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Healing Roots

Anthropology in Life and Medicine

Julie Laplante

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To Lo and Oiy for doing healing in life

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Abbreviations

A. afra	*Artemisia afra*
CAM	complementary and alternative medicine
FDA	Food and Drug Association
IIDMM	Institute of Infectious Disease and Molecular Medicine
IK	indigenous knowledge
IKS	Indigenous Knowledge Systems
MRC	Medical Research Council
MU	Missouri University
M. tuberculosis	*Mycobacterium tuberculosis*
NCCAM	National Center for Complementary and Alternative Medicine
NIH	National Institutes of Health
RCT	randomized clinical trial
SAHSMI	South African Herbal Science and Medicine Institute
S. frutescens	*Sutherlandia frutescens*
TB	tuberculosis
TICIPS	The International Center for Indigenous Phytotherapy Studies
TM	traditional medicine
UCT	University of Cape Town
UWC	University of the Western Cape
WHO	World Health Organization

Introduction
Tracing the Preclinical Trial of an Indigenous Plant

> Life, in short, is a movement of opening, not of closure.
>
> – Tim Ingold, *Being Alive*

Anthropology in life is an effort to 'follow what is going on' (Ingold 2011: 14). Life as a movement of opening can be understood in positive terms of healing, renewal, growth and paths along which life can keep on going; however, movement is also about falling down, destruction or dying, which are also paths of becoming something else. In such movements in life involving materials, some promise the riddance of malignant spirits or current bothersome 'body-in-the-world' orientations. Other movements, for their part, promise the elimination, destruction or slowing down of the replication of targeted bacterium. A nuance between the two movements may rely on a controlled study holding promise of defining a determined pathway that should apply to all biological bodies, notwithstanding the inhabited world, while the other embraces the indeterminacies in the moment, with a promise of the possibility of enhancing skills to deal with life's intricacies. In this book, life is left open-ended in following both humans and nonhumans, namely, plants, as they interlace to find mutually beneficial ways to heal within life-making processes in the inhabited world. Therein lies the main argument I put forth in this work regarding the question of 'knowing' medicine in healing; it is always being done and undone in life rather than something 'out there' to discover. I aim to show how this takes place as a 'wild' indigenous plant makes its way into human lives as a medicine, rather than as a weed or as food, for instance. More particularly, I trace how an in-

digenous plant is made to appear within a preclinical trial to test its efficacy against the tuberculosis pandemic as declared by the World Health Organization (WHO) in Geneva, Switzerland. The preclinical study of *Artemisia afra* against tuberculosis was undertaken in 2005 by a research consortium named The International Center for Indigenous Phytotherapy Studies (TICIPS, pronounced *tea-sips*), a trial financed by the National Center for Complementary and Alternative Medicine (NCCAM), a division of the National Institutes of Health (NIH) in Washington, D.C., in the United States and taking place in Cape Town, South Africa. To find how medicine is made to 'work' in healing through this process and at its edges, I thus follow a wild indigenous bush in its trails and trials of becoming a biopharmaceutical.

The bush is indigenous to the sub-Saharan region and is named *umhlonyane* in Xhosa and Zulu, *lengana* in Tswana, *zengana* in Sotho, *wilde-als* in Afrikaans, and wild wormwood in English (van Wyk and Gericke 2007: 142). Its Latin name in the scientific botanical nomenclature is *Artemisia afra* (Jacq. ex Willd). It is a multistemmed perennial shrub with grayish-green feathery leaves of the family Asteraceae (Mukinda 2005: 1), its areal parts having the strong characteristic odour of wormwood and a bitter taste (ibid.: 22). The genus name *Artemisia* honours Artemis, the Greek goddess of hunting (W. Jackson 1990) and protector of the forest and children. The specific epithet *afra* means from Africa. *Umhlonyane* grows 'wild' in the sub-Saharan region, as far north as Ethiopia, in particular along humid coasts, along streams and on the margins of forests at altitudes varying between 20 and 2,440 metres. It grows in bushes that can reach up to two metres in height, blossoming in the late summer, producing abundant bracts of butter-coloured flowers, each approximately three to five millimetres in diameter. *Izangoma,*[1] Xhosa 'diviner-healers who achieve their diagnosis and remedies through communication with ancestral spirits' (Wreford 2008), set it under bedsheets in preparation for healing. *Izinyanga* (specialists in herbal medicines, including Rastafarian *bossiedoktors*[2]) use this plant regularly, whether collected in the 'wild' or from a shoot transplanted in their backyards. '*Umhlonyane* is one of the oldest and best-known of all the indigenous medicines in southern Africa, and has such diverse and multiple uses that it should be considered a significant tonic in its own right' (van Wyk and Gericke 2007: 142). It is one

of the most documented indigenous plants in sub-Saharan Africa, with the first accounts beginning in 1908; the list of uses of the plant in South Africa covers a wide range of ailments from coughs, colds, fever, loss of appetite, colic, headaches, earache and intestinal worms to malaria, diabetes and influenza; it can be taken as enemas, poultices, infusions, body washes, lotions, smoked, snuffed or drunk as a tea (van Wyk and Gericke 2007: 142). It has only recently undergone preparation for a randomized clinical trial (RCT), science's current gold standard[3], to test the efficacy of biopharmaceuticals, in this case against *Mycobacterium tuberculosis*.

The beauty of the preclinical moment is that the medicine is not yet made; it is the very process of making an object of study, in this case that will seek its orientation within *muthi*[4] multiplicities yet at the same time answer to a world pandemic in the One World–One Medicine–One Health[5] framework, that is, a process of closure to indigenous medicine conducted to gather evidence justifying a clinical trial. How these movements are reconciled (or not) in practice is thus what is of interest. A combination of motions such as a worldwide revitalized interest in wild plants; new approaches in molecular biology; the utmost commonality of *A. afra*'s medicinal use throughout sub-Saharan Africa; the 'African Renaissance', seeking pride in African solutions for its nation and for the world; HIV/AIDS driving a resurgence of tuberculosis; drug resistance to old drugs (the newest drug used to treat tuberculosis is more than thirty years old) spreading out of control (Check 2007); and the success of the isolation of artemisinin (*qing hao su*) of *Artemisia annua* L. (Chinese: 青蒿; pinyin: *qīnghāo*) in becoming a global health medicine against malaria (see Hsu 2010) may all partake in the coming to life of a preclinical study of *A. afra* phytotherapies in the treatment of *M. tuberculosis*. The biochemical, pharmacological and immunological activities of *A. afra* were studied in both Africa and America by TICIPS from 2005 until 2010. Tracing this specific preclinical trial in my study has led to previous toxicity trials, to parallel preclinical trials and to diverse and often conflicting knowledge practices within the sciences as well as without, including regulatory frameworks, politics and indigenous healing practices. Following the process of the preparation for an RCT, following the roots and routes, trails and trials, of *A. afra* becoming a biopharmaceutical (or not) through this initiative, constitutes the red thread, or macramé, tying the book

together, bringing people, plants and the world into conversation as they endeavour to make medicine meaningful in healing.

This book stems from a long journey trying to understand how we come to 'know' medicine. In pursuing this quest along various paths, I came to an understanding of the RCT as an anonymous beholder of truth about the efficacy of medicine. The industry of clinical trials shows some of the greatest investments in the world. There are more than 50,000 clinical trials worldwide (Petryna 2007a). The NIH website alone shows more than 5,800 entries for clinical trials against HIV/AIDS and 2,700 against tuberculosis.[6] RCTs of indigenous medicine are just a very small piece of this industry, yet they are also increasing in scope today for a variety of reasons linked with those expressed above. In their offshoring, RCTs have become new spaces of care, healing and politics as well as new spaces of concern for anthropologists.

A growing body of research on clinical trials in the social sciences has attended to their histories (Marks 1999), ways the gold standard creates new worlds of treatment (Timmermans and Berg 2003), and how they create new politics of inclusion (Epstein 2007); others attend to the limits of these designs (Cartwright 2007) and their ethical variability (Petryna 2005, 2009); most take for granted, however, that there is a model 'out there' to begin with. A new 'praxiological turn', however, enables us to assess these practices as they are being done. A few researchers lead the way in this turn, namely, Mol (2002), in proposing an ontology of a multiple object, and Brives (2013), with a particular interest in following how participants 'do the body' within clinical trials. My work moves in this line of enquiry; however, the participants in my case study include the scientists and healers 'doing medicine'. Further, I follow a preclinical trial, an open-ended moment in which objects are not yet made nor closed; the RCT is but imagined to find ways to bring such closure. I am unaware of any other study done in this upstream moment of the clinical trial, let alone done in the preclinical trial of an indigenous medicine, a process that also remains understudied. Gibson (2011) studied the process of *Sutherlandia frutenscens* to be tested through a randomized placebo controlled clinical trial against HIV/Aids in South Africa, namely a trial in which TICIPS' researchers are also implicated. She attends to this trial as a messy, contested and ambiguous process akin to the approach I propose, showing how the

indigenous plant is multiple on the grounds while it is relationally performed as a botanical plant entity in the scientific literature and clinical practice. She however does not attend to the way this is done in preclinical studies. Adams (2002; Adams et al. 2005) provides an anthropological outlook of the challenges in the clinical trial of indigenous Tibetan medicine, yet the process of the trial coming into being is not dealt with. She shows in part how the process implies the creation of a whole infrastructure as well as deals with the unfairness of the game for indigenous practitioners, but does not investigate the ways in which these negotiations unravel upstream. To the contrary, in my case study, the RCT has not come into being (if it ever will be), and I thus solely address how it is imagined and the ways the preclinical process unfolds.

Being in the open-ended moment of an imagined trial, one whose process is doubled by concerns with indigeneity[7], I largely move out of the controlled laboratory environments, since healers largely 'do medicine' in ways not taken up by scientists. While some scientists were clearly familiar with 'indigenous' practices that influenced their search in particular molecular configurations rather than others, they are, however, led to filter these out within their expertise, mainly bringing into being what they imagine will be recognizable within the RCT process, which in the end leaves very little traces of indigenous ways of doing medicine. This is revealing in itself; in a simultaneous quest to both open up prospects for new molecules and retrieve indigenous dignity[8], priority is clearly given to the former. In attending to indigenous medicine, the borders of the foreseen clinical trial requirements are, however, pulled in varying directions away and beyond the imagined model, namely, towards issues of indigenous dignity. The preclinical trial of an indigenous medicine thus shows different worlds of becoming along which medicine is being done in healing. In preparing for the trial, some of the histories of indigenous medicine, of clinical trials, of disease, of efficacies and of which kinds of life we aim to save or attend to are brought into being, while others are left to wither away.

The journey here told begins in August 2006 within the Biomedicine in Africa research group at the Max Planck Institute für etnologische forshung in Halle (Saale), Germany, wondering how biomedicine is both shaping and being shaped through its practices in Africa. My quest to find clinical trials with indigenous medicine

in Africa was answered in November 2006 when four molecular biologists from TICIPS involved in the preclinical trial of *A. afra* replied in echo, sharing similar concerns as my own with issues of efficacy. The notion of efficacy was problematic in their dealings with *muthi,* seemingly conflicting with the narrowed-down notion of efficacy to which clinical studies attend, namely, one confined to controlled environments and precise physiological mechanisms of action. From that point onwards, I spent the next five years following the trails and trials of *A. afra* becoming a biopharmaceutical (or not). My fascination with the entanglements between indigenous and humanitarian medicine dates back to the early 1990s during research in the Brazilian Amazon (Laplante 2003, 2004, 2006, 2007). It progressively became a fascination with biopharmaceuticals, more precisely, with how they are made, taking me out of the jungle and into research centres, clinics and laboratories in downtown Montreal (Carrier et al. 2005; Laplante and Bruneau 2011). Following the trails of preparing an indigenous medicine to become a biopharmaceutical seemed to offer the possibility to reconcile some of the routes of knowledge in medicine that I had previously followed, bringing me full circle into new laboratories, clinics and laboratories in the United States and in South Africa, as well as back to the bush, mountains, valleys, townships and everyday lived experiences with indigenous medicine in South Africa.

It is these trails and trials of making medicine that I follow: from the laboratory to the bush and back, following how humans engage with a plant from its roots, indigenous to a people and to a place, to its possibility to travel in transnational One World–One Medicine–One Health initiatives. *A. afra* is not yet made into a biopharmaceutical (if it ever will be), and this is not as important as what I learned through the process; how the plant is transformed in its environment and beyond, who is involved, in which ways of knowing and not knowing life, which ontologies are brought into being, through which hopes and politics, and, perhaps most of all, what is left to wither away as irrelevant from the onset of the RCT process and what continuously emerges at its edges. The making of a desired tool to control a world pandemic is telling of the kinds of life attended to in humanitarian, clinical and scientific research. The negotiations, dialogues, actors, things, ancestors, gods, politics, standards, natures, cultures, bodies, molecules, animals and plants

that are involved in this quest reveal larger worldly processes of this particular investment in knowing and not knowing medicine and, consequently, life. At stake is the encounter between, on one hand, perhaps the most standardized scientific research model in biomedicine and international ethical guidelines (the RCT) as followed by molecular biologists, immunologists, pharmacologists, plant systematists and ethicists and, on the other hand, one of the most sophisticated healing practices explicitly aiming to unstandardize and open ways for new orders, namely, those of South African Xhosa *izangoma* and Rastafarian *bossiedoktors*. The expertise of the indigenous healing practices are not here treated as exotica, yet rather as knowing practice, a notion earlier proposed by Farquhar (1994), which challenges and informs knowing practice of the scientific RCT community in various ways.

Knowing *as* movement (Ingold 2013: 1) is thus followed as it is being done and undone in making medicine to heal both within and without a preclinical process. To explain what is going on, I first introduce the plant and what has led up to its entry in the preclinical trial. Second, I find a way to follow what is being done and undone with the plant in practice: I delineate a phenomenological approach in anthropology enabling me to do so. Third, I follow these practices as I move through different places in which they emerge. I situate these traces in the worlds of indigeneity as undertaken by Rastafarian and Xhosa healers and in the One World–One Medicine–One Health path as undertaken by molecular biologists (chapters 3 to 7). I attend to ways these apparently separate routes weave themselves together in their known and foreseen efficacies as well as show where they diverge in the kinds of lives they attend to. What the trial could become, what its place in life could be, in the world that shapes us but that we shape as well is discussed in the conclusion in which I ask if ethics or aesthetics is the way forwards for anthropology.

I introduce *umhlonyane* as well as what I understand as 'knowing' in chapter 1. I begin to show some of the processes of making this 'wild' bush recognizable to science as it emerges in botanical inventories as *A. afra* and in publications with its particular concern with *M. tuberculosis*. What is done upstream in envisioning 'doing medicine' is explained as a process of making an object that will be able to filter through the imagined predesigned model 'out there', namely, the RCT. The preclinical process is found to be 'in the world', how-

ever, with an intention to withdraw both itself and the plant from the world, notwithstanding its assertion, in this case, to aim to recognize indigenous knowledge. Because of this announced dual program, which primarily attends to the prospect of a new molecule fighting *M. tuberculosis,* thus leaving behind the attention that might otherwise be given to ways of knowing *umhlonyane* in practice, chapter 2 delineates an anthropological approach that will enable me to attend to both aspects, notwithstanding the imagined RCT.

The anthropological approach I delineate in chapter 2 is precisely an attempt to see what it would look like to inhabit the preclinical trial without giving up life in the plant that is being tested, and in this way recognize indigenous ways of healing rather then set them aside as 'bias', 'placebo', 'culture' and even as 'indigenous knowledge'. Contrary to the current preclinical moment, which is about making an object, even assuming there is such an object 'out there' to discover, I thus align with *muthi* multiplicities, which leave this process open-ended and always in the making. 'Medicine' itself is thus not assumed to be unified and instead is seen as continuously emerging through new engagements with humans. The way the preclinical trial is done in practice is also continuously improvised, notwithstanding the imagined RCT, and even because of the imagined RCT, which often requires even more ingenuity to fit within the context at hand. The way I access the emerging ontologies of practice both inside and outside the preclinical process is through a phenomenological approach in anthropology, one done through fine-tuning my attention to the ways 'medicine' is being done and undone in everyday practices. I trace medicine anthropologically, both as method and theory. This is a process attuned with the tools developed by anthropologists in order to maximize my ability to grasp what is going on, one which I delineate through intertwined notions of embodiment, sentience and medium, which relate to the 'worlds of becoming' I aim to understand.

Chapter 3 tells what happened in the preclinical trial of *A. afra* as I immersed myself in and around its practices. I delve into the experience of the complexities of *muthi* and the preclinical trial 'in life', or in the way they have become within my grasp in the process of research. I tell of some of the *A. afra* trails and trials I followed, how I engaged with some of the actors and mediums involved in the preclinical trial, and what it felt like to move through these mediums.

I move from laboratories to botanical gardens, backyards, markets, shops, valleys, farms and festivals. I tell how I entered the preclinical trial with molecular biologists who then pointed towards further trails to follow with other scientists, as well as, eventually, with Rastafarian *bossiedoktors* and Xhosa *izangoma*. I describe how knowing *umhlonyane* appears in their respective practices and everyday lives. Moving from laboratories to backyards offers some thoughts on the importance of propinquity in indigenous practices, which contrast with the kinds of practices done in controlled environments, showing part of the dissonance between their intentions in doing medicine.

In chapter 4 I move into *muthi* as part of South African national politics, showing how the biomolecular line of the trial pulls towards questions of indigenous knowledge and human dignity. The notion of 'indigenous medicine' is discussed as it emerged in anthropology, in 'world health' and in the South African context, consolidating into institutions such as the NCCAM branch of the NIH in Washington, D.C., and into the Indigenous Knowledge System (IKS) branch of the South African Medicine Research Council (MRC). The colonial histories of *muthi* in South Africa are foreshadowed with relation to ways they emerge within current practices, namely, within those of Rastafarian *bossiedoktors* visited in-depth in chapter 5 and those of Xhosa *izangoma* described in chapter 6. The two latter chapters explain the ways I became acquainted with these healers, becoming 'part of the struggle' with Rastafarian *bossiedoktors* and remaining 'part of the problem' with Xhosa *izangoma*. Moving deeper into ways of knowing in-the-world, I show the ways *wilde-als* is part of Rastafarian *bossiedoktor* practices and how *umhlonyane* (dis)appears within Xhosa *isangoma* practices in the Cape. In both cases I show how their current practices unravel in the everyday, explaining the traditions they evoke and enact when expressing their healing efficacies 'in the inhabited world'. In particular, 'sounds' are shown to be central to both become a healer as well as be healed, pointing towards deepened engagements in-the-world, to the multiplicity of medicine and to particular kinds of lives that are attended to. From this immersion into indigenous ways of healing, I move into molecular biologists' practices as they unravel within and without an imagined clinical trial.

In chapter 7, I explain how molecular biologists pull the preclinical trial towards concerns with indigeneity while at the same time

imagining new clinical trials. I explain life in molecules as a movement of opening, showing correspondence with Xhosa *isangoma* practices; however, this movement closes again as it aims to fit the RCT protocols, thus losing its dealings with indigenous medicine. As such, innovation is exclusively attributed to science, which thus becomes a path undertaken for political reasons as well as scientific ones. I suggest thinking of practices in terms of improvisation can be a way to surpass this impasse. Finally, I briefly discuss how Rastafarian *bossiedoktors*'s explicit opposition to imperialism, and thus implicitly to the One Health Initiative currently claiming this positioning, tends to the very matters the One Health Initiative lets wither away, expressed as 'One Love'. The conclusion attends to hopes moving through the preclinical trial in imagining what the clinical trial can achieve. The question of the efficacy of *A. afra* in this study is found to be woven into lines or overlapping motions of hope in particular kinds of life that translate themselves along the thrust of humanitarian efforts to 'save lives', of the 'African Renaissance' and of 'indigeneity'. Attuning attention to knowing aesthetically within these life flows is proposed as a way forward for anthropology.

Notes

1. *Izangoma* is the Zulu plural form of *isangoma*. In the same logic that 'z' means plural, the term *izinyanga* is the Zulu plural form of *inyanga*.
2. Afrikaans term for bush doctor.
3. In its original sense, used by economists, the gold standard referred to a monetary standard under which the basic unit of currency was defined by a stated quantity of gold (Claassen 2005: 1121). The establishment of a gold standard was used to compare the value of currency. When the term moved into medicine, it referred to the current best tool upon which the value of other tools could be compared (Rudd 1979: 627). Some scientists immediately rebelled against the use of the term 'gold standard' for clinical procedures. A biochemist, for instance, found it presumptuous for a biological test, 'because the subject is in a state of perpetual evolution (and) gold standards are by definition never "reached" (Duggan 1992: 1568). A test is never "perfect" and always ready to be replaced by a better research tool (Claassen 2005: 1121). The term nevertheless did progressively come to denote 'the best standard in the medical world' and beyond. The RCT has become 'one of the simplest but most powerful tools of research' (Stolberg et al. 2004: 1539). Nonetheless, the RCT has lost its sense of simply being a reference upon which to compare other research methods and rather has

become a dogma that implies perfection or a way to access definite 'truth' about the efficacy of a medicine.

4. *Umuthi* in Zulu means 'tree' or 'bark' and also 'medicine'; the word is rendered as *muti* or *muthi*. Most South Africans use the term *muthi* to refer loosely to all forms of medicine that are not obviously biomedical, but also know that the word itself has deeper connotations. I intend to use the term to refer to ways of engaging with nonhuman life in healing that are not obviously biomedical and will bring subtleties to my understanding of *muthi* in chapter 4.
5. One World–One Medicine–One Health, or the One Health Initiative which emerged in the years 2000, is a movement and worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment. It joins efforts, amongst others, of the WHO, the United Nation's Food and Agriculture Organization (FAO) and the World Organisation for Animal Health (OIE) in attempts to ameliorate health care for the twenty-first century and beyond. One Health is portrayed as an umbrella encompassing varying scientific expertise in health, somewhat re-enacting the modernist dream of 'health for all' led by the WHO, similarly excluding any form of healing which might work through other routes than the current privileged molecular biological route endorsed by biomedicine. While clinical trials have emerged in the medical sciences during modernity in the 1950s, many instances show how the model has travelled through the disciplines and this may in part explain how a new umbrella is imagined to encompass them. As will become clearer in the conclusion, I argue that 'oneness' (or the umbrella) is an attempt to re-establish a universalist objective stance, a stance that places 'one nature' as the backdrop for multiple incommensurable cultures, only to attend to the first and thus excluding rather than including people, plants, animals and the lived environment within it's scope. See http://www.onehealthinitiative.com/ (accessed 20 August 2014).
6. See http://clinicaltrials.gov/ct2/results?term=clinical+trial+tb&Search=Search (accessed 4 November 2013).
7. 'Indigeneity' is a highly politicized term officialised with the United Nation's Declaration on the Rights of Indigenous People in September 2007 and to which I will return in depth in chapter 4. Also see Pelican (2009) on the complexities of indigeneity and autochthony.
8. The notion of indigenous dignity in South Africa can be traced to Steve Bantu Biko, the founder and martyr of the Black consciousness movement to free the people oppressed during colonial and apartheid regimes in the 1960s and 1970s. A Steve Biko Heritage Centre promoting self-reliance projects affirming that blacks can earn their own keep with dignity opened in 2012 in the Eastern Cape. Biko's legacy is today also taken up in a movement towards indigenous African bioethics (Behrens 2013: 32).