

Decolonizing Patent Law: Postcolonial Technoscience and Indigenous Knowledge in South Africa

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Drawing upon feminist postcolonial technoscience, I examine how neoliberal legal orders of patent ownership and benefit sharing are producing new notions of recognition as structured through gendered and racialized colonial pasts. Central to this inquiry are struggles over the patenting of Hoodia gordonii, a succulent plant in Southern Africa used for generations by San peoples to stave off hunger and then patented by South African scientists in 1998 to treat obesity. In response, San peoples negotiated a benefit-sharing agreement in 2003, whereby scientists agreed to give them a percentage of royalties from future Hoodia sales. Through historical, ethnographic research, I examine how South African scientists and Indigenous San peoples, through claims for patent ownership and benefit sharing, simultaneously reinforce and contest racialized and gendered histories related to colonial bioprospecting of Hoodia and historical constructions of San peoples as Other. In doing so, I consider how South African scientists and San peoples are mediated in similar, yet unequal, ways through the cultural, historical, material, and socio-legal structures of the political economy of plant medicines.

Keywords: benefit sharing / feminist postcolonial science studies / indigenous knowledge / patent ownership / South Africa

Introduction

Hoodia gordonii is one of several succulent plants within the *Hoodia* species known for generations by Indigenous San peoples as !Xhoba for a variety of uses to stave off hunger and increase energy (Wynberg 2004). Hoodia became

the subject of political controversy when, in 1998, South Africa's Council for Scientific and Industrial Research (CSIR) obtained patent rights to Hoodia's chemical compositions. CSIR primarily focused on *Hoodia gordonii*, which I refer to as Hoodia for short or by its San name, *!Xhoba*. CSIR quickly partnered with Phytopharm, a UK biotechnology firm, as well as global pharmaceutical companies Pfizer and eventually Unilever, to develop Hoodia for global commercialization and sale as an anti-obesity product. The patenting of Hoodia plant properties was met with fierce opposition by Indigenous San peoples and eventually led to the signing of a contractual benefit sharing agreement in 2003 whereby the CSIR agreed to give 6 percent of their revenue from the sale of Hoodia.¹ Monies were to be placed in a Hoodia Trust for all San peoples across Southern Africa. Meanwhile, patents incited a global herbal supplement industry driven by Internet-based companies deploying advertising images of seemingly white, thin, female bodies juxtaposed with Indigenous men and women with bows and arrows. In late 2008, however, when Unilever dropped all plans to develop Hoodia products then hopes for the San-CSIR Hoodia benefit-sharing agreement also began to dampen.

Struggles over *!Xhoba* are situated within complex San histories and social structures. The name "San" comes from the Nama word "*Sonqua*" or "*Soaqua*," meaning "those who forage" (le Roux and White 2004, 4).² Prior to colonialism, San moved in small groups across vast amounts of land engaging in a hunter-gatherer lifestyle (Thompson 2014). As Indigenous Khoi khoi as well as Black Bantu-speaking peoples threatened San lands, violent clashes between them occurred. With the arrival of Dutch settlers in 1652 and the British in 1795, colonial settlers began violently taking large stretches of land, which resulted in violence among and toward San, Khoi khoi, and Black Bantu-speaking groups. During these overlapping histories, some San continued to engage in hunter-gatherer lifestyles, while others were forced to assimilate by working on local farms owned by white settlers (Thompson 2014). At the same time, San adapted and changed, finding ways to retain vestiges of their language and culture, such as their well-known rock art. This would become more difficult under apartheid beginning around 1948. Legally classified as *Coloured*, San experienced further displacement, violence, and discrimination in contrast to those deemed white (Lee 2003, 91). South African San lives thus differ from San in Namibia and Botswana and from each other. Primarily identifying as ≠Khomani, Khwe, or !Xu, South African San are quite heterogeneous. This is especially given histories of militarization involving Khwe and !Xu, who were compelled to serve in the South African Defense Forces against the South-West People's Organization (SWAPO) in the former South West Africa and the government of Angola from 1966 to 1989 (Sharp and Douglas 1996). This article takes these histories into account but also draws upon and develops a feminist postcolonial technoscience approach to patent ownership and benefit sharing.

I interrogate how Hoodia-related patents, contracts, and advertisements are embedded within gendered and racialized colonial histories and neoliberal conditions, which inform each other. In particular, I examine how South African scientists and Indigenous San peoples, through negotiations over patent ownership and benefit sharing, simultaneously reinforced and contested histories related to colonial bioprospecting of Hoodia and constructions of San peoples as less than human. This involves asking how residues of colonial constructions of San peoples as Other, specifically through the figure of a San male hunter, complicated San struggles over benefit sharing. Although San peoples, histories, and social structures are central to this article, I do not exclusively focus on San mobilization against Hoodia patents. San peoples are producing accounts of *!Xhoba* on their own and with others in South Africa that should be the primary sources for such details (Wynberg, Schroeder, and Chennells 2009).³ A focus on just San peoples also runs the risk of reinforcing the anthropological gaze of studying the native and re-inscribing the modernity/tradition binary. I thus interrogate how both San and CSIR scientists are positioned in relation to each other in order to understand the uneven contradictions of postcolonial, post-apartheid technoscientific projects as structured by neoliberalism. Such a feminist postcolonial technoscience analysis cannot escape dichotomies of modernity/tradition, but it can provide additional insights into the complex power relations of Hoodia struggles. Through this analysis, I argue that South African scientists and Indigenous San peoples alike simultaneously *contest, reinforce, and re-configure* neoliberal logics embedded within colonial histories in complicated and unequal ways.

Patents are government-issued grants that give researchers temporary monopoly control over their scientific inventions, while assuring investors that the patented invention is worth financing for commercialization. Patents thus stand at the nexus of science and markets. Feminist studies of science have shown how scientific knowledge production maintains its notions of objectivity by presenting itself as free from its historical, political, economic, and legal relations (Harding 1986; Haraway 1988). Patents seem to make it difficult for science to hide behind this value-neutral “culture of no culture” (Traweek 1988, 162). By transforming scientific products and processes into profitable commodities, patents render relations of science, law, and commerce more explicit, marking the “co-production” of science and society as visible (Reardon 2005; Jasanoff 2004). However, it is precisely within these explicit renderings that patent law re-naturalizes science as a culture of no culture, securing its authority.

What feminist studies of science have left unaddressed is how science can depend upon its connections to law in order to maintain its guise as value-neutral. Feminist legal scholars have provided valuable insights into how dominant frameworks of law construct legal decision-making as an objective process free from its contexts of history, politics, culture, and economics (MacKinnon 1983; Bartlett 1990). Legal reasoning is held out as its own scientific method for finding

a truth and justice waiting to be uncovered (Bartlett 1990). Patent law with its technical procedures is positioned as a particularly objective set of legal rules free from criticism, constructed as a set of inherent, natural property rights. A challenge for feminist studies of science, therefore, is to develop critiques of science and its relation to law.

Feminist Postcolonial Technoscience and a Historizing of Patent Law

Scholars have paid considerable attention to how patent ownership threatens the resources of indigenous peoples (Boyle 1996; Drahos and Mayne 2002; Finger and Schular 2004). They also note how patents are based on Western notions of property rights that conflict with indigenous peoples' ways of knowing (Coombe 1998; Brown 2003; Anderson 2009; Boateng 2011). Although valuable, such studies can leave contradictions of postcolonial science projects unaddressed. For instance, scientists in South Africa are trying to claim patent ownership for themselves, but at the expense of local indigenous peoples. Indigenous San peoples are demanding contractual benefit sharing to obtain much needed resources and recognition, but at the cost of having to navigate between notions of themselves as both modern and traditional.

A feminist postcolonial technoscience approach, with its attention to the cultural legacies of colonialism in shaping science and society, offers alternative theoretical insights toward a *decolonizing* of patent law and its relation to science. By decolonization here, I mean a set of research processes (and political practices) that seek to change the hegemonic ordering of knowledge production. I take seriously Linda Tuhiwai Smith's notion of "decolonizing methodologies," which engages with how histories of imperialism and colonialism depend upon and position Western knowledge production as superior to the rest. Drawing upon Smith, I engage in what she considers a decolonizing project of "re-framing" by examining patent law and benefit sharing not through the dominant language of law and economics, but as techniques of neoliberalism embedded within racialized and colonial legacies (Smith 1999).

Influential theorists, such as Sandra Harding (1998), Donna Haraway (1991), Sharon Traweek (1988), and Vandana Shiva (1997), produced early work at the intersections of feminism, postcolonialism, and science studies. Feminist scholars also examined how development agendas actually led to the de-development of the Third World (Braidotti 1994; Scott 1995; Visvanathan et al. 1997). Drawing upon these earlier insights, an emerging field of feminist postcolonial technoscience is taking shape through interrogations, for example, of bioprospecting, forestry, rice cultivation, and genomics in West Africa, Mexico, India, South Africa, and US Native Nations (Carney 2001; Hayden 2003; Philip 2004; Harding 2008; Reardon and TallBear 2012; Benjamin 2013; TallBear 2013; Foster 2011, 2016a, 2016b). This scholarship challenges hierarchies of power and knowledge within science and technology by taking colonial histories and their

contemporary legacies into account (Pollock and Subramaniam 2016). It also understands the term “postcolonial” broadly in order to address conditions of decoloniality and indigeneity that flow from the different histories of coloniality that have impacted, for example, peoples in Latin America and Native Nations, thus a feminist postcolonial technoscience offers a feminist decolonial approach to the study of scientific knowledge production (Subramaniam et. al. 2016).

Sandra Harding (2011) describes a feminist postcolonial technoscience that addresses issues of political concern (such as the environment, development, corporatization, and militarism) to women in the non-West and to those who are considered Other in the West. Harding deploys the terms West and non-West, but cautions, as do I, that the use of these terms is problematic, as they obscure histories of colonialism, practices of Orientalism, and developmental discourses that have positioned the “West” at the center and justified the taking of indigenous peoples’ land and resources. Feminist postcolonial technoscience differs from what Harding defines as “northern feminist science and technology studies” and its attention to women’s success in the STEM fields or their reproductive rights (2008, 103). A northern feminist science studies approach to patents, for instance, might focus on female scientists’ inability to obtain patents and empowering them to do so. Although valuable, this provides little insight into how patents and contemporary struggles over them are embedded within gendered colonial histories and neoliberal politics. I am more interested in developing a feminist technoscience approach to patent ownership that interrogates its contradictions within postcolonial science projects—how becoming owners of and/or stakeholders in patents can simultaneously challenge, reinforce, and re-configure relations of power. Such an approach enables an understanding of how science and law are historical and sometimes contingent in relation to each other.

Patent ownership rights, for instance, were not always considered value-neutral, natural property rights. Scholars attribute the rise of the first formal patent system to Venice, Italy in the fifteenth century, where patents were considered privileges granted by the state to increase economic competitiveness (Drahos 1996; May and Sell 2006, 71; Mgbеoji 2006). They were not understood as individual, natural property rights until the late fifteenth and sixteenth century, when the modern legal patent system took hold with Britain’s 1624 Statute of Monopolies and the 1709 Act of Anne. It was only then that patents were justified as a way to recognize the genius of the scientific inventor, a figure coded as male and masculine (Pettitt 2004, 211). Support for patent ownership also cast patents as important state strategies for facilitating capitalist expansion (May and Sell 2006, 87). Given these histories, patents emerge as not only historically contingent, but also distinctly European (Mgbеoji 2006, 17).

Patent law and its assumptions are also aligned with histories of colonialism (Coombe 1998, 247). According to feminist science studies scholars Sandra Harding (1998) and Londa Schiebinger (2004), colonial voyages of discovery

and practices of bioprospecting enabled the rise of Empire. Africa was considered, Helen Tilley (2011) notes, as a “living laboratory” to be studied by British explorers. Patents were central to these practices. Colonizing Europeans imposed concepts of patent ownership and property upon indigenous societies in the Americas, Africa, Australia, and Asia (Mgbeoji 2006, 28). Early patents emphasized not the first to invent, but the first to introduce the invention into the nation-state territory (Mgbeoji 2006, 30). This enabled the colonial taking of resources and knowledge first known by indigenous peoples. South Africa, for instance, became an official British Colony when they re-conquered the Cape Colony from the Dutch in 1806. The Cape parliament would eventually pass the first patent law in 1860, which closely modeled the English Patent Act of 1852 (Burrell 1999). As the British took over the remaining territories, they established similar patent statutes in Natal, Orange Free State, and the Transvaal. The establishment of an independent Union of South Africa in 1910 resulted in the consolidation of patent statutes under the Patents, Designs, Trade Marks and Copyright Act 9 of 1916, which was based largely on the British Patents Act of 1907 (Burrell 1999). The colonial diffusion of patents thus corresponded with and enabled practices of colonization and the appropriation of indigenous peoples’ lands, resources, and knowledge.

To be sure, feminist scholars have produced valuable insights into patent ownership and its colonial histories. Winona LaDuke (2005) and Linda Tuhiwai Smith (1999) emphasize patents’ historical affiliations with imperialism and the taking of indigenous peoples’ land, knowledge, and heritage. Vandana Shiva is also well-known for linking patent ownership and colonialism, arguing against globalization and the privatization of plant life (Shiva and Moser 1995; Shiva 1997, 2007). Indigenous women have also explicitly argued against patent ownership as an issue of indigenous women’s rights in the 1995 Beijing Declaration of Indigenous Women and the 2004 Manukan Declaration of the Indigenous Women’s Biodiversity Network.⁴

These arguments respond to an increased emphasis on patent ownership within the global economy. Patents have historically been lauded as key drivers of economic growth, but according to Christopher May and Susan Sell (2006), debates after 1945 in the post-World War era de-emphasized and questioned their importance in a renewed welfare state. It was not until the 1980s that patents took on significance as key strategies within neoliberal governing, and then in the mid-1990s when the World Trade Organization linked the enforcement of patent rights to world trade (Sell 2003). Scholars in South Africa such as Elan Abrell, Kabir Bavikatte, Gino Cocchiario, Adam Haupt, Harry Jonas, Caroline Ncube, Andrew Rens, and Tobias Schonwetter have produced expert insights into the increased role of intellectual property rights more generally in South Africa (Abrell et. al. 2009; Haupt 2008; Ncube 2013; Ncube and Schonwetter 2011). Understanding patent law and its connections to these histories is key for developing a feminist postcolonial technoscience critique of how patents

(and science) are not objective, natural rights but historical and contingent processes open to change and for examining the contradictions of postcolonial technoscience.

Postcolonial Technoscience and the Patenting of Hoodia

Scientists with the South African government-funded CSIR began studying edible indigenous plants in 1963, utilizing relevant information from colonial botanical guides (Wynberg 2004). Research on indigenous plants slowed during the apartheid regime, but resurfaced again in the 1980s at the height of the anti-apartheid movement (Osseo-Asare 2014). CSIR scientists, aided by new imaging technologies, isolated and purified chemical compositions within the plant responsible for suppressing appetite and eventually obtained a provisional patent in 1997 that was officially approved in 1998.⁵ Meanwhile, CSIR sought out potential development partners. In 1997, CSIR partnered with Phytopharm, a biotechnology firm based in the UK, to develop Hoodia into a medicine to treat obesity.⁶ The following year, on August 24, 1998, Phytopharm announced a licensing agreement with Pfizer, a multi-national pharmaceutical company headquartered in the United States, to develop and market Hoodia's appetite suppressant properties into an anti-obesity drug.⁷ In return, Phytopharm anticipated receiving up to \$32 million in license fees and milestone payments, as well as royalties on sales of the drug. But within five years Pfizer pulled out of the project due to what they claimed was corporate restructuring.⁸ A year later, Phytopharm found a new partner in Unilever, an Anglo-Dutch global consumer products company headquartered in London and Rotterdam.⁹

The commercial development of Hoodia differed from the more familiar stories of multi-national corporations in the Global North taking resources from the Global South.¹⁰ In the case of Hoodia, it was South Africa's own CSIR that patented Hoodia properties. Hoodia patents thus cannot be understood through neatly organized scales of north and south, or global versus local. Rather, it becomes important, as Eve Darian-Smith contends, to analyze "law's global historical formation—often through colonialism and imperialism—as well as a range of global challenges" (2013, 13). This means attending to how historical and cultural formations of Hoodia patent ownership and contractual benefit sharing simultaneously *provoke and align with* gendered and racialized histories, both colonial and neoliberal. A more nuanced analysis emerges when the patenting of Hoodia is considered within contestations over patent ownership within neoliberal South Africa and as embedded within colonial histories of bioprospecting.

Patent ownership has become central to the formation of neoliberal governance in South Africa. In his critical analysis, David Harvey (2005) explains that neoliberalism was designed as set of political and economic practices to promote human wellbeing through private property rights, free markets, and

free trade. Scholars such as Patrick Bond (2000) and Steven Robins (2005) have examined how South Africa's African National Congress (ANC) government was compelled to abandon anti-apartheid liberation principles in the 1990s for a neoliberal governing structure focused less on social welfare and redistribution policies and more on deregulation and privatization. Destabilization of foreign exchange markets and pressures to repay structural adjustment loans were just some of the contributing factors to this shift (Gelb 2007). Patent ownership emerged as a key component of South Africa's neoliberal governing practices. The year 1996 also marked the signing of South Africa's Intellectual Property Rationalisation Act to extend intellectual property rights throughout the country.¹¹ South Africa's National Advisory Council on Innovation Act was also established in 1997 to coordinate and stimulate a "national system of innovation" focused on science and technology.¹² Around the same time, a "White Paper on Science and Technology" by the Department of Arts, Culture and Technology (DACST), stressed that aligning patent ownership with international norms was crucial "to best promote innovation" (South Africa 1996). Within this changing climate, Osseo-Asare (2014) notes that CSIR scientists felt pressured to obtain patents on their scientific discoveries.

There is thus a strong relationship between patent ownership and neoliberalism. Rebecca Lave, Philip Mirowski, and Samuel Randalls (2010) remind us that at the core of neoliberalism are struggles over the control of knowledge production. The role of the market has become less about the exchange of things, and more about harnessing knowledge or information for what Arun Kundnani (1998/99, 50), as well as Rosemary Coombe, Steven Schnoor, and Mohsen Ahmed refer to as a system of "information capitalism" (2007, 891). Patent ownership, therefore, becomes a central location for understanding the contradictions of neoliberal, postcolonial science projects.

Take for instance the controversy between the United States and South Africa over patents on HIV/AIDS drugs. South Africa, in response to the growing HIV/AIDS crisis, revised a law in 1997 making it easier to import cheaper HIV/AIDS drugs into the country.¹³ From the perspective of US pharmaceutical companies and the US government, the new law threatened their patent ownership rights over certain HIV/AIDS drugs (McNeil 1998). A group of US pharmaceutical companies filed suit in South African courts in 1998, alleging patent infringement and trade violations under the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The Treatment Action Campaign, a South African-based non-governmental organization, which mobilized and brought international attention to the suit, framed patent rights as a tool of "developed" countries against those considered "less developed" (Swarns 2001). Pregs Govender (2007), Chair of the Committee on Women within the South African Parliament, also accounts how the dispute propelled patent rights as an issue of women's rights. The Committee on Women argued that US patents on HIV/AIDS drugs prevented the accessibility

of life-saving drugs to women as the fastest growing population suffering from the disease. The lawsuit was eventually withdrawn in 2001, but struggles over patented HIV/AIDS drugs and Hoodia properties show that just as South Africa was fighting patent owners, they were also becoming them.

South African scientists obtained their Hoodia-based provisional patent in 1997, generating a different type of challenge. Instead of fighting against TRIPs for open access to pharmaceutical drugs, South African scientists supported the use of patents to incite economic innovation. By becoming patent owners, CSIR scientists simultaneously *contested and reinforced* colonial legacies of knowledge production that undergird contemporary global north/south hierarchies within neoliberal conditions. When South African scientists with CSIR obtained their Hoodia-based patents, they contested colonial legacies by positioning themselves as legally recognized producers and owners of Hoodia scientific knowledge.¹⁴

Unlike the usual narratives of Western capitalist dominance, South African scientists were not fighting against the patenting of Hoodia by companies in the Global North—they held the Hoodia patent and had initial control over its production. Patents thus enabled CSIR to enter regimes of scientific knowledge production, while contesting colonial legacies. They portrayed CSIR researchers as knowledgeable experts in the field of anti-obesity research. Patent ownership generated relationships between CSIR scientists from the Global South and biotechnology firms in the Global North to promote the making of Hoodia-related pharmaceuticals. CSIR scientists thus became partners within the commercialization of Hoodia, backed by patent rights and licensing agreements, and were now aligned as active participants in a larger arrangement of Hoodia research, challenging notions of South Africa as a mere site for resource extraction. When deployed from a marginalized position, patents can thus be used to contest hierarchies of power.

CSIR patent ownership as a means of empowerment is limited, though, by relations of power and persistent inequities. Partners such as Unilever and Phytopharm have larger amounts of resources and funding to contribute to Hoodia commercialization. This means they ultimately controlled the fate of whether or not Hoodia-related products could go to market. CSIR scientists positioned themselves as partners in Hoodia commercialization, but they still lacked final control and decision-making authority. Thus, when Unilever terminated the project in late 2008 due to safety concerns, CSIR scientists had little authority in the decision, and full payment of royalties went unrealized.

Patent Ownership and Colonial Discovery of Hoodia

By becoming patent owners, South African scientists also reinforce legacies of colonial science and colonial bioprospecting in relation to San peoples and become embedded within binary notions of discovery/invention that

undergird patent ownership. Patent law legitimates its authority by distinguishing between discovery and invention, while situating itself as ahistorical and free from challenge by positioning discovery outside of and as separate from invention (Strathern 2001). Patents apply to the Hoodia-based invention, meaning its isolated and purified chemical compositions, not to the discovery of the plant found in nature. As a result, patent ownership “cuts the network” of Hoodia knowledge production by obscuring its connections to San peoples (Strathern 1996, 517). Feminist scholars of science have shown how scientific knowledge does not flow from an autonomous, expert scientist or even “networks” of knowledge production, but rather, as Adele Clarke argues, from “social worlds” of peoples, ideas, nonhumans, and things, including actors “silenced or not present” (1998, 267; see also Haraway 1991; Star 1991). CSIR established themselves as patent owners, but social worlds of Hoodia knowledge production were severed. San contributions to CSIR’s understanding went unrecognized, while legacies of colonial bioprospecting remained unaddressed. In turn, CSIR patent ownership was shielded from critical examination, securing its legal authority as a natural, value-neutral property right. Examining such histories becomes an important strategy toward decolonizing patent ownership, and understanding both contradictions of postcolonial technoscience and also how Hoodia patents reinforce gendered and racialized colonial histories of discovery.

Colonial accounts claim that *Hoodia gordonii* was “first discovered” by Colonel Robert Jacob Gordon while exploring the Orange River in 1776.¹⁵ It was Francis Masson, however, who produced the first known *written* accounts of Hoodia. Masson (1741–1805) was a colonial botanist with the Royal Kew Gardens in London, England who collected plant specimens in the Cape of Good Hope from 1772 to 1775 (Karsten 1994). He published the first written account of *Stapelia Gordonii* (a.k.a. *Hoodia gordonii*) in his 1796 illustrated and morphological guide to stapeliads in the Cape Region (Masson 1796).

Masson’s text is an example of colonial strategies of naming and claiming in the colonization of indigenous peoples and knowledges (Smith 1999). Central to such strategies, Anne McClintock (1995) writes, were gendered narratives of colonial discovery. Imperial acts of naming lands and claiming ownership historically reinforced male anxieties over the need to establish origins. Colonial narratives of discovery and practices of naming expressed a masculine “desire for a single origin alongside a desire to control the issue of that origin” (McClintock 1995, 28). Colonial voyages of discovery constructed and reinforced notions of modern masculinity as associated with the controlling of lands and peoples (Terrall 2011). Discourses of discovery enabled the gendering of colonial lands as feminine, and the sexualization of its conquest (Montrose 1991). Masson’s efforts to describe and classify Hoodia are situated within these practices of naming and claiming to establish male control over South African plant resources.

The patenting of Hoodia takes on new meaning in light of such gendered colonial practices. Haraway suggests that patents reflect a contemporary form of naming and claiming that similarly reinforces masculine desires for origins and control (Haraway 1998, 83). Hoodia patents name CSIR scientists as inventors of Hoodia knowledge, not San peoples. San might have initially discovered *!Xhoba*, but CSIR scientists *invented* Hoodia-based appetite-suppressant properties by isolating and purifying its relevant chemical compounds. This distinction between invention and discovery under the law works to obscure the contributions of San peoples to Hoodia scientific knowledge production. Hyo Yoon Kang argues that legal texts codify and reflect “the prevalent mode of knowledge,” constructing dominant narratives as natural and fixed (2006, 249). Patents produce a dominant legal narrative that situates CSIR’s Hoodia knowledge as natural and inevitable and establish the origin of Hoodia knowledge with CSIR. Patent law thus situates itself as ahistorical and free from challenge by positioning discovery outside of and as separate from invention. As a result, patent ownership severs the network of Hoodia knowledge production by obscuring its connections to San peoples (Strathern 1996, 517).

Distinguishing between discovery and invention serves to recognize and value CSIR and the neoliberal market over San ways of knowing. Under the law, CSIR’s modern invention of Hoodia, for market sale, is more highly valued over San peoples’ traditional discovery of the plant for subsistence. To be sure, patents on Hoodia appetite suppressant properties do not prevent San from using the plant in their daily lives, but patents do harm indigenous peoples by reinforcing binaries of modern versus traditional knowledge related to colonial pasts. CSIR scientists, intentionally or not, become entangled within these neoliberal, colonial strategies of naming and claiming, which bolster masculine desires for origin and control, while producing and strengthening binaries of modern and traditional. In sum, by becoming patent owners, CSIR scientists simultaneously contested and reinforced these histories. San peoples find themselves in a similar contradictory position in regards to benefit sharing, but under different material conditions.

Indigenous San Knowledge and Contracting of Hoodia

Law positions contractual relations in a similar manner as patent ownership—as a natural legal order free from its contexts of history, politics, and culture. A contract is considered a promise between parties who agree to do or refrain from doing something. A normative legal interpretation of a contract may consider the intentions of the parties and circumstances of the contract’s formation, but only to assess if they made a valid promise. Little attention is paid to how one party has more bargaining power or if the agreement is fair. A normative interpretation also considers only the temporal moment in which a contract was agreed upon; it does not address how it is embedded within longer

histories and politics. Such omissions enable the law to maintain its authority as value-neutral and shield itself (and the science it involves) from critique, while securing hierarchies of power.

Scholars have recently sought to challenge the law and this naturalizing of contractual relations by attending to how contracts are being used to govern relations between researchers and indigenous peoples. Joshua Rosenthal (1997) addresses contractual benefit sharing as a capacity-building project for the Third World, while Saskia Vermeylen (2007) warns that relations of power limit the fairness and equity of such contracts for indigenous peoples. Nevertheless, benefit sharing has become, Shane Greene (2004) argues, a strategy for indigenous peoples to contest patent ownership, adopting and transforming Western property logics. It has also taken on greater significance, Cori Hayden (2003, 2007) suggests, as a form of politics that constitutes new publics and collectives, changing relations between scientists and indigenous peoples.

A feminist postcolonial technoscience approach can offer additional theoretical and methodological insights for examining how relations of gender, indigeneity, colonialism, and nation inform San-CSIR benefit sharing and its processes of scientific and legal Hoodia knowledge-making. Central to feminist studies of science, Subramaniam (2014) notes, has been a focus on scientific knowledge production and how relations of gender, race, and nation have shaped and been shaped by the making of scientific knowledge. It thus provides resources for examining how Hoodia knowledge production became structured through contractual benefit sharing and how it enabled San to position themselves in ways that left them simultaneously empowered and disempowered.

In more recent years, San have emerged as active political subjects, negotiating a post-apartheid, neoliberal South African politics, while aligning themselves with global movements of indigenous peoples. For instance, ≠Khomani San signed a historic agreement with the South African government for land restitution in 1999, obtaining land rights within Gemsbok Park (Robins 2001). In gaining recognition, however, Steven Robins writes how ≠Khomani San were forced to navigate between being both “First Peoples’ and modern citizens-in-the making” in their efforts to reclaim land (2001, 833). Negotiations over land claims, Robins explains, also exacerbated tensions within the community between “traditionalists” and “western bushmen,” indicating how ≠Khomani San themselves are not a singular, monolithic group. Similar processes marked San mobilization and negotiation over *!Xhoba* benefit sharing.

An important moment in the beginnings of San mobilization regarding *!Xhoba* is the publication of a 2001 article by David Firn in the *London Financial Times*. The article described a Hoodia cactus plant previously used by indigenous peoples on “ceremonial hunting trips,” which South African researchers and Phytopharm officials were now developing into a drug for treating obesity. Firn also reported that Phytopharm chief executive Richard Dixey, when asked if they were sharing benefits with indigenous peoples, said giving back was difficult

because he had been told that the “the people who discovered the plant have disappeared” (2001). Two months later, Antony Barnett of the *London Observer* reported that Dixey was “astonished” San were alive and Phytopharm was happy to discuss benefit sharing (2001). In response, the Working Group of Indigenous Minorities in Southern Africa (WIMSA) established a new association called the South African San Council, designating it and Roger Chennells, a long-time lawyer to San, responsible for negotiating with CSIR on behalf of all San in the region.¹⁶ In contesting Hoodia, the San negotiating team made the decision not to challenge the CSIR Hoodia patents. Motivated by more immediate needs to generate financial support for the community, they decided to demand benefit sharing instead.

Once this decision was made, negotiations proceeded quickly between the two. A memorandum of understanding was signed in March of 2002, whereby CSIR admitted their Hoodia patents had largely been based upon knowledge derived from San peoples (Wynberg, Schroeder, and Chennells 2009). A year later in 2003 a final agreement was signed giving San 6 percent of all royalties received by CSIR and 8 percent of their milestone income (SASC 2003). Monies were to be distributed to a trust benefiting all San peoples across Southern Africa. A formal ceremony marked the signing of the agreement at the Molopo Lodge in Andriesvale, South Africa. San peoples found themselves navigating contradictory tensions within struggles over *!Xhoba* benefit sharing. With the signing of the agreement, San peoples situated themselves as both modern political subjects and traditional knowledge holders. They had successfully negotiated a benefit sharing agreement with CSIR, becoming a model for how benefit sharing might work under the Convention on Biological Diversity. At the same time, the agreement recognized San, acknowledging them as “custodians of an ancient body of traditional knowledge” (SASC 2003). Patent ownership had discursively privileged CSIR’s molecular knowledge of Hoodia over San understandings of the plant as *!Xhoba*. Yet, benefit sharing re-configured this by simultaneously valuing both CSIR and San knowledge.

By positioning themselves as knowers of traditional *!Xhoba* knowledge and contributors to patented Hoodia inventions, San peoples directly challenged colonial pasts and narratives. Such narratives included, as noted previously, assumptions by Phytopharm executives that San peoples were extinct. Saul Dubow (1995) writes how claims of extinction have been prominent rhetorical devices, historically deployed to support the colonial taking of lands in South Africa. If indigenous peoples were considered gone, then under the doctrine of *terra nullius* land was deemed to belong to no one and thus open to claims of discovery and ownership by colonial explorers. Dubow (1995) explains that San (Bushmen) and Khoi khoi (Hottentots) had been decimated by colonial settler violence by the mid-nineteenth century. Posing little threat, San were romanticized as the “first peoples” of South Africa, followed by Khoi khoi and Bantu migrations. Marking San as original inhabitants of South Africa, who

were now extinct, meant that no group could claim ancestral rights to lands. Narratives of extinction have thus been deployed and re-configured over time to justify the taking of lands to secure white settler rule.

Contemporary narratives of extinction made by Phytopharm are embedded within these histories. Dixey's declaration of San peoples as original yet extinct knowers of *!Xhoba* meant researchers could avoid sharing benefits with them under new legal regimes of access and benefit sharing set forth under the Convention on Biological Diversity. In response, by asserting themselves as both original knowers of *!Xhoba* as well as modern political subjects through struggles over benefit sharing, San peoples contested these narratives of extinction and their colonial residues. Phytopharm and CSIR were forced to contend with San peoples, recognizing them not only as subjects, but also as producers of *!Xhoba* knowledge.

Furthermore, by negotiating for benefit sharing, San also contested histories directly related to the colonial "discovery" of the Hoodia plant itself, which contributed to constructions of San peoples as less than human. Classification of the Hoodia plant occurred around the same time as the ordering of San peoples through colonial racial taxonomies. Scientific thinking in the late eighteenth and early nineteenth century was devoted to establishing the Great Chain of Being and ordering life from God the Supreme Being to the lowest order of humans (Dubow 1995). Carl Linnaeus ranked Hottentots and Bushmen as the most inferior of humans (Smith et al. 2000), and public exhibitions of Hottentots and Bushmen as live human specimens contributed to constructions of them as non-human and closer to animals (Dubow 1995). Feminist scholars have shown how such displays marginalized Black bodies and Black female sexuality as Other, while affirming European whiteness, gender, and heterosexuality (Crais and Scully 2009).

In demanding benefit sharing, San do much to contest colonial legacies surfacing within struggles over Hoodia patents. Benefit sharing provides a means to recognition as traditional knowers of *!Xhoba's* properties and as subjects within processes of Hoodia scientific knowledge production. It also situates San peoples as modern political subjects demanding recognition within the changing political landscape of South Africa's post-apartheid politics. But contractual benefit sharing must be taken up with caution; while it serves to recognize San peoples and their knowledge, it also ensures the development and sale of Hoodia weight-loss products, thus reinforcing its capitalist, heterosexist, and sizeist assumptions. Contractual benefit sharing changes relationships between researchers and indigenous peoples, creating new challenges for patent owners seeking to commercialize their inventions, but patent ownership, as a technology of power, remains intact, along with its binary assumptions and attachments to colonial histories. Benefit sharing thus works, in the words of John Comaroff and Jean Comaroff, "*both to enable and to disable*" San peoples (2009, 139). Noting these tensions, Rosemary Coombe calls for an "ethics of

contingency” that recognizes this contradictory terrain indigenous peoples must navigate (1998, 297)—a terrain in which colonial histories are simultaneously contested, reinforced, and re-configured.

Gendered, Indigenous Representations and Hunting with Hoodia

Hoodia patents and benefit sharing also emerge within a larger system of transnational Hoodia production. While Phytopharm and CSIR moved toward developing a Hoodia-based pharmaceutical drug, other companies began marketing and selling Hoodia as a botanical, herbal supplement for weight-loss on the Internet. A cost of benefit sharing is that San peoples became entangled within these global circuits of transnational Hoodia circulation. Marking themselves as traditional knowers of *!Xhoba* had unintended results: for instance, San images were exploited for capitalist gains. To produce a ready and willing market for Hoodia products, numerous websites advertised the plant through images of a San male hunter juxtaposed against a white female body to create consumer desire and the conditions for the transnational sale of Hoodia (Grewal 2005, 86). In doing so, they re-configured San peoples as traditional knowers, but in ways that obscured San histories, shrouded gendered social relations, and reinforced commodity racism. Such a critique of Hoodia advertisements may seem extemporaneous to patents and benefit sharing. To the contrary, through a feminist postcolonial technoscience approach, such an analysis not only points to the unintended implications of benefit sharing for San peoples, but contributes to the decolonizing or re-framing of patents and benefit sharing by showing how patents and benefit-sharing contracts are intertwined within neoliberal, transnational capital flows of Hoodia embedded within racialized and colonial histories.

Hoodia products were marketed through stereotypical images of San peoples reinforcing San as traditional. The descriptions of Hoodia and San were made in gender-neutral terms, avoiding specific reference to San male or female hunters, but pictorial depictions of San males effectively positioned histories of San hunting as gendered male and masculine. For instance, a website for “Trazic Hoodia Gordonii” explained how San Bushmen used the plant during “arduous hunting expeditions in the Kalahari Desert.”¹⁷ The websites displayed images of those they said were San men standing next to a dirt road, dressed in loincloths, shooting with bows and arrows. They contrasted these images with pictures of slender, light-skinned women wearing bikinis. Another website for “Desert Burn” similarly showed San men, covered only in a piece of cloth wrapped around their hips, walking across a vast desert as a large arrow cut across the page. The Desert Burn website juxtaposed these pictures of San men with images of thin, white women, thus, providing images of what consumers of Hoodia might hope to look like, while also reinforcing patriarchal, heteronormative gendered norms.

These Hoodia advertisements become an entry point for understanding neoliberalism and how these “transnational connectivities” came together to produce and enable diverse, unequal subjects (Grewal 2005, 23). What emerges are the precise ways in which neoliberal, transnational frameworks of difference to market Hoodia became linked to earlier histories of commodity racism under colonization (27). Such images resonate with what Anne McClintock (1995) has argued was a shift in the culture of imperialism from scientific racism to commodity racism (33). Cultural forms of *scientific* racism were relatively class-bound and relegated to literate, propertied elite audiences. In the late nineteenth century, McClintock contends, the commodity developed into a privileged cultural system for representing meaning and social value to reach broad masses of people. Victorian notions of domesticity were bolstered through advertisements for domestic commodities, which contrasted pure white womanhood against Black men’s and women’s bodies, which were considered less pure and in need of civilizing (214).

Hoodia advertisements similarly participated in commodity racism. Images of San male hunters were used to strengthen advertisement claims that Hoodia was a pure and authentic South African herbal supplement (Jayawardane 2011). San male bodies with bows and arrows became exoticized and naturalized to sell Hoodia weight-loss supplements. Images of thin, seemingly white women’s bodies directed Hoodia products toward the self-disciplinary efforts of female consumers compelled to control their weight and adhere to heteronormative ideals of the slim female body. Both San bodies and white women’s bodies were therefore reduced to mere spectacle, deployed for their visual and affective impact to entice consumers. Emphasis on the figure of a San male hunter, however, relegated San in an unequal manner to the realm of the traditional. They might have knowledge of *!Xhoba* in its “natural” state, but San peoples remained positioned as non-modern and uncivilized. This differed from how white women’s bodies were constructed as modern and enlightened figures of self-control in contrast to San men as primitive and rootless.

Positioning Hoodia in this manner also obscured the gendered meanings and uses of *!Xhoba*. San women were also known to engage in hunting. In fact, ≠Khomani San in conjunction with a non-governmental organization called the South African San Institute have hosted educational programs that highlight narratives of successful female San hunters from the past (Becker 2003, 23). Furthermore, the plant has been used in historically gendered ways besides its association with hunting. Arrie Tities (≠Khomani San) articulated many uses of *!Xhoba* to me—for example, for hunting to “less your hunger” and to satisfy “greedy children” who want food, and for “water” and “energy” when in the veld.¹⁸ Tities also described to me the plant in gendered ways, noting how “moms they use it for the baby.”¹⁹ Accounts of *!Xhoba* as used by San male hunters fail to account for these multiple gendered meanings of *!Xhoba*.

The advertisements also hindered an understanding of uneven San social structures and gendered relations (Felton and Becker 2001; Becker 2003; Sylvain 2011). Prior to colonialism, San women maintained a high social status, participating as hunters, but also gathering food for their families (Becker 2003). However, colonial settlers introduced gender as an organizing concept in ways that influenced San relations. San women lost status as San were compelled to work on white farms with strict gendered divisions of labor (Becker 2003). Given these histories, South African San women today remain in less valued subsistence farming and domestic roles in contrast to San men, who tend to participate in wage labor, harvesting for cash income, and, in some instances, the raising of cattle (Felton and Becker 2001). They also experience gender inequality in education and health care, while being susceptible to gender-based domestic violence (Felton and Becker 2001). In response, South African San women have increasingly mobilized. Silke Felton and Heike Becker (2001) note how ≠Khomani San women hold leadership positions and organize gender equality programs, while such shifts have been more difficult for Khwe and !Xu women given their histories of militarization—thus demonstrating how South African San women’s lives differ. Website accounts and attention toward Hoodia as used by San male hunters obscures these broader histories and the changing relations between San men and women. As the figure of a San male hunter becomes constructed in this manner, it complicates San peoples’ own efforts at political mobilization.

San are compelled to situate themselves as traditional peoples and as knowers of Hoodia to make claims for benefit sharing. Newly fashioned identities of San as modern, political subjects thus become fastened to colonial narratives of the San male hunter as the traditional Other. They inadvertently become entangled within these gendered and racialized images of San male hunters in relation to slender, white women. Neoliberal legal orders of benefit sharing may enable San to develop new forms of recognition and subjectivity. In being compelled to position themselves as traditional, however, San become entangled within contemporary practices of commodity racism and their colonial legacies, which are centered on the figure of San male hunter.

San peoples may become enmeshed within narratives and images of San male hunters, but an important distinction must be made. There is a difference between when San peoples deploy the figure of a San male hunter on their own terms versus when Hoodia supplement companies do so. San peoples may become entangled within these gendered narratives, but they lack control over their circulation. In speaking with ≠Khomani San about these Internet images, I learned that they take issue not with the image per se, but who is using it without their consent. Arrie Tities informed me that “I don’t have a problem with the traditional image. For me it is very very important because the San is a unique people.”²⁰ Tities was more concerned with “how you explain this image” and “how you do it.”²¹ The signing of the benefit-sharing agreement was

meant to “raise awareness of the need to protect and control San intellectual property.”²² Mr. Moses of WIMSA, in his speech at the signing of the benefit sharing agreement, expressed a hope that “commercial interests will soon follow the CSIR example and stop using images of San in their adverts without our prior consent and without ensuring that we also benefit, financially or otherwise.”²³ Benefit sharing, therefore, positioned San peoples as modern political (and economic) subjects who were willing to let colonial scripts of San male hunters proliferate, so long as permission was granted and benefits were given. As benefit sharing promotes these new forms of entanglement, however, San peoples may question how they become stakeholders within a health and beauty industry responsible for subordinating women around the world. Such concerns are likewise important for a feminist politics that must contend with these new transnational relations mediated through patent ownership and benefit sharing.

Conclusion

Patent ownership and contractual benefit sharing have emerged as important neoliberal legal orders in postcolonial, post-apartheid South Africa. Their legitimacy depends upon their normative construction as ahistorical, natural rights and on the delimiting of discovery versus invention associated with dichotomies of modern and traditional. Such dominant framings position patent ownership and contractual benefit sharing as value-neutral, which shield it from critical feminist examination. However, through the lens of feminist postcolonial technoscience, patent ownership and benefit sharing become sites for understanding how new forms of neoliberal recognition emerge in contradictory and unequal ways, entangled within gendered and racialized colonial histories that undergird contemporary postcolonial technoscientific projects.

Through claims for and against patent ownership and demands for benefit sharing, South African scientists and San peoples each find themselves simultaneously contesting and reinforcing neoliberal and colonial histories against indigenous peoples. Profound uneven power dynamics, however, persist between the two groups. Benefit sharing for San may have been a means toward recognition, but for CSIR it was also a way to protect its patents from future challenges. Commercial development agreements with Phytopharm, Pfizer, and Unilever required CSIR to protect Hoodia patent rights. Under the San-CSIR agreement, in exchange for a percentage of potential royalties, San agreed to protect CSIR’s patent ownership rights. More specifically, they assented to the following: (1) not to claim any co-ownership of the Hoodia patents; (2) not to work with others to develop industries that might compete with the patents and products; (3) not to approach the patent licensees for additional financial benefits; and (4) not to contest the validity of the patents themselves (SASC 2003; see also Wynberg, Schroeder, and Chennells 2009). Benefit sharing simultaneously recognized San and CSIR Hoodia knowledge, but the two forms of

knowledge remained distinct and hierarchized, thus preserving lines between invention and discovery necessary for securing patent rights.

Hierarchies of knowledge production and their material consequences thus remained intact, securing the unequal positioning between CSIR and San ways of knowing. In the end, only R569,000 (US \$70,000) from a milestone payment was distributed to a trust benefiting San peoples (Wynberg, Schroeder, and Chennells 2009, 245). Additional monies have gone unrealized since Unilever terminated its Hoodia commercialization project. CSIR continues to seek market opportunities for commercial development of Hoodia in partnership with San peoples, but with the patent set to expire soon and global markets for Hoodia on the decline, nothing has materialized. San also held recent meetings to consider possibilities for cultivating and selling Hoodia and other indigenous plants on their own.²⁴ Contractual benefit sharing therefore remains uncertain as a means for real economic and material change for San peoples.

Nevertheless, benefit sharing poses possibilities for the political empowerment of San peoples. Going forward, in response to new instances of bioprospecting, experiences over Hoodia benefit sharing have strengthened San political mobilization. For instance, San and Khoi khoi groups signed a benefit-sharing agreement with Cape Kingdom Nutraceuticals in 2013 for a 3 percent share of profits from the commercialization and sale of products (e.g., sports gels and sparkling waters) derived from the Buchu plant.²⁵ Struggles over Hoodia have thus empowered and enabled indigenous peoples in South Africa to negotiate additional benefit-sharing agreements with others. They have begun to make strategic decisions to position themselves as modern political and economic subjects through legal means, demonstrating how neoliberal legal orders enable new associations within the contradictory terrains of postcolonial science projects.

Within these new transnational relations, San peoples become further entangled within gendered and racialized legacies of colonialism, discourses of global capital, and commodification of difference. Contractual benefit sharing also remains uncertain as significant material benefits for San peoples have yet to be realized and elements of exploitation must be carefully contested. However, patent ownership and contractual benefit sharing are sites for Indigenous San peoples to assert rights of self-determination in negotiating the terms of contracts and establishing relations with scientific partners. These entanglements of patent ownership, contractual benefit sharing, and indigenous peoples challenge feminist scholars to more fully consider the co-constituted relations of science and society within contradictory and uneven neoliberal, postcolonial, indigenous politics.

Laura A. Foster's research broadly focuses on the co-constituted relationships of law, science, and the marketplace and how such relationships historically structure and reinforce certain peoples, bodies, knowledge, and subjectivities over others in

unequal ways. She draws upon her expertise in gender studies, socio-legal studies, science and technology studies, feminist science studies, indigenous feminisms, and transnational/postcolonial feminisms. Her forthcoming book from University of Washington Press examines how contestations over patent ownership, Indigenous San knowledge, and Hoodia plants offer sites for understanding shifting notions of belonging in South Africa.

Notes

1. I use the term “indigenous” cautiously. It has been imposed in pejorative ways on peoples with long-standing connections to land prior to colonialism. In more recent years, indigenous peoples, including San, have strategically deployed the term in positive ways to assemble and connect with global networks of indigenous people. Indigeneity is also complicated in South Africa, where multiple layers of colonialism constructed various groups as indigenous. Out of respect, I use the term “Indigenous” with a capital “I” when referring to specific indigenous groups such as Indigenous San and “indigenous” to denote indigenous peoples more broadly.

2. I also use the term “San” cautiously. Dutch and British colonialists historically referred to San peoples of Southern Africa as “Bushmen” or “people from the bush” and indigenous Khoi khoi as “Hottentots.” Many South Africans today use the term KhoiSan, conflating and homogenizing the two. The naming of San peoples has thus been a way to impose power upon them. More recently, San peoples have begun to re-configure and adopt the term “Bushmen” as a mode of self-determination. Many also refer to themselves as San, refusing KhoiSan. Given my whiteness and location in the United States, #Khomani San leaders advised I use the term San, but make the complicated histories of this naming known.

3. South African San have, for instance, created an art installation referencing *!Xhoba* at their !Khwatla San Cultural and Educational Centre.

4. UN Fourth World Conference on Women, Huairou, Beijing, China, Sept. 4–15, 1995, NGO Forum, Beijing Declaration of Indigenous Women, available at http://www.ipcb.org/resolutions/htmls/dec_beijing.html; Indigenous Women’s Biodiversity Network, Manukan, Sabah, Malaysia, Feb. 4–5, 2004, Manukan Declaration, available at <http://www.ipcb.org/resolutions/htmls/manukan.html>.

5. Van Heerden et al. 1998.

6. “Phytopharm plc to Develop Natural Anti-obesity Treatment,” London: Phytopharm, [press release, June 23, 1997].

7. “Phytopharm plc Collaboration with Pfizer to Develop and Commercialise Obesity Drug (P57),” London: Phytopharm [press release, Aug. 24, 1998].

8. “Pfizer Returns Rights of P57,” London: Phytopharm [press release, July 30, 2003].

9. “Phytopharm and Unilever Enter into a License and Joint Development Agreement for *Hoodia gordonii* Extract,” London: Phytopharm [press release, Dec. 15, 2004].

10. For instance, Vandana Shiva is well known for supporting a successful challenge made by India’s Council for Scientific and Industrial Research against a 1995 US patent regarding turmeric to treat wounds.

11. Intellectual Properties Rationalisation Act 107 of 1996, Government Gazette No. 17616 (South Africa 1996).

12. National Advisory Council on Innovation Act 55 of 1997, Government Gazette No. 18425 (South Africa 1997).

13. Medicines and Related Substances Control Amendment Act No. 90 of 1997, Gazette No. 18505 (South Africa 1997).

14. Not all of the named patent owners identify as white. One of the lead scientists, Vinesh Maharaj, who is credited with much of what is known about Hoodia, was classified as Coloured. Under apartheid, those classified as Coloured received more educational benefits than those designated as Black, but experienced discrimination nonetheless and had fewer educational opportunities than whites (Osseo-Asare 2014).

15. http://www.succulents.co.za/Asclepiadaceae/hoodia/hoodia_gordonii.htm (accessed June 13, 2014).

16. The scope of this article prevents further discussion into the complexity of San mobilization, which also involved the efforts of the non-governmental organizations: BioWatch in South Africa and an international entity, ActionAid. San members of the negotiating team also reflect divergent opinions regarding their role in negotiations. One San Council member suggests they relied mostly on their lawyer, while another says they led negotiations with CSIR themselves (Wynberg, Schroeder, and Chennells 2009, 240).

17. [www://www.trazic.com/hoodia-info.html](http://www.trazic.com/hoodia-info.html), accessed February 27, 2007 (on file with author); <http://www.desertburn.com>, accessed February 27, 2007 (on file with author).

18. Arrie Tities (≠Khomani San) in discussion with author, March 3, 2009 (on file with author). I am indebted to several ≠Khomani San who spoke to me about Hoodia, but many considered themselves as members of a community and did not want to be quoted individually. I only include here those who responded to requests to re-review their quotes prior to publication of this article and who wanted to be quoted individually. I chose not to include some quotations from San peoples, which excludes the voices of San peoples, but at the same time honors their practice of refusal and their desires to interrupt histories of scholarly research on indigenous peoples.

19. Arrie Tities (≠Khomani San) in discussion with author, March 3, 2009 (on file with author).

20. Tities discussion.

21. Tities discussion.

22. http://www.culturalsurvival.org/images/media/WIMSA_Hoodia_Speech.pdf (on file with author).

23. <http://www.culturalsurvival.org>.

24. Van Neirkerk, Schroeder, and Cavallaro 2014.

25. "Natural Justice Legally Supports the National Khoi-San Council in Historic Benefit Sharing Agreement," August 22, 2013, <http://naturaljustice.blogspot.com/2013/08/natural-justice-legally-supports.html>; <http://www.capekingdomusa.com/>, accessed July 14, 2014.

References

Abrell, Elan, Kabir Bavikatte, Gino Cocchiaro, Harry Jonas, and Andrew Rens. 2009. *Imagining a Traditional Knowledge Commons: A Community Approach to Ensuring the Local Integrity of Environmental Law and Policy*. Rome: Natural Justice and International Development Law Organization.

- Anderson, Jane. 2009. *Law, Knowledge, Culture: The Production of Indigenous Knowledge in Intellectual Property Law*. Cheltenham, UK: Edward Elgar.
- Barnett, Antony. 2001. "In Africa the Hoodia Cactus Keeps Men Alive. Now Its Secret Is 'Stolen' to Make Us Thin." *The Observer*, June 17, <http://www.theguardian.com/world/2001/jun/17/internationaleducationnews.businessofresearch>.
- Bartlett, Katharine T. 1990. "Feminist Legal Methods." *Harvard Law Review* 103 (4): 829–88.
- Becker, Heike. 2003. "The Least Sexist Society? Perspectives on Gender, Change and Violence among Southern African San." *Journal of Southern African Studies* 29 (1): 5–23.
- Benjamin, Ruha. 2013. *People's Science: Bodies and Rights on the Stem Cell Frontier*. Stanford: Stanford University Press.
- Boateng, Boatema. 2011. *The Copyright Thing Doesn't Work Here: Adinka and Kente Cloth and Intellectual Property in Ghana*. Minneapolis: University of Minnesota Press.
- Bond, Patrick. 2000. *Elite Transition: From Apartheid to Neoliberalism in South Africa*. Pietermaritzburg, ZA: University of Natal Press.
- Boyle, James. 1996. *Shamans, Software and Spleens: Law and the Construction of the Information Society*. Cambridge, MA: Harvard University Press.
- Braidotti, Rosi. 1994. *Women, the Environment and Sustainable Development: Towards a Theoretical Synthesis*. London: Zed Books.
- Brown, Michael. 2003. *Who Owns Native Culture?* Cambridge, MA: Harvard University Press.
- Carney, Judith Ann. 2001. *Black Rice: The African Origins of Rice Cultivation in the Americas*. Cambridge, MA: Harvard University Press.
- Clarke, Adele. 1998. *Disciplining Reproduction: Modernity, American Life Sciences, and "The Problems of Sex."* Berkeley: University of California Press.
- Comaroff, John L., and Jean Comaroff. 2009. *Ethnicity, Inc.* Chicago: The University of Chicago Press.
- Coombe, Rosemary J. 1998. *The Cultural Life of Intellectual Properties: Authorship, Appropriation, and the Law*. Durham, NC: Duke University Press.
- Coombe, Rosemary J., Steven Schnoor, and Mohsen Ahmed. 2007. "Bearing Cultural Distinction: Information Capitalism and New Expectations for Intellectual Property." *University of California, Davis Law Review* 40 (3): 891–917.
- Crais, Clifton C., and Pamela Scully. 2009. *Sara Baartman and the Hottentot Venus: A Ghost Story and a Biography*. Princeton, NJ: Princeton University Press.
- Darian-Smith, Eve. 2013. *Laws and Societies in Global Contexts: Contemporary Approaches*. Cambridge: Cambridge University Press.
- Burrell, Timothy. 1999. *Burrell's South African Patent and Design Law*. Durban, ZA: Butterworths.
- Department of Arts, Culture, Science and Technology (DACST). 1996. *White Paper on Science and Technology*. Pretoria, ZA: DACST (on file with author).
- Drahos, Peter. 1996. *A Philosophy of Intellectual Property*. Dartmouth, MA: Dartmouth Publishing Group.
- Drahos, Peter, and Ruth Mayne. 2002. *Global Intellectual Property Rights: Knowledge, Access, and Development*. New York: Palgrave Macmillan.
- Dubow, Saul. 1995. *Scientific Racism in Modern South Africa*. Cambridge: Cambridge University Press.

- Felton, Silke, and Heike Becker. 2001. *A Gender Perspective on the Status of the San in Southern Africa*. Windhoek, NA: Legal Assistance Centre.
- Finger, J. M., and Philip Schular. 2004. *Poor People's Knowledge: Promoting Intellectual Property in Developing Countries*. Washington, DC: World Bank and Oxford University Press.
- Firn, David. 2001. "African Cactus Could Help Fight Obesity." *London Financial Times*, April 11.
- Foster, Laura A. "Situating Feminisms, Patent Law, and the Public Domain." *Columbia Journal of Gender and Law* 20 (2): 261–347.
- . 2016a. "The Making and Unmaking of Patent Ownership: Technicalities, Materialities, and Subjectivities." *PoLAR: Political and Legal Anthropology Review* 39 (1): 127–43.
- . 2016b. "A Postapartheid Genome: Genetic Ancestry Testing and Belonging in South Africa." *Science, Technology, & Human Values* 41 (6): 1015–36.
- Gelb, Stephen. 2007. "Macroeconomic Policy in South Africa: From RDP through GEAR to ASGISA." In *At the End of the Rainbow? Social Welfare in the New South Africa*, edited by Gorm Gunnarsen, Patrick MacManus, Morten Nielsen, and Hans Erik Stolten, 17–28. Copenhagen: Southern Africa Contact.
- Govender, Pregs. 2007. *Love and Courage: A Story of Insubordination*. Auckland Park, ZA: Jacana Media Ltd.
- Greene, Shane. 2004. "Indigenous People Incorporated?: Culture as Politics, Culture as Property in Pharmaceutical Bioprospecting." *Current Anthropology* 45 (2): 211–37.
- Grewal, Inderpal. 2005. *Transnational America: Feminisms, Diasporas, Neoliberalisms*. Durham, NC: Duke University Press.
- Haraway, Donna Jeanne. 1988. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14 (3): 575–99.
- . 1991. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.
- . 1998. *Modest_Witness@Second_Millennium.FemaleMan_Meets_OncoMouse: Feminism and Technoscience*. New York, NY: Routledge.
- Harding, Sandra G. 1986. *The Science Question in Feminism*. Ithaca, NY: Cornell University Press.
- . 1998. *Is Science Multicultural?: Postcolonialisms, Feminisms, and Epistemologies*. Bloomington: Indiana University Press.
- . 2008. *Sciences from Below: Feminisms, Postcolonialities, and Modernities*. Durham, NC: Duke University Press.
- , ed. 2011. *The Postcolonial Science and Technology Studies Reader*. Durham, NC: Duke University Press.
- Harvey, David. 2005. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Haupt, Adam. 2008. *Stealing Empire: P2P, Intellectual Property and Hip-hop Subversion*. Cape Town, ZA: Human Sciences Research Council.
- Hayden, Cori. 2003. *When Nature Goes Public: The Making and Unmaking of Bioprospecting in Mexico*. Princeton, NJ: Princeton University Press.
- . 2007. "Taking as Giving: Bioscience, Exchange, and the Politics of Benefit-sharing." *Social Studies of Science*. 37 (5): 729–58.
- Jasanoff, Shelia. 2004. *States of Knowledge: The Co-production of Science and Social Order*. New York: Routledge.

- Jayawardane, Neelika M. 2011. "Impenetrable Bodies/Disappearing Bodies: Fat American Celebrities, Lean Indigenous Peoples, and Multinational Pharmaceuticals in the Battle to Claim *Hoodia Gordonii*." *Popular Communication* 9: 79–98.
- Kang, Hyo Yoon. 2006. "An Exploration into Law and Narratives: The Case of Intellectual Property Law of Biotechnology." *Law Critique* 17 (1): 239–65.
- Karsten, Mia C. 1994. "Francis Masson, A Gardener-Botanist Who Collected at the Cape." In *Francis Masson's Account of Three Journeys at the Cape of Good Hope 1772–1775*, edited by Frank R. Bradlow, 203–14. Cape Town, ZA: Tablecloth Press.
- Kundnani, Arun. 1998/99. "Where Do You Want to Go Today? The Rise of Information Capital." *Race & Class* 40 (2/3): 49–71.
- LaDuke, Winona. 2005. *Recovering the Sacred: The Power of Naming and Claiming*. Cambridge, MA: South End Press.
- Lave, Rebecca, Philip Mirowski, and Samuel Randalls. 2010. "Introduction: STS and Neoliberal Science." *Social Studies of Science* 40 (5): 659–75.
- Le Roux, Willemien, and Alison White, eds. 2004. *Voices of the San: Living in Southern Africa Today*. Cape Town, ZA: Kwela Books.
- Lee, Richard B. 2003. *The Dobe Jul'hoansi*. Belmont, CA: Wadsworth Thomson Learning.
- MacKinnon, Catharine. 1983. "Feminism, Marxism, Method and the State: Toward Feminist Jurisprudence." *Signs: Journal of Women in Culture and Society* 8 (4): 635–58.
- Masson, Francis. 1796. *Stapeliae Novae: or, A Collection of Several New Species of that Genus; Discovered in the Interior Parts of Africa*. London: W. Bulmer and Co. for George Nicol.
- May, Christopher, and Susan Sell. 2006. *Intellectual Property Rights: A Critical History*. Boulder, CO: Lynne Rienner Publishers.
- McClintock, Anne. 1995. *Imperial Leather: Race, Gender, and Sexuality in the Colonial Contest*. New York: Routledge.
- McNeil, Donald G. 1998. "South Africa's Bitter Pill for World's Drug Makers." *New York Times*, March 29.
- Mgbeoji, Ikechi. 2006. *Global Biopiracy: Patents, Plants and Indigenous Knowledge*. Vancouver: UBC Press.
- Montrose, Louis. 1991. "The Work of Gender in the Discourse of Discovery." *Representations* 33: 1–41.
- Ncube, Caroline B. 2013. "The Development of Intellectual Property Policies in Africa: Some Key Considerations and a Research Agenda." *Intellectual Property Rights* 1 (1): 1–5.
- Ncube, Caroline B., and Tobias Schonwetter. 2011. "New Hope for Africa? Copyright and Access to Knowledge in the Digital Age." *Info* 13 (3): 64–74.
- Osseo-Asare, Abena Dove. 2014. *Bitter Roots: The Search for Healing Plants in Africa*. Chicago: The University of Chicago Press.
- Pettitt, Clare. 2004. *Patent Inventions: Intellectual Property and the Victorian Novel*. Oxford: Oxford University Press.
- Philip, Kavita. 2004. *Civilizing Natures: Race, Resources, and Modernity in Colonial South India*. New Brunswick, NJ: Rutgers University Press.
- Pollock, Anne, and Banu Subramaniam. 2016. "Resisting Power, Retooling Justice:

- Promises of Feminist Postcolonial Technosciences." *Science, Technology, & Human Values* 41 (6): 951–66.
- Reardon, Jenny. 2005. *Race to the Finish: Identity and Governance in an Age of Genomics*. Princeton, NJ: Princeton University Press.
- Reardon, Jenny, and Kim TallBear. 2012. "'Your DNA Is Our History': Genomics, Anthropology, and the Construction of Whiteness as Property." *Current Anthropology* 53 (supplement 5): 233–45.
- Robins, Steven. 2001. "NGOs, 'Bushmen' and Double Vision: The #khomani San Land Claim and the Cultural Politics of 'Community' in the Kalahari." *Journal of Southern African Studies* 27 (4): 833–53.
- . 2005. *Limits to Liberation after Apartheid: Citizenship, Governance & Culture*. Athens: Ohio University Press.
- Rosenthal, Joshua. 1997. "Integrating Drug Discovery, Biodiversity Conservation, and Economic Development: Early Lessons from the International Cooperative Biodiversity Groups." In *Biodiversity and Human Health*, edited by Francesca, Grifo and Joshua Rosenthal, 281–301. Washington, DC: Island Press.
- Schiebinger, Londa L. 2004. *Plants and Empire: Colonial Bioprospecting in the Atlantic World*. Cambridge, MA: Harvard University Press.
- Scott, Catherine V. 1995. *Gender and Development: Rethinking Modernization and Dependency Theory*. Boulder, CO: L. Rienner Publishers.
- Sell, Susan K. 2003. *Private Power, Public Law: The Globalization of Intellectual Property Rights*. Cambridge: Cambridge University Press.
- Sharp, John, and Stuart Douglas. 1996. "Prisoners of their Reputation? The Veterans of the 'Bushman' Battalions in South Africa." In *Miscast: Negotiating the Presence of the Bushmen*, edited by Pippa Skotnes, 323–29. Cape Town, ZA: University of Cape Town Press.
- Shiva, Vandana. 1997. *Biopiracy: The Plunder of Nature and Knowledge*. Boston: South End Press.
- . 2007. "Bioprospecting as Sophisticated Biopiracy." *Signs: Journal of Women in Culture and Society* 32 (2): 307–13.
- Shiva, Vandana, and Ingunn Moser. 1995. *Biopolitics: A Feminist and Ecological Reader on Biotechnology*. London: Zed Books; Third World Network.
- Smith, Andy, Candy Malherbe, May Guenther, and Penny Berens. *The Bushmen of Southern Africa: A Foraging Society in Transition*. Cape Town, ZA: David Philip Publishers.
- Smith, Linda Tuhiwai. 1999. *Decolonizing Methodologies: Research and Indigenous Peoples*. London: Zed Books.
- South African San Council (SASC). 2003. "Benefit Sharing Agreement between CSIR and South African San Council." (on file with author).
- Star, Susan Leigh. 1991. "Power, Technologies and the Phenomenology of Conventions: On Being Allergic to Onions." In *A Sociology of Monsters: Essays on Power, Technology, and Domination*, edited by John Law, 26–56. London: Routledge.
- Strathern, Marilyn. 1996. "Cutting the Network." *The Journal of the Royal Anthropological Institute* 2 (3): 517–35.
- . 2001. "The Patent and the Malanggan." *Theory, Culture & Society* 18 (4): 1–26.

- Subramaniam, Banu. 2014. *Ghost Stories for Darwin: The Science of Variation and the Politics of Diversity*. Champaign University of Illinois Press.
- Subramaniam, Banu, Laura Foster, Sandra Harding, Deboleena Roy, Kim TallBear. Forthcoming. "Feminism, Postcolonialism, and Technoscience." In *Handbook of Science and Technology Studies*, edited by Clark Miller, Laurel Smith-Doerr, Ulrike Felt, Rayvon Fouché. Cambridge, MA: MIT Press; 4S.
- Swarns, Rachel L. 2001. "Drug Makers Drop South Africa Suit over AIDS Medicine." *New York Times*, April 20.
- Sylvain, Renée. 2011. "At the Intersection: San Women and the Rights of Indigenous Peoples in Africa." *The International Journal of Human Rights* 15 (1): 89–110.
- TallBear, Kim. 2013. *Native American DNA: Tribal Belonging and the False Promise of Genetic Science*. Minneapolis: University of Minnesota Press.
- Terral, Mary. 2011. "Heroic Narratives of Quest and Discovery." In *The Postcolonial Science and Technology Studies Reader*, edited by Sandra Harding, 84–102. Durham, NC: Duke University Press.
- Thompson, Leonard. 2014. *A History of South Africa*. New Haven, CT: Yale University Press.
- Tilley, Helen. 2011. *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870–1950*. Chicago: University of Chicago Press.
- Traweek, Sharon. 1988. *Beamtimes and Lifetimes: The World of High Energy Physicists*. Cambridge: Harvard University Press.
- Van Dooren, Thom. 2008. "Inventing Seed: The Nature(s) of Intellectual Property in Plants." *Environment and Planning D: Society and Space* 26 (4): 676–97.
- Van Heerden, Fanie Retief, Robert Vleggaar, Roelof Marthinus Horak, Robert Alec Learmonth, Vinesh Maharaj, and Rory Desmond Whittal. 1998. Pharmaceutical Composition Having Appetite Suppressant Activity. Republic of South Africa Patent 97/3170, filed April 15, 1998, and issued December 29, 1999.
- Van Neirkerk, Jaci, Doris Schroeder, and Francesca Cavallaro. 2014. *San Knowledge and Innovation Workshop Summary*, Kimberly, South Africa, March 2014, accessed February 26, 2015, <http://www.progressproject.eu/workshops/>.
- Vermeulen, Saskia. 2007. "Contextualizing 'Fair' and 'Equitable': The San's Reflections on the Hoodia Benefit-Sharing Agreement." *Local Environment* 12 (4): 423–36.
- Visvanathan, Nalini, Lynn Duggan, Laurie Nisonoff, and Nancy Wiegiersma. 1997. *The Women, Gender, and Development Reader*. London: Zed Books.
- Wynberg, Rachel. 2004. "Rhetoric, Realism and Benefit Sharing: Use of Traditional Knowledge of Hoodia Species in the Development of Appetite Suppressant." *The Journal of World Intellectual Property* 7 (6): 851–76.
- Wynberg, Rachel, Doris Schroeder, and Roger Chennells. 2009. *Indigenous Peoples, Consent and Benefit Sharing: Lessons from the San-Hoodia Case*. New York: Springer.