1940s, the sandy flats to the east of the peninsula were urbanized after forced relocation of locals for "Whites Only" suburbs to townships such as Khayelitsha, Langa and Gugulethu. Despite upliftment, poverty is still high." And on p. 42 is this short caption about District Six and Township Tours which starts "at the District Six museum and then moves to Langa and Khayelitsha townships stopping for lunch at a local eatery (or shabeen) (bar). Zibenele Tours offers several variations." Finally on p. 51 there is a discussion of "Exploring Local Culture: in the Cape Town region. It reads: "Khayelitsha is an isiXhosa phrase meaning "Our new home." Khayelitsha is on the Cape Flat; started life in the 1950s after the Group Areas Act was passed. Recognized as a township only in 1985, it is one of South Africa's poorest urban centres" (p. 51). In this source there are no references in the index to Soweto, but 14 fourteen for Stellenbosch. Richmond and Ranger's Lonely Planet Guide, entitled Cape Town City Guide (2009) is the only travel book accessed with four different pages of information on Khayelitsha. It describes the innovative Kuyasa solar energy project in Khayelitsha (p. 43), the township's annual festival (p. 20), its million population (p. 108) and quotes from Steven Otter's experiences in living in the township (p. 111). The official website for Khayelitsha Tours describes the view from Look Out Hill, township tours, the craft market and Flickr images (Cape Town Tours, 2012).

Google hyperlinks

Another source of geographical information in the electronic world is the Google Search Engine. For many academics, practitioners, tourists and students, Google is a major source of information about places. Entering the word or phrase into the search box will yield not only the total number of entries or hyperlinks about that subject, but also the most ranked sites. The PageRank algorithm provides a measure of the value of a website's quality (Brin & Page, 1998; Thrift & French, 2002).

One could assume that the importance of any topic can be gained by the number of hyperlinks. Thus a site with 4 million hyperlinks is more important than one with only 2 million hyperlinks. Hyperlinks are electronic data entries only; they say little about a site's value or accuracy for comparative purposes. In our case we wanted to compare Khayelitsha's results with other South African cities (Google Search Engine, 2012). In mid-January 2012 the top two cities were Cape Town with 127 million and Johannesburg with 118 million, then Durban (79 million), Pretoria (74 million) and farther down the rankings, East London (23.6 million) and Port Elizabeth (22.3 million). The largest city/metropolitan populations were Cape Town (3.4 million), Durban (3.1 million), Johannesburg (2 million), Pretoria (1.6 million) and Port Elizabeth (957,000). Khayelitsha with an estimated 1.3 million residents (Google's estimate) had 928,000 hyperlinks, which were fewer than any of the above cities as well as Stellenbosch (14.8 million). Khayelitsha's population would rank it sixth in the country, but its hyperlink numbers would place it twelfth.

There are some major differences in the rankings of South African cities in regards to their population and hyperlinks (Table 1). It is not surprising that Cape Town, Durban and Johannesburg, as the three largest cities and metropolitan areas, would also be the leaders in number of hyperlinks. What is striking in the middle column of Table 1 are the population ranks of Soweto and Kyalelitsha, each over one million (larger than Port Elizabeth, Pietermaritzburg and East London), but ranked 10th and 12th in hyperlinks. Stellenbosch with a population less than one-tenth of Khayelitsha has nearly fifteen times more hyperlinks.

The entries in the Google Search Index for Khayelitsha reflect a diversity of topics. There are sites about its history and the Group Areas Act, schools and scholarships, guided tours, property for sale, government and NGO projects, AIDS, housing and music. The top 50 sites list Guided Tours (which did not exist a decade ago), Bed and Breakfasts and domestic and international programs designed to improve the health of children and women and marginalized groups (Table 2). When one enters Khayelitsha and combinations of other words in the search box, the number of hyperlinks vary: township (737,000), town (567,000), economy (509,000), tours (469,000) and landscape (297,000). All these numbers pale in comparison to these word combinations for Cape Town, Durban, Pretoria, East London and Stellenbosch.

Google Scholar index

This source lists articles in scholarly journals, book chapters and reports by governments and NGOs. There are many fewer total

Table 1
Populations and ranking of cities/townships in south Africa in the Google database; January 2012.

City/township	Total pop. (million)	Rank: pop	Total hyper. (million)	Rank: hyper	Google scholar (thous.)	Rank
Cape town	3.4	1	127	1	833	1
Durban	3.1	2	79	3	99.2	5
Johannesburg	2.0	3	118	2	191	3
SOWETO	1.7	4	9.9	10	21.9	11
Pretoria	1.6	5	7.4	4	236	2
Khayelitsha	1.3	6	.9	12	.5	13
Port Elizabeth	.967	7	22.3	6	30	9
Pietermaritzburg	.750	8	10.4	9	31.3	7
East London	.549	9	23.6	5	285	4
Bloemfontein	.371	10	21.1	7	25	10
Mafikeng	.250	11	.2	13	2.2	12
Kimberly	.189	12	7.8	11	30.9	8
Stellenbosch	.117	13	14.8	8	73.4	6

Data accessed from Google Search Engine and Google Scholar, 11 January 2012.

Table 2
Major categories of the top fifty entries about Khayelitsha from
Google search database.[a]

Topic	Frequency
Tours & attractions	5
AIDS and treatment	4
Bed & breakfast	4
Images	3
Property for sale	3

[a] Data accessed from Google Search Engine, 11 January 2012.

entries in the Index than in the much larger Google Search engine
database (Google Scholar, 2012). Again, it is not surprising that Cape
Town, Pretoria, Johannesburg, East London and Durban are the
main leaders in articles in this database (Table 3). Cape Town clearly
dominates the picture. The middle ranked cities are not surprising,
but those for Soweto and Khayelitsha may be. There are only a few
more than 5000 references to Khayelitsha in this professional/
scholarly database and about 22,000 for Soweto. By contrast, both
Port Elizabeth and Kimberly have about 30,000 and Stellenbosch
more than 73,000.

This database did not have the diversity encountered in the
generic Google Search index. Over half (total of 29) of the first 50
references were about health, especially AIDS and ART (anti-
retroviral) treatment. Two-thirds were studies published after
2000. Altogether nearly 40 percent of all references were about the
treatment for AIDS. The health references were about women,
midwives, mothers, children and also traditional healers (*sango-
mas*). Economic development issues also were the subject of a few
studies, including job searching, the informal labor sector, poverty,
migrants and seasonal labor. Single references were for storm water
damage, telecommunications, urban gardening, energy, urban
gardening, safety and guns.

DigiPlace

Geographers Zook and Graham (2007a, 2007b), Graham and
Zook (2011), and Shelton, Zook, and Graham (2012) have intro-
duced scholarly communities to some novel ways of measuring the
importance of places in a cyberspace context. They developed
algorithms to define the actual places (work, eating, play, worship)
using Google Search Index and Google Mapping. Their geo-
referencing or geo-coding efforts illustrate the production and
cartographic representation of place-based data in an Internet
world. The concept DigiPlace depicts these placemarks or places in
cyberspace. Their methodologies and results offer some new and
fresh insights into human relations in both material and cyber-
worlds but also questions about democracy, security, privacy,
power and ownership.

An example of the DigiPlace is illustrated in Fig. 5 which shows
the placemarks for Khayelitsha, Cape Town and other suburbs. The
map echoes the points made above, viz., that there is little infor-
mation about the township in the Google Map database. Place-
marks are much more numerous for Cape Town, especially the

Table 3
Major categories of top fifty entries about Khayelitsha from Google Scholar
database.

Topic	Frequency
AIDS and ART treatment	19
Other health (women, children)	11
Economy (jobs, wages, poverty)	7
Migration and migrants	4

Data accessed from Google Scholar Database, 11 January 2012.

higher income areas as well as the wealthy sections in and around
Table Bay, Hout Bay and Fish Hoek. Langa, and Guguletu and
Mitchell's Plain also have few hits or placemarks. The lowest
category identifies those places with less than 5 placemarks; the
highest are in excess of 2500.

Google street mapping

The introduction and release of web-based mapping products
like Google Maps and Google Earth have facilitated new forms of
interactions between map producers and users and map technol-
ogies. Google Earth, made available in 2005, allows users to navi-
gate the globe, zooming into neighborhoods and communities and
using high resolution imagery to stitch together a digital repre-
sentation of Earth. In 2007, Google released Street View, a product
that goes one step further from a bird's-eye view to the view of
a pedestrian. It collects imagery using vehicles with a roof-
mounted camera which now blurs faces in an effort to protect
privacy (Elwood & Leszczynski, 2011). Street View allows users to
move down a street, panning left and right, to examine the built
environment during the day.

While Street View thoroughly documents the streets in many
developed cities, informal settlements are not well captured (Paar &
Rekittke, 2011). As illustrated by Fig. 6, Street View is only available
for Khayelitsha along main roads at the edge of the township. And
while many of the streets and alleys are named along the west side
of M9, the east side is completely unintelligible. The user is left with
stunning images at the edge, as in Fig. 7, and a curiosity about what
lies beyond. Certainly, Street View aids search and navigation, as
a way-finding tool for the digital savvy. But these representations
serve as additional evidence about the *terrae incognitae* in Khaye-
litsha, even in an electronic information age.

Moving beyond the silences

The scant (or absence of) materials in scholarly and popular
sources about Khayelitsha illustrates clearly the "geographies of
silences" concept. While the Google Search engine contains
hyperlinks about a wide variety of different subjects about the
township, there is little information as revealed in an analysis of the
top 50 ranked sites, about poverty, high unemployment, health
issues, and environmental conditions. The Google Scholar database
also has few references. Missing from these scholarly treatments
are studies as well about Khayelitsha's education, economy, human
services and community empowerment.

The silences extend beyond the written word to include images.
Few photographs are included on websites and in travel narratives.
The terse one or two sentences in guidebooks are countered by the
dozens of pages of much smaller cities in southern South Africa.
Some travel books have no references at all to the township. The
silence could lead one to think that this place does not exist and if it
does not exist, it is not worth reporting, visiting or studying.

Tackling the question "why the silences exist" can be difficult
both for insiders and outsiders to answer. We offer three reasons,
all which need more study. First is that Khayelitsha is just consid-
ered an undesirable, unsafe, unwelcomed, and unpopular place to
visit or study. Issues about fear (especially perceived) are often
behind *what one studies where*. Second is that studying Khayelitsha,
and indeed other nearby communities (Langa & Gugulethu), may
not offer the kinds of professional and personal rewards that come
with on-site field investigations done elsewhere. Rather rewards,
including funding, may be more likely to come from studying
employment, health care, children, women, and migrants else-
where in Cape Town or other cities. The third reason is that there is
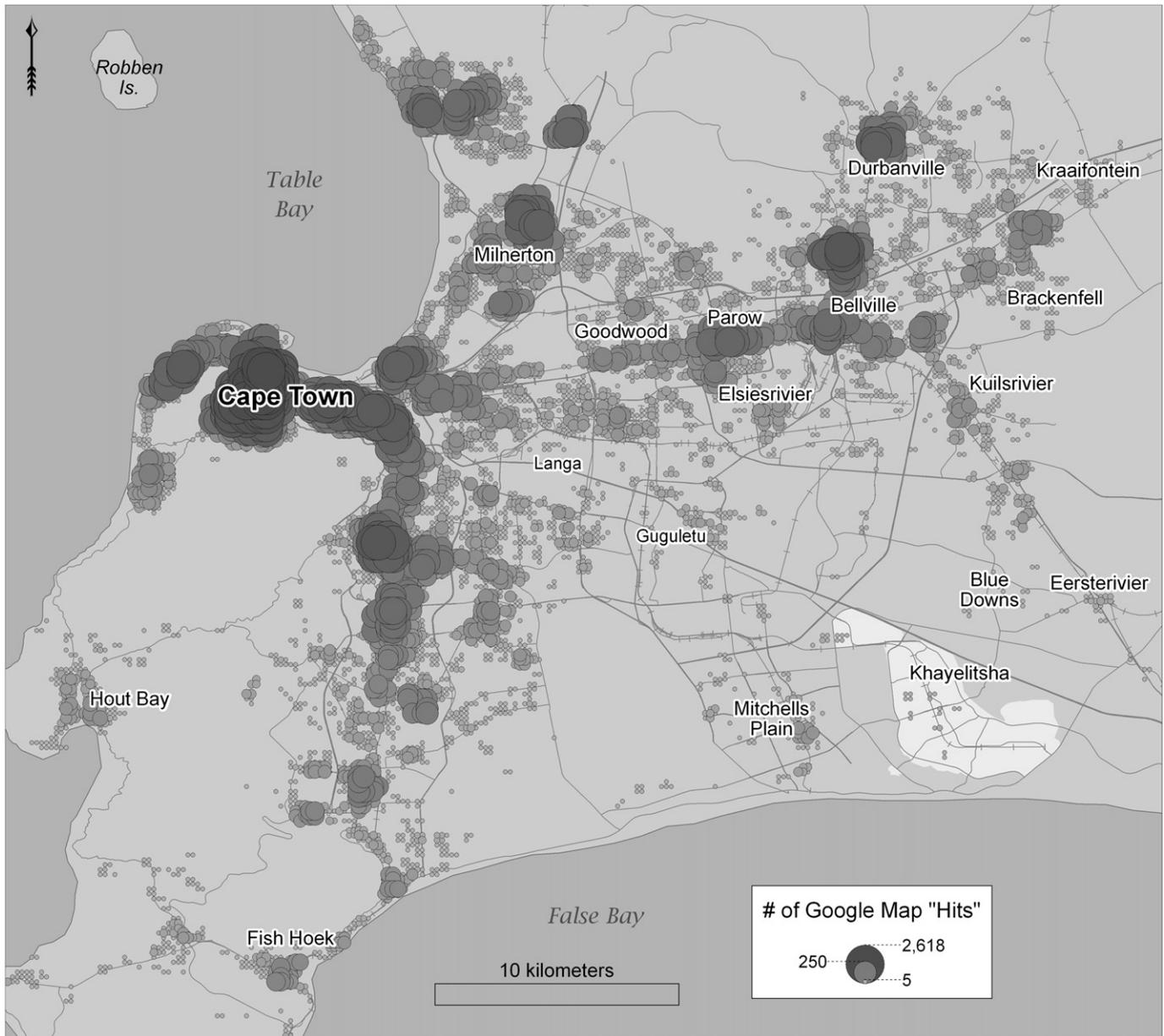too little known about Khayelitsha from which one can initiative

Fig. 5. The volume and density of digiplaces or placemarks in Cape Town area.

a short or long term research project. Or it would very difficult, expensive and time-consuming to obtain reliable historical records or gather useful personal data from local residents and institutions. That is, the "unknowns outweigh the knowns."

Considering all the above reasons for not studying the township are three counter points. First, there are scholars, youthful in many fields who do not shirk from study "the unknown." This point was made by Wright (1947). That is, they enjoy venturing into places where others have some trepidation and accept the challenges to "remove the narrative and cartographic silences," even if imposed by power and the state (Harley, 1988). Second, there are organizations and groups who welcome pioneering ventures on topics we know little about or where information is incomplete and inaccurate. These may be family foundations and NGOs who seek to correct legacies of injustice and environmental destruction. One example is the collaborative interdisciplinary research project funded by Stellenbosch University, South Africa's Netherlands Programme on Alternatives in Development (SANPID), and the

University of Western Cape (Liebowitz et al., 2013). It brought social work and psychology faculty and students from both universities to share their experiences and worldviews. Third, there are professional and popular journal editors and publishers, including in the trade and tourist markets, who supportive creative community empowerment. Their gatekeeping roles include going beyond "the familiar" to "fill in the silences."

Scholars can, should and do play a major role in "filling these gaps," but so do those who write travel books and novels about places and landscapes. We need to welcome those who engage in different kinds of scientific spaces, including expedition and exhibition which "choreograph their different geographies" (Livingstone, 2010: 5). NGOs and government offices can also foster and assume roles in innovative seeking ways to provide creative accurate "word" and "image" documents and narratives about places. Electronic databases users need remember that there are a number of topics about Khayelitsha's past and present that merit detailed investigations, for example, field work (observations and
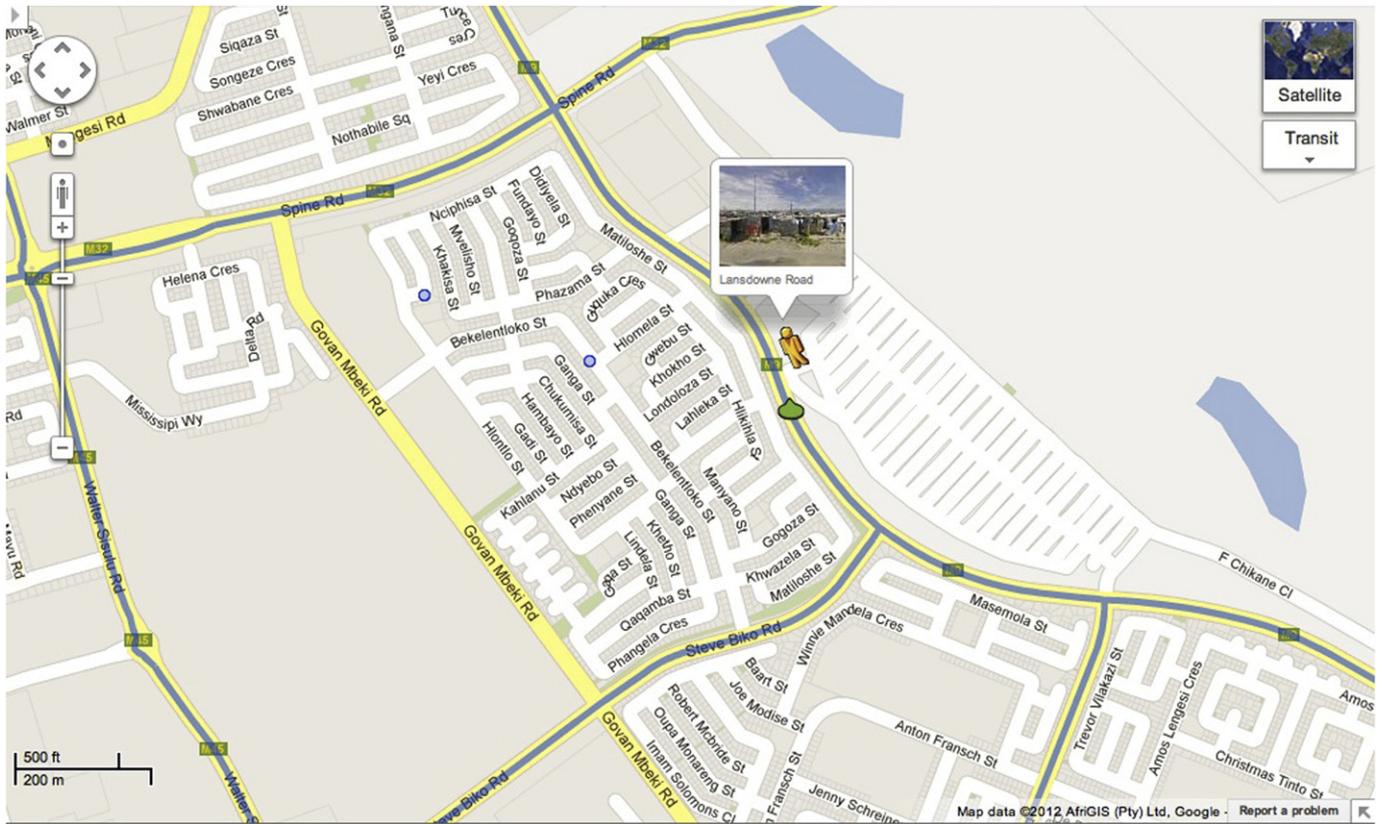
Fig. 6. Map of streets with Google street images (Source: Google Street View, 2012).

interviews) and archival projects concerned with equity and justice (Tshehla, 2002). This township that has a lengthy history of residential segregation and still is affected by the legacies of apartheid. It would seem appropriate for South African social and policy

scientists, and those from the outside, to collaborate on human condition research. This is the same challenge Cloke (2004: 94–101) makes specifically about Khayelitsha in both a "contact space" context as well as beyond the academy.

Fig. 7. A photo of a street scene in Khayelitsha (Source: Google Street View, 2012).

Towards a *terrae cognitae*

Wright states that "Geographical research seems to convert the *terrae incognitae* of science into *terrae cognitae* of science (p. 4). This conversion comes with expanding our knowledge or database and cartographic imaginaries into places where the gaps and the silences persist. It is "in the periphery that lies outside the core area of scientific geography that there are the alluring *terrae incognitae*" (p. 14). Geographers can contribute to this expansive narrative and visual databases, but we can also rely on other professionals (skilled journalists, poets, novelists, visual artists, musicians, photographers) who also report and depict places, landscapes and environments.

A number of NGOs operating in Khayelitsha are concerned with quality of life issues, networking and community empowerment and removing the "geographies of silences" that exist in scholarly and public discourses. Examples include the Social Justice Coalition which fights xenophobic violence and programs for clean and safe water and sanitation, Ubantu Africa which develops programs for children with HIV/AIDS, Jongu for eye testing for seniors and children, Monkeybiz to empower women, St. Michael's All Angels Anglican Church which provides education and computer training for children, and Open Arms Minnesota which supports access to clean drinking water and HIV/AIDS treatment. While Khayelitsha will never have the number of hyperlinks as these cities of similar size: (Salt Lake City − 94 million; Rotterdam 65 million; and Mombasa 32 million and Adelaide21 million), the number might increase with more focused attention in the coming decades.

While there are many topics that can/might be studied, we offer several: (a) cognitive maps of newcomers and long term residents, and women and men, that can be used to sort out safe and unsafe (fearscapes) landscapes, (b) the job (women and men) search time−space geographies and geometries of new and established residents, (c) the effectiveness of local healers, evangelical churches and outside mission groups in dealing with physical, spiritual and psychic care, (d) the provision of youth spaces and services (play spaces, after school activities, and computer learning), (e) community sustainability and environmental empowerment (greening neighborhoods, urban gardening, and neighborhood action boards), (f) the intra-Khayelitsha mobility among of the township's very poor, poor and middle class, and (g) discerning whether the digital divide exists in post-apartheid Cape Town. All these "knowledge empowerment" initiatives will/should help individuals, community planners and leaders, and institutional caregivers to increase the knowledge (cartographic and narrative) bases of residents. Such efforts will lead to Khayelitsha not being considered one homogeneous place or one of Cape Town's "blank and unmapped" places. Rather the maps, contact spaces, stories and images will illustrate Khayelitsha's rich mosaics of language, age, work, religions, and culture. We agree with Wright's final sentence (p. 15) that "perhaps the most fascinating *terrae incognitae* of all are those that lie within the minds and hearts of men."

Acknowledgments

References

Agnew, J., Gillespie, T. W., & Gonzalez, J. (2008). Baghdad nights: evaluating the U.S. military surge using nighttime light signatures. *Environment and Planning, 40*, 2285–2295.

Akerman, J. R. (Ed.), (2009). *The imperial map: Cartography and the mastery of empire*. Chicago: University of Chicago Press.

Bowden, M. (1992). The invention of American tradition. *Journal of Historical Geography, 19*, 3–26.

Brett, M. (2009). *Eyewitness travel. South Africa*. London and New York: DK Publisher.

Brin, S., & Page, L. (1998). The anatomy of a large-scale hypertextual web search engine. *Computer Networks and ISDN Systems, 30*, 107–117.

Cape Town Tours. Khayelitsha Township Tour. Accessed on 27 Nov. 2012. http://www.capetown.travel/attractions/entry/Khayelitsha_Township_Tour_and_Craft_Market/.

Christopher, A. J. (2001a). Urban segregation and post-apartheid South Africa. *Urban Studies, 38*, 449–466.

Christopher, A. J. (2001b). First steps in the desegregation of South Africa's towns and cities, 1991–96. *Development Southern Africa, 18*, 457–470.

City Maps. (2011). *Strategic development information & GIS*. Khayelitsha: City Map.

Cloke, P. (2004). Exploring boundaries of professional/personal practice and action: being and becoming in Khayelitsha township, Cape Town. In D. Fuller, & R. Kitchin (Eds.), *Radical theory/critical praxis* (pp. 92–102). Kelowna, British Columbia: Praxis€ Press.

Cook, G. P. (1985). Khayelitsha − policy change or crisis response? *Transactions of the Institute of British Geographers, 11*, 57–66.

Crampton, J. (2001). Maps as social constructions: power, communications and visualization. *Progress in Human Geography, 25*, 235–252.

Dewdney, C. (2004). *Acquainted with the night: Excursions through the world after dark*. Harrisonburg. VA: Bloomsbury.

DK Eyewitness Travel. (2008). *Top ten Cape Town and wine landscapes*. London: DK Eyewitness Travel.

Edney, M. H. (2009). The irony of imperial mapping. In J. R. Akerman (Ed.), *The imperial map: Cartography and the mastery of empire* (pp. 11–45). Chicago: University of Chicago Press.

Elwood, S. A., & Leszczynski, A. (2011). Privacy, reconsidered: new representations, data practices, and the geoweb. *Geoforum, 42*, 6–15.

Fodor's Exploring South Africa. (2006). *New york and London*.

Fodor's South Africa. (2010). *New York: Fodor*.

Google Map of Khayelitsha. 11 January 2012. http://maps.google.com/maps?hl.

Google Scholar. (11 January 2012). *Khayelitsha*.

Google Search Engine. (11 January 2012). *Khayelitsha*.

Google StreetView. (2012). *Khayelitsha*. Accessed 16.02.12.

Graham, M., & Zook, M. (2011). Visualizing global cyberscapes: mapping user-geographical placemarks. *Journal of Urban Technology, 18*, 115–132.

Harley, J. B. (1988). Silences and secrecy: the hidden agenda of cartography in early modern Europe. *Imago Mundi, 40*, 57–76.

Harley, J. B. (1989). Deconstructing the map. *Cartographica, 26*, 1–20.

Harley, J. B. (1992). Rereading the maps of the Columbian encounter. *Annals of the Association of American Geographers, 82*, 522–542.

Huxley, A. (1954). *Doors of perception*. New York: HarperCollins.

Jakle, J. A. (2001). *City lights: Illuminating the American night*. Baltimore: Johns Hopkins University Press.

Liebowitz, B., Swartz, L., Bozalek, V., Carolissen, R., Nicholls, L., & Rohleder, P. (2003). *Community, self, identity*. Cape Town: HDRI Press.

Livingstone, D. N. (2010). Landscapes of knowledge. In P. Meusburger, D. N. Livingstone, & H. Jöns (Eds.), *Geographies of science* (pp. 3–22). Dordrecht: Springer.

Melbin, M. (1987). *Night as frontier. Colonizing the world after dark*. New York: Free Press.

Mitchell, W. J. T. (2000). Holy landscape; Israel, Palestine, and the American wilderness. *Critical Inquiry, 26*, 193–223.

Ngxiza, S. (2011). Sustainable economic development in previously deprived locations: the case of Khayelitsha in Cape Town. *Urban Forum* 1–16, (Online First) (4 October 2011).

NOAA (National Oceanic and Atmospheric Administration). (2012). *National geographic data center*. http://www.ngdc.noaa.gov/dmsp/downloadV4composites.html Accessed 11.01.12.

Noyes, J. K. (1994). The natives in their places: "ethnographic cartography" and the representation of autonomous spaces in Ovamboland, German South West Africa. *History and Anthropology, 8*, 237–264.

Oldfield, S. (2004). Urban networks, community organizing and race: the analysis of social integration in a desegregated South African neighborhood. *Geoforum, 35*, 189–201.

Otter, S. (2008). *Khayelitsha*. Johannesburg: Penguin Books.

Paar, P., & Rekittke, J. (2011). Low-cost mapping and publishing methods for landscape architectural analysis and design in slum-upgrading projects. *Future Internet, 3*, 228–247.

Richmond, S., & Ranger, H. (2009). *Cape town city guide*. London: Lonely Planet.

Safier, N. (2009). The confines of the colony: boundaries, ethnographic landscapes and empirical cartography in Iberoamerica. In J. R. Akerman (Ed.), *The imperial map: Cartography and the mastery of empire* (pp. 133–184). Chicago: University of Chicago Press.

Shelton, T., Zook, M., & Graham, M. (2012). The technology of religion: mapping religious cyberscapes. *The Professional Geographer, 64*, 602–617.

Sutton, P., Goetz, A. R., Fildes, S., Foster, C., & Ghosh, T. (2010). Darkness on the edge of town: mapping urban and peri-urban Australia using nighttime satellite imagery. *The Professional Geographer, 62*, 219–233.

Thrift, N., & French, S. (2002). The automatic production of space: transactions. *Institute of British Geographers, 27*, 309–335.

TimeOut. Cape Town. (2008). *Winelands and the garden route*. London: Universal House.

Tshehla, B. (2002). Non-state justice in the post-apartheid, South Africa – a scan of Khayelitsha. *African Sociological Journal, 6*, 47–70.

Tuan, Y. F. (1991). *Landscapes of fear*. New York: Pantheon.

Turnbull, D. (1996). Cartography and science in early modern Europe: mapping the construction of knowledge spaces. *Imago Mundi, 48*, 5–24.

Wood, D. (1993). *The power of maps*. London: Routledge.

Wright, J. K. (1947). Terrae incognitae: the place of the imagination in geography. *Annals of the Association of American Geographers, 37*, 1–15.

Zeigler, D. (2002). Post-communist Europe and the cartography of independence. *Political Geography, 21*, 671–686.

Zook, M., & Graham, M. (2007a). Mapping digiplace: geocoded internet information and the representation of place. *Environment and Planning, B 34*, 466–482.

Zook, M., & Graham, M. (2007b). The creative construction of the internet: Google and the revitalization of cyberspace and digiplace. *Geoforum, 30*, 1322–1341.