SITUATING FEMINISM, PATENT LAW, AND THE PUBLIC DOMAIN

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Introduction

Both critical intellectual property studies and feminist legal scholarship seldom address the gendered dimensions of patent law or its implications for women and women's rights. This lack of attention raises awareness of the need to broaden our approach to studies of patent law and the public domain. During recent fieldwork in South Africa, I began to consider patent law as a feminist site of inquiry and to think through the difficulties of such an examination. ‡Khomani San women in the northern Cape express concerns over the patenting of biological and genetic materials derived from their indigenous traditional knowledge. Maintaining control over their knowledge and resources is important for feeding their families and safeguarding their intellectual histories and heritage as female plant gatherers.

The ‡Khomani San peoples are currently engaged in political struggles against patent law and the ownership of their indigenous knowledge, but such organizing has not been explicitly gender-based. Although some ‡Khomani San women articulate patent law as a women's rights issue, other women in the community consider issues of patent law to be gender-neutral. Concerns arising from patent ownership of indigenous knowledge are also not the main priority. ‡Khomani San women committed to gender-based political organizing explain the difficulties of mobilizing and educating indigenous San women in their communities. Political organizing takes money and resources, and San communities are spread out over great distances within South Africa, Botswana, and Namibia, making meetings difficult to arrange. Issues of patent law are also not as significant or pressing as the material conditions of domestic violence, substance abuse, and poverty facing San women and their families right now. Thus, ‡Khomani San men and women

are involved in struggles against patent law, yet their political work does not explicitly address the connections between patent ownership and gendered social relations.

Indigenous women elsewhere, however, have begun to address patent law from a gender-based perspective. The 1995 Beijing Declaration of Indigenous Women and 2004 Manukan Declaration of the Indigenous Women's Biodiversity Network explicitly argue that intellectual property rights threaten indigenous women's lives.[1] The Indigenous Peoples' Permanent Forum also highlights patent law as an issue of concern for indigenous women.[2] Local women in India have taken up the issue through with the Diverse Women for Diversity Campaign in connection with Vandana Shiva.[3] Patent law as a gender-based issue therefore emerges within some international forums, and may also circulate at the local level such as with Diverse Women. On the other hand, as with the ǂKhomani San, discourses of indigenous rights around patent law are seemingly framed in gender-neutral terms. Or are they? San struggles related to the patenting of Hoodia may appear gender-neutral as read through the narrow registers of liberal feminism. Yet, as will be further discussed, the masculinized discourses and gendered social relations at work within political struggles related to Hoodia become visible when scrutinized through a lens of transnational, indigenous, African feminisms. Addressing the complex gender relations that shape and are shaped by patent owernship is a complex task. It requires careful consideration of the interactions, relationalities, and hierarchies within social relations of gender, indigeneity, ethnicity, race, and histories of colonialism. Legacies of liberal, western feminism must also be

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[1] U.N. 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 [hereinafter Beijing Declaration]; Indigenous Women's Biodiversity Network, Mankun, Sabah, Malaysia, Feb. 4–5, 2004, Manukan Declaration, *available at* http://www.ipcb.org/resolutions/htmls/manukan.html [hereinafter Manukan Declaration].

[2] *Permanent Forum on Indigenous Issues*, 3rd Sess., Supp. No. 23, at 12-14, U.N. Doc. E/C.19/2004/23.

[3] *Diverse Women for Diversity*, NAVDANYA, http://www.navdanya.org/diverse-women-for-diversity (last visited May 28, 2011).

confronted and continually interrogated. Yet, I contend that studies of patent law struggles and complex gendered relations can help push the boundaries of critical intellectual property scholarship and feminist legal scholarship, by asking new questions and defining the fields in new ways. They may also lead to more robust practices of law and science that re-imagine conceptions of ownership and knowledge in ways that benefit less powerful groups.

In this Article, I am interested in how one might begin to formulate a feminist analysis of intellectual property law that addresses indigenous women's interests and gendered social relations both discursively and materially. Given the tenuous relationship between indigenous women and feminism, we may not even want to call it a "feminist" analysis. Liberal feminist ideals of autonomy, freedom, and choice often run counter to indigenous feminist politics and organizing that produce valuable critiques of these notions. Furthermore, as will be discussed, strategies against (or even in support of) intellectual property law are radically different among various individuals and groups of indigenous women, and in solidarity with indigenous men. Developing a feminist analysis of patent law therefore is a process that requires careful consideration of these histories. This Article therefore takes a modest first step in formulating a feminist analysis of patent law by scrutinizing conceptions of the public domain that tend to obscure a gendered analysis. The initial move therefore lies in breaking through the current scholarly discourse on patent law in order to make space for a feminist/gender investigation and to consider claiming a public domain of our own.

Part I of this Article examines scholarship theorizing conceptions of the public domain and its relationship to patent law. It identifies and critiques four public domains: (1) open public domain; (2) hybridized public domain; (3) protective public domain; (4) and egalitarian public domain. Part I, Section

A examines scholarship theorizing an ***open public domain***.[4] This scholarship fears that expansive patent laws restrict the free and open sharing of scientific materials formerly in the public domain. Thus, an open public domain is desired where scientific ideas and materials are freely accessible to others. Unfortunately, this project is limited by its uncritical assumption of science as generating knowledge, practices, and outcomes benefiting all members of society equally. Part I, Section B analyzes scholarship generating a ***hybridized public domain***.[5] These studies focus on how the relationship between the public domain and private patent law ("PD/IP relationship") disrupts notions of nature/culture that are foundational to modern scientific knowledge production and scientific authorship. What this scholarship desires is a public domain where new hybrid

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[4] *See* JAMES BOYLE, THE PUBLIC DOMAIN: ENCLOSING THE COMMONS OF THE MIND xv (2008) [hereinafter BOYLE, PUBLIC DOMAIN] (arguing for a more nuanced theorizing of the public domain); James Boyle, *Foreward: The Opposite of Property?*, 66 LAW & CONTEMP. PROBS. 1, 8 (2003) [hereinafter Boyle, *Foreward: The Opposite of Property?*] (discussing distinctions between the commons and the public domain, while questioning the public domain as the opposite of property); James Boyle, *The Second Enclosure Movement and the Construction of the Public Domain*, 66 LAW & CONTEMP. PROBS. 33, 37–40 (2003) [hereinafter Boyle, *Second Enclosure*] (arguing that increasingly restrictive intellectual property policies have produced a second enclosure movement of the intangible commons, thus threatening the public domain); Arti K. Rai & Rebecca S. Eisenberg, *Bayh-Dole Reform and the Progress of Biomedicine*, 66 LAW & CONTEMP. PROBS. 289, 291 (2003) (arguing that the Bayh-Dole Act should give greater discretion to funding agencies, rather than institutions, to determine when publically-funded research should be dedicated to the public domain,

[5] *See* Marilyn Strathern, *Cutting the Network*, 2 J. ROYAL ANTHROPOLOGICAL INST. 517, 523–25 (1996) [hereinafter Strathern, *Cutting the Network*] (arguing that patent law truncates networks of people, truths, and artifacts); Marilyn Strathern, *The Patent and the Malanggan*, 18 THEORY, CULTURE & SOC'Y 1 (2001) [hereinafter Strathern, *The Patent and the Malanggan*]; Alain Pottage, *The Inscription of Life in Law: Genes, Patents, and Bio-politics*, 61 MODERN L. REV. 740, 743 (1998) (claiming that patent law is a site where anxieties over nature and culture are negotiated); Hyo Yoon Kang, *An Exploration into Law and Narratives: The Case of Intellectual Property Law of Biotechnology*, 17 L. CRITIQUE 239, 243 (2006) (producing a narrative analysis of patent law and its codification of notions of nature and culture);
DONNA J. HARAWAY, MODEST_WITNESS@SECOND_MILLENNIUM.FEMALEMAN_MEETS_ONCOMOUSE : FEMINISM AND TECHNOSCIENCE 49–117 (1997) [hereinafter HARAWAY, MODEST WITNESS] (discussing the patenting of the Harvard OncoMouse that is used to diagnosis certain types of breast cancer).

categories of nature/culture and social/biological are re-imagined to produce new possibilities for modernity. Its limitations reside though in its cursory attention to indigenous and gendered social relations or histories of colonialism and neo-liberal globalization. Part I, Section C discusses scholarly work devoted to a ***protective public domain***.[6] Such scholarship examines the PD/IP relationship as embedded within historical processes of colonialism and neo-liberal globalization, impacting ethnic and racialized individuals and groups. A protective public domain safeguards indigenous traditional knowledge. Its scope of protection does not fully extend to women, as gendered social relations are not explicitly examined. Part I, Section D addresses scholarship that directly examines gendered social relations and

[6] Rosemary J. Coombe, *Fear, Hope, and Longing for the Future of Authorship and a Revitalized Public Domain in Global Regimes of Intellectual Property*, 52 DEPAUL L. REV. 1171, 1181 (2003) [hereinafter Coombe, *Fear Hope, and Longing*] (argues for a more critical analysis of the scope and parameters of patent law); Anupam Chander & Madhavi Sunder, *The Romance of the Public Domain*, 92 CALIF. L. REV. 1331, 1354 (2004) (arguing against the dominant notion of the public domain for its romantic idealism of cultural production and unwillingness to address social inequalities); Doris Estelle Long, *Traditional Knowledge and the Fight for the Public Domain*, 5 J. MARSHALL REV. OF INTELL. PROP. L. 317, 321 (2006) (suggests the need for more nuanced protection of traditional knowledge considered within the public domain).

envisions ***egalitarian public domains.***[7] This scholarship analyzes how the PD/IP relationship shapes and is shaped by individual and structural relations of gender. Theorizing around egalitarian public domains, however, is a site of contention. Scholars differ over conceptions of egalitarianism and whether women's equality is better reached by increasing their right to own patents, or by fighting against patent ownership all together. Recognition of complex notions of gender and its intersections with other social relations such as racism and neo-colonialism also remains inadequate.

Part II then presents an alternative conception of the public domain as situated public domains. In doing so, it draws upon recent qualitative fieldwork in South Africa examining struggles related to the patenting of indigenous knowledge related to the

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[7] B. Zorina Khan, *Married Women's Property Laws and Female Commercial Activity: Evidence from United States Patent Records, 1790-1895*, 56 J. ECON. HIST. 356, 356 (1996) [hereinafter Kahn, *Married Women's*] (assessment of how nineteenth-century married women's property laws encouraged greater female commercial activity as evidenced by women's rate of patenting inventions); Deborah J. Merritt, *Hypatia in the Patent Office: Women Inventors and the Law, 1865-1900*, 35 AM. J. LEGAL HIST. 235, 236 (1991) (investigating the role of women in the American patent system by exploring the achievements of female inventors who obtained patents from 1865 and 1900); Ann Bartow, *Women in the Web of Secondary Copyright Liability and Internet Filtering*, 33 N. KY. L. REV. 449, 487–94 (2005) (discussing copyright controls that contribute to hierarchal gender-based differences in communication through Internet technology); Sharmishta Barwa & Shirin M. Rai, *Knowledge and/as Power: A Feminist Critique of Trade Related Intellectual Property Rights*, 7 GENDER, TECHNOLOGY & DEV. 91, 92 (2003) (arguing that TRIPS is institutionalizing the historically exclusionary bounded definitions of what counts as knowledge, and thus challenging women to engage in the struggles over meanings of knowledge, invention, and property). Consuelo Quiroz, *Biodiversity, Indigenous Knowledge, Gender, and Intellectual Property Rights*, 2 INDIGENOUS KNOWLEDGE & DEV. MONITOR 12, 13–14 (1994) (discussing the connections between gender, intellectual property rights, and biodiverse resources); Vandana Shiva, *Bioprospecting as Sophisticated Biopiracy*, 32 SIGNS: J. WOMEN IN CULTURE & SOC'Y 307, 308 (2007) [hereinafter Shiva, *Bioprospecting*] (arguing that bioprospecting leads to the enclosure of the biological and intellectual commons because it converts indigenous peoples' resources and knowledge into commodities protected by intellectual property law).

Hoodia plant and the ‡Khomani San.[8] It does not offer suggestions for policy-making at this time. Robust patent law policies should be built from more nuanced examinations of the public domain. Rather, it offers a notion of situated public domains as a starting point for producing such complex

[8] The story of Hoodia involves a succulent plant known for generations by the San peoples in Southern Africa to suppress appetite when food supplies were low. *See* Rachel Wynberg, *Rhetoric, Realism and Benefit Sharing: Use of Traditional Knowledge of Hoodia Species in the Development of Appetite Suppressant*, 7 J. WORLD INTELL. PROP. 851, 851 (2004). The San live within heterogeneous communities across Southern Africa. They are indigenous peoples who have lived in the region prior to the migration of Bantu-speaking populations into Southern Africa and they share a common history as hunter-gatherers with similar click languages. *See* WILLEMIEN LE ROUX & ALISON WHITE, VOICES OF THE SAN: LIVING IN SOUTHERN AFRICA TODAY 2 (2004). The San communities within South Africa consist of the ‡Khomani, !Xun, and Khwe, who have formed a volunteer governing board called the South African San Council. *See* Wynberg, at 860. In 1996, South Africa's Council for Scientific and Industrial Research ("CSIR") obtained patent rights to Hoodia's P57 compound and then in 1997 the CSIR granted an exclusive license to Phytopharm to develop Hoodia. *See* Saskia Vermeylen, *Contextualizing 'Fair' and 'Equitable': The San's Reflections on the Hoodia Benefit-Sharing Agreement*, 12 LOC. ENV'T 423, 428 (2007). Phytopharm in 1998 then entered into a sub-licensing agreement with Pfizer to globally commercialize Hoodia as an anti-obesity product. *Id.* The commercialization of Hoodia was estimated to bring millions in profit to Phytopharm and Pfizer. *See* Wynberg, at 867. Pfizer backed out of the agreement in 2004 and a new agreement was signed with Unilever that same year. *See* Vermeylen, at 428. Phytopharm, in cooperation with Unilever, then began to conduct final drug trials on the compound and expected to sell it as a food additive in Unilever products for millions in profit. *See* Wynberg, at 867. The story, however, took an interesting turn in 2003 when the South African San Council publicly condemned CSIR's patenting of Hoodia and eventually signed a benefit sharing agreement requiring CSIR to give eight percent of the milestone payments (i.e. payments made at specific milestones in the research and development of Hoodia by CSIR) and six percent of their royalties received by Phytopharm to a legal Trust set up for San communities across Southern Africa. *See* Vermeylen, at 428. Thus, the promise of Hoodia is now tied to San peoples' expectations for increased symbolic capital and material wealth. Hopes for Hoodia, however, were dashed in late 2008 when Unilever announced that after five years they were stopping all Hoodia research and began to bulldoze over their Hoodia plantations. *See* Phytopharm, LLC, Press Release, *Unilever Returns Rights to Hoodia Extract*, (December 12, 2008) (on file with author). Thus, the story of Hoodia begins to illuminate the socio-legal and cultural complexities of patent law that a law and economics approach, although extremely valuable, cannot capture. Hoodia is also joined by other similar stories of patenting traditional knowledge such as the turmeric plant, neem tree, and basmati rice. *See* Shubha Ghosh, *Globalization, Patents, and Traditional Knowledge*, 17 COLUM. J. ASIAN L. 73, 90–108 (2003).

accounts, which would also consider intersecting gendered social relations. Situated public domains provides a conceptual framework for beginning to develop a new legal realism of patent law that can produce better understandings of how patent law impacts society and, in particular, indigenous women, men, their families, and communities.

Four concepts of the public domain, which circulate within critical intellectual property projects, are identified and discussed by the Article. This is to create space for a feminist analysis, but it also tries to make sense of critical intellectual property projects that share common critiques against expansive patents laws, yet remain unintelligible to each other.[9] Not all critical IP projects are the same and, in fact, can often be opposed to each other. Scientists concerned about DNA patents do not share the same assumptions and concerns as Indigenous peoples who want to protect their own DNA from being patented, even though they are both against gene patents. Feminist organizing to increase patent ownership for female scientists runs counter to Indigenous feminist critiques of norms of patent ownership, and fails to account for how patent law reinforces dichotomies of nature/culture, which undergird binaries of male/female, self/other, and white/non-white. I contend that one reason why all these valuable critical IP projects continue to talk past each other is because they hold different conceptions of the public domain.

This Article therefore provides a more detailed analysis of these four concepts of the public domain, while demonstrating the importance of each of their central values or desires. An open public domain with less restrictive patent laws is important for bringing medicines to marginalized communities that lack access to patented medicines. A hybridized public domain, where

[9] These goals are both furthered and limited by my approach in classifying the public domain into four conceptions. Typologies are a useful way of understanding how critical IP projects are similar, different, and ambivalent. Such classificationa though can also be rigid and constraining. This typology therefore should be read as a flexible device that is open to critique and whose categories blur into one another. My classification of public domains acts as a beginning step towards understanding the current terrain of critical IP projects and moving towards a robust feminist theorizing of patent law. It is therefore a starting point and partial bridge within a complex process of theorizing, organizing, and acting.

binary categories are contested, offers new possibilities for modernities in which disempowering discourses of naturalization that construct persons as closer to nature or more "traditional" become disrupted. In addition, a protective public domain can safeguard the scientific and cultural inventions of those previously excluded from authorial rights, such as indigenous peoples, while bringing them valuable recognition and control. Furthermore, egalitarian public domains can better ensure that patent law policymakers recognize individual and structural systems of subordination that disproportionately distribute the benefits of patent law to only certain privileged groups. Each of these concepts of the public domain alone is not enough for a truly progressive critical intellectual property or feminist legal project. Struggles related to patent policy vary across different geo-political locations. What is needed is a flexible concept of the public domain that incorporates values of openness, protection, egalitarianism, and hybridization in ways that are specific to the struggle at hand. Thus, this Article suggests the notion of situated public domains as a more nuanced analytic for studying patent law, and one that has significant policy implications. This analytic enables scholars and activists to situate notions of the public domain within constellations of inequitable modalities of colonialism, globalization, neoliberalism and variegated social relations of gender, race, ethnicity, indigeneity, and class that are converging in and against intellectual property rights. This would facilitate a more just approach to intellectual property policy-making that can address differential histories and structural inequalities that take into account complex gendered social relations and indigenous women's multiple interests. Furthermore, critical IP projects can be better served by recognizing how their visions of the public domain might differ, and how a more nuanced conception of the public domain may enable more collaborative exchanges and interdisciplinary conversations. This might also open up possibilities for a more robust politics that draws upon strategic collectives of organizing in order to resist unjust patent law policies.

I. Conceptions of the Public Domain

Studies of intellectual property law, historically generated by legal scholars, typically focus on its doctrinal workings and

economic logics. Legal scholars engage in valuable analysis and provide insight into nuances of statutory language, the shifting of judicial interpretations, and the progress of patents as incentives for innovation. Through such work, patent law as a tool to stimulate scientific innovation comes into focus. Such scholarly analysis is often described as a law and economics approach.[10] Patent law, though, has significance beyond questions of engendering economically efficient innovation. It is also a site of political contestation involving struggles over patent law, indigenous knowledge, and biotechnology.

These struggles over patent law are, in part, due to significant expansions of intellectual property rights impacting science and technology. The 1980 United States Supreme Court decision in *Diamond v. Chakrabarty*,[11] permitting patents on genetically modified organisms, opened the door for a surge in biotechnology companies and research.[12] That same year, the United States Bayh-Dole Act pressured universities to acquire patents on inventions derived from federally funded projects.[13] What resulted was an explosion in the United States

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[10] *See* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW (2003).

[11] Diamond v. Chakrabarty, 447 U.S. 303 (1980) (ruling that a genetically engineered bacteria organism was patentable subject matter as a composition of matter).

[12] *See* KAUSHIK SUNDER RAJAN, BIOCAPITAL: THE CONSTITUTION OF POSTGENOMIC LIFE 6 (2006) (arguing that biotechnologies must be understood within the market frameworks in which they emerge such as the United States and India).

[13] *See* Rai & Eisenberg, *supra* note 4. Similar laws are now being enacted in other countries. For example, South Africa recently approved the Publicly Financed Research and Development Act in December of 2008. *See Intellectual Property Rights from Publicly Financed Research and Development Act*, GOVERNMENT GAZETTE, REPUBLIC OF SOUTH AFRICA, Vol. 522, No. 31745 (Dec 22, 2008).

biotechnology industry that stretched globally.[14] The World Trade Organization's Agreement on Trade Related Aspects of Intellectual Property ("TRIPs") boosted the biotechnology industry further in 1994 by requiring member states to enforce the patent rights of other member states.[15] These expansions of intellectual property rights give rise to different concerns and fears. Scientists fear the privatization of their research tools.[16] Computer programmers worry about controls over software code.[17] Developing countries protest against the patenting of HIV/AIDS medications.[18] And indigenous peoples fight against the commodification of life, destruction of resources, and threats to their cultural heritage.[19] Unfortunately, despite its valuable

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[14] *See generally* Sally Smith Hughes, *Making Dollars out of DNA: The First Major Patent in Biotechnology and the Commercialization of Molecular Biology, 1974-1980*, 92 ISIS 541 (2001) (discussing patent law as turning point in commercialization of molecular biology); David C. Mowery, *University Patents and Patent Policy Debates in the USA, 1925-1980*, 10 INDUS. & CORP. CHANGE 781 (2001) (noting the impact of U.S. university patent policies on the historical development of the biotechnology industry).

[15] Agreement on Trade Related Aspects of International Property Rights, Art. 3, Apr. 15 1994, 33 I.L.M. 81 [hereinafter TRIPs]. *See generally* CHRISTOPHER MAY & SUSAN K. SELL, INTELLECTUAL PROPERTY RIGHTS: A CRITICAL HISTORY (2006) (providing a critical history of intellectual property rights from the nineteenth century to the twenty-first century with the signing of TRIPs).

[16] *See* Rai & Eisenberg, *supra* note 4.

[17] *See* CHRISTOPHER M. KELTY, TWO BITS: THE CULTURAL SIGNIFICANCE OF FREE SOFTWARE (2008) (introducing the concept of a "recursive public" to understand concerns over the maintenance and modification of open source software).

[18] *See* David Barnard, *In the High Court of South Africa, Case No. 4138/98: The Global Politics of Access to Low-Cost AIDS Drugs in Poor Countries*, 12 KENNEDY INST. ETHICS J. 159 (2002) (discussing a 1998 United States lawsuit against the government of South Africa to prevent a law designed to loosen patent laws restricting access to low-cost AIDS drugs).

[19] *See* VANDARA SHIVA, BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE 7–18 (1997) [hereinafter SHIVA, BIOPIRACY] (arguing that intellectual property rights work to colonize the interior spaces of women, plants and animals, represent an epistemological crisis of "monocultures" of the mind, and produce a narrow vision of innovation based on privatization and profit).

contributions, a law and economics approach is unable to fully address patent law's impact on society.[20]

To better address these concerns, legal scholars have turned to discussions of the "public domain" to examine intellectual property policy.[21] Theorizing about the public domain focuses around developing a conceptual analytic for understanding the relationship between modes of scientific/cultural production and intellectual property law. Such an analytic serves as a potential tool for thinking through relationships between civil society and patent law. However, research in this area is in its infancy, and uncertainty remains over the contours of the public domain and its relationship to patent law. The goal of this Article is to examine various conceptions of the public domain in order to build a more robust theoretical toolkit for investigating patent law struggles over genetic and biological material in the global south and how they are structured by and through complex

[20] *See* Madhavi Sunder, *IP3*, 59 STAN. L. REV. 257, 312 (2006) (arguing for a cultural analysis of intellectual property law in order to fully capture struggles over intellectual property rights).

[21] *See* Tyler T. Ochoa, *Origins and Meanings of the Public Domain*, 28 DAYTON L. REV. 215, 216 (2002). (giving an historical account of the conception of the public domain) *See also* Yochai Benkler, *Through the Looking Glass: Alice and the Constitutional Foundations of the Public Domain*, 66 LAW & CONTEMP. PROBS. 173, 175 (2003) (providing a history of constitutional and judicial interpretations of the public domain).

gender relations.[22] It also seeks to make sense of how these various critical intellectual property projects continue to speak past each other, partially because they hold different conceptions of the public domain.

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[22] Such terms as "indigenous knowledge," "traditional knowledge," and "indigenous peoples" are also used variably across the scholarship. So when referring to specific scholarly work, this Article employs the terminology used by the authors. When conducting my own analysis, however, I do my best to use the terms "indigenous peoples" and "indigenous traditional knowledge" to honor their efforts at re-claiming characterizations of "indigenous." The phrase "indigenous knowledge" is often used synonymously with "traditional knowledge" and "local knowledge" within relevant literature. These terms are related, but they have different meanings and political stakes. One must pay careful attention to how and when these terms are employed and by whom. Evoking the more broad term of "local knowledge" can be useful when one is discussing knowledge of biodiverse resources held by multiple population groups within a given region. This term can be inadequate though as it projects neutrality, failing to account more specifically for marginalized groups whose knowledge practices has been subordinated. *See generally* STEPHEN B. BRUSH & DOREEN STABINSKY, VALUING LOCAL KNOWLEDGE: INDIGENOUS PEOPLE AND INTELLECTUAL PROPERTY RIGHTS (1996). Using the term "traditional knowledge" is also helpful when referring to such regional knowledge, yet its reference to "tradition" raises the important question of "whose tradition?" *See generally* GRAHAM DUTFIELD, INTELLECTUAL PROPERTY, BIOGENETIC RESOURCES, AND TRADITIONAL KNOWLEDGE (2004). Furthermore, through the discursive power of its circulation through international and national policy documents and forums, the term "traditional knowledge" often relates to the nation-state. Peoples' knowledge practices within a given region or nation-state can also be described as "indigenous knowledge." This term is more productive though when referring to the knowledge of indigenous peoples themselves such as "Native Nations" in the United States or "First Nations" in Canada. *See generally* JULIAN KUNNIE & NOMALUNGELO I. GODUKA, INDIGENOUS PEOPLES' WISDOM AND POWER: AFFIRMING OUR KNOWLEDGE THROUGH NARRATIVES (2006). References to "indigenous knowledge," however, raise the difficult question of "who is indigenous?" and evoke political contestations over origin, which reveals the tensions between post-coloniality and indigeneity. This term also homogenizes indigenous peoples themselves because some groups may prefer to use local terms such as "American Indian" or refer to their tribal affiliations. The United Nations Permanent Forum on Indigenous Issues, led by self-identified members of indigenous communities, follows a flexible, working definition of "indigenous peoples" as people having a historical continuity with pre-invasion and pre-colonial societies who considered themselves a distinct group from others in society, are a non-dominant sector of such society, and who are determined to preserve their cultural heritage and ancestral lands. *See* SECRETARIAT OF THE UNITED NATIONS PERMANENT FORUM ON INDIGENOUS ISSUES, RESOURCE KIT ON INDIGENOUS PEOPLES' ISSUES, (2008), *available at* http://www.un.org/esa/socdev/unpfii/documents/resource_kit_indigenous_2008.pdf.

A. Open Public Domain

Recent attention in critical intellectual property scholarship has focused on the public domain.[23] The public domain has been theorized as "outside" of property law or "property's opposite."[24] According to this characterization, creative works in the public domain are not controlled by intellectual property rights and are accessible to all.[25] This is distinguishable from a "commons." Creative works in a "commons" are controlled by intellectual property rights, but still remain accessible to all because owners freely license their inventions.[26] A dichotomy thus exists between the public domain and the private domain of IP rights. This is not to say that there is just one public domain. On the contrary, the public domain is theorized as multiple and varied.[27]

A central tenant within this scholarship is a commitment to values of openness. Information in the public domain or a commons should remain freely accessible to all. In particular, what is desired is an open public domain of science where researchers can share their ideas freely without constraints from

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[23] This initial turn to the public domain is often attributed to a 1981 essay by David Lange in which he calls for recognition of the public domain. *See* David Lange, *Recognizing the Public Domain*, 44 LAW & CONTEMP. PROBS. 147, 147 (1981) (arguing for courts to balance the need for new IP rights with the individual and collective rights of the public domain). A deeper theorizing of the public domain eventually came with the work of Jessica Litman. *See* Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965, 967–69 (1990) (arguing that that Romantic notions of an individual author who produces something entirely new discounts the raw material found in the public domain and that the public domain is a space for promoting and nurturing authorship). More recently, Benkler articulates the public domain as a space for preserving ideals of democracy and autonomy. *See* Benkler., *supra* note 21. Explicit theorizing of the public domain is also attributable to the work of James Boyle. *See* BOYLE, PUBLIC DOMAIN, *supra* note 4; Boyle, *Second Enclosure, supra* note 4.

[24] BOYLE, THE PUBLIC DOMAIN, *supra* note 4, at xiv.

[25] *Id.* at 38.

[26] *Id.* at 39.

[27] Boyle, *Second Enclosure*, *supra* note 4, at 62. Others also acknowledge the presence of multiple public domains. Pamela Samuelson identifies thirteen different notions of the public domain. *See* Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J. 783, 785 (2006).

overreaching patent ownership rights.[28] Expansionist patent laws and the United States Bayh-Dole Act are seen as obstructing the flow of basic scientific ideas and practices.[29] This threatens not only the ideas and materials of science, but also the fundamental practice of "open science."[30] Universities engaged in publicly funded research own patents on basic inputs to scientific knowledge production such as DNA sequences.[31] Such ownership slows down the pursuit of biomedical research. Scientists must now negotiate licensing fees, material transfer contracts, and database access agreements before they can use patented ideas and objects that were formerly public domain material.[32] Some scientists, however, refuse to patent their single nucleotide polymorphisms ("SNPs") discoveries.[33] In the spirit of open science, they make their inventions available in the public domain through Internet databases that others can access.[34] Likewise, scholars suggest reforming Bayh-Dole to give funding agencies discretion in promoting open science by requiring publicly funded research to be placed in the public domain.[35] Thus, an open public domain is associated with desires for materials and ideas to be freely open and accessible in the public domain, which would further the progress of scientific discovery and maintain the culture of "open science."

An open public domain is also considered essential for

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[28] Rai & Eisenberg, *supra* note 4, at 291.

[29] *Id.* at 290.

[30] *See id.* at 289.

[31] *See id.* at 291.

[32] *See id.* at 297.

[33] Rai & Eisenberg, *supra* note 4, at 298.

[34] *See id.*

[35] *See id.* at 310–13.

maintaining basic scientific research or "big science."[36] Stricter patent laws and database restrictions have curtailed the ethics of open access and sharing within scientific practice.[37] In response, some scholars propose contractual agreements to set up "science commons" where research findings will be accessible in the public domain.[38] Models for a science commons are proposed out of a desire for a vibrant public domain where values of openness and sharing proliferate. There is also a desire to maintain a culture of experimentation.[39] Patent laws have locked up research ideas and materials even for basic experimental purposes.[40] For example, if scientists want to use patented BRAC1 genes in their research to determine other causes of breast cancer besides the BRAC1 gene, they still have to negotiate licensing fees with the patent owner.[41] This means that scientists have limited access to even the materials already in the public domain to conduct their experiments. Access to public domain information is curtailed and the fundamental ethos of science is threatened.[42] What is needed is an open public domain committed to "a system of open science, where results are shared, criticized and, ultimately, utilized to push forward the frontiers of knowledge."[43] Legal changes are one step towards encouraging an open public domain. For instance, university researchers should be allowed to use patented materials for

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[36] J.H. Reichman & Paul F. Uhlir, *A Contractually Reconstructed Research Commons for Scientific Data in a Highly Protectionist Intellectual Property Environment*, 66 LAW & CONTEMP. PROBS. 315, 315 (2003) (discussing basic scientific research and stressing the importance of the public domain and the difficulty of identifying its boundaries, operations, and legal infrastructure).

[37] *Id.* at 332.

[38] *Id.* at 416.

[39] Rochelle Dreyfuss, *Protecting the Public Domain of Science: Has the Time for an Experimental Use Defense Arrived?*, 46 ARIZ. L. REV. 457, 461 (2004).

[40] *See id.* at 459.

[41] *See id.*

[42] *See id.* at 464–65.

[43] *Id.* at 464.

experimental use if they sign a waiver agreeing to promptly publish their findings and not patent their discoveries.[44] Again, this scholarship shares common desires for a public domain where values of openness and sharing can flourish and be free from expansive patent laws. However, not everyone shares the view that expansive patent laws automatically curtail open science.

Some scholars are equally concerned about expanding patent laws, but consider the public domain to be a vibrant and dynamic space where new forms of openness and sharing are emerging through a culture of disclaiming.[45] As patent law advances, the public domain shifts and stretches in response. Patent laws do not necessarily threaten the ethos of open science, but rather engender new models for sharing information. For instance, the Merck partnership with Washington University in Saint Louis creates a public database of gene sequences for researchers to access.[46] In addition, Creative Commons makes open source software publicly available.[47] These are examples of an active movement to publicly disclaim property rights and expand the public domain.[48] There is increasing value in disclaiming and waiving patents, or as others have called it, giving a gift to the public domain.[49] For example, if a party who already holds a patent or has a strong potential to patent decides to disclaim ownership rights, then the value of that waiver is even larger.[50] Some scholars have even gone so far as to suggest labels on products explicitly advertising "intent not to patent."[51]

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[44] *See id.* at 471.

[45] Robert P. Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 197 (2004).

[46] *See id.* at 188.

[47] *See id.* at 197–200.

[48] *See id.* at 197.

[49] *See id.* at 199.

[50] *See id.*

[51] Merges, *supra* note 45, at 201.

Value in this case comes from not patenting. Recognition of incentives to *not patent* implies a more dynamic vision of the scientific public domain. Thus, scientific cultures of open sharing are strong and the public domain will find new ways to promote the flow of information. In essence, the sharing ethos of science is so strong that it will overcome restrictive patent laws by creating an open public domain where practices of disclaiming patent rights are encouraged.

This scholarship contributes valuable insights into how patent law curtails the flow of scientific information. The values of openness are important; a culture of openness and sharing facilitates exciting scientific discoveries. An ethic of openness within patent law and the public domain also supports the free flow of scientific information to marginalized communities. In other words, values of openness facilitate access. Patent laws can be relaxed to make medicines open and freely accessible to the poor globally.[52] Scholarship in this area though is limited. One shortcoming comes from the constraints of law itself, as jurisprudential concepts of the public domain stem from legal

[52] Barnard, *supra* note 18.

cases.[53] A more alarming limitation, however, is its unwillingness to thoroughly recognize systems of power and inequality.

Scholarship in this area assumes a nonhierarchical public domain and culture of science where an ethos of sharing and openness extends to all. On the contrary, feminist science studies scholars have produced valuable work challenging science by examining gendered power relations embedded within science and scientific knowledge production. For instance, scientific practices of sharing and collaboration have not always been extended to or benefited women, particularly women of color and lesbian women.[54] Female scientists have been denied access

[53] To be sure, legal scholarship in this area is constrained by the judicial interpretations of the public domain. Theorizing of the public domain is often generated from articulations of the public domain found in court cases. *Graham v. John Deere Co.*, 383 U.S. 1 (1966) made it clear that any enlargement of patent law monopolies must regard the possible impact on the public domain. As is common in legal liberalism there is a balancing test. Increased patent law rights must be balanced against the ideals of free access to materials in the public domain. The problem is that the balancing test never seems to fully account for social inequalities. In his earlier work, James Boyle was more explicit in his attention to inequality and power. In *Shamans, Software, and Spleens,* Boyle discusses notions of equality and how they are employed within distinctions of the public and private. JAMES BOYLE, SHAMANS, SOFTWARE AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY (1996). As informed by Karl Marx's essay, *On the Jewish Question*, Boyle notes that liberal democracy depends upon a tension between the public and the private. *Id.* at 25. Citizens are only equal as citizens in a public domain. *See id.* at 26. In contrast, differences in social class, education, and occupation manifest themselves in the private sphere of civil society where the institution of private property takes hold. *Id.* Boyle argues there is no "intelligible geography" to map the public and private, thus decisions over the control information should turn on "the relative powerlessness of the group seeking information access or protection" *Id.* at 28. Boyle thus makes valuable connections between the control of information and liberal democracy in his earlier work.

[54] *See* H. Patricia Hynes, *Toward a Laboratory of One's Own: Lesbians in Science*, 28 WOMEN'S STUD. Q. 158 (2000) (discussing issues confronting lesbians in science as generated from a study group of lesbian students at University of Masschusetts Amherst); Banu Subramaniam, *Snow Brown and the Seven Detergents: A Metanarrative on Science and the Scientific Method*, 28 WOMEN'S STUD. Q. 296 (2000) (narrative critique of science and scientific method and its relationship to women of color).

to the scientific professions.[55] Science has violently exploited indigenous peoples, their knowledge, and their lands.[56] And scientific method itself is grounded within masculine theories of objectivity and rationality.[57] In other words, values of sharing and openness within science have not benefited everyone equally.

One may argue that an ethic of open access that shapes an open public domain relates directly to relational feminism because it challenges liberal ideals of property and creativity by enabling collaboration and relationship building.[58] This may apply to the context of copyright more easily than with patent law. With a feminist post-colonial reading in mind, I contend that open access models (e.g. creative science commons) present a narrow challenge to liberal notions of property and inventorship. Such models might incite collaboration and the sharing of

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[55] HARRIET ZUCKERMAN, *The Careers of Men and Women Scientists: Gender Differences in Career Attainment, in* WOMEN, SCIENCE, AND TECHNOLOGY: A READER IN FEMINIST SCIENCE STUDIES (Mary Wyer ed., 2001) (arguing that women scientists experience more obstacles than men in their careers).

[56] LONDA L. SCHIEBINGER, PLANTS AND EMPIRE: COLONIAL BIOPROSPECTING IN THE ATLANTIC WORLD (2004) (discussing colonial bioprospecting in the New World as an act of empire, in particular, the nontransfer of knowledge regarding the peacock flower and its use as an abortifacient).

[57] DONNA JEANNE HARAWAY, SIMIANS, CYBORGS, AND WOMEN: THE REINVENTION OF NATURE (1991) (arguing that scientific discourses on nature work to naturalize social relations of race, class, and gender); SANDRA G. HARDING, WHOSE SCIENCE? WHOSE KNOWLEDGE?: THINKING FROM WOMEN'S LIVES (1991) [hereinafter HARDING, WHOSE SCIENCE? WHOSE KNOWLEDGE?] (arguing against masculine modes of scientific knowledge production and in favor of staring off scientific research from women's experiences).

[58] Some authors have recently argued that open access movements in copyright law are directly related to theories of relational feminism. Carys J. Craig, Joseph F. Turcotte, & Rosemary Coombe, *What's Feminist about Open Access: A Relational Approach to Copyright in the Academy,* 1 FEMINISTS@LAW 1, 26 (2011) (arguing that open access movements in copyright law coincide with tenants of relational feminism). Relational feminism provides a stronger theory of autonomy than liberalism by understanding it in relational, not individualist terms. See generally *Id.*. Although their analysis is directed at copyright law and not patent law, it raises question as to how relational feminism might be linked to open access movements in patent law.

scientific data by placing scientific materials in the public domain. Yet, they are meant to encourage a particular type of scientific and technological creativity, which is grounded in epistemologies of western science. Commercial scientists, university researchers, and do-it-yourself biologists may now be able to access scientific materials more freely, but the sharing of information fails to produce new visions of collaboration or what a more just science might look like. The ethics of openness and sharing that are deployed are not strong enough to ask, how might scientific information be shared more broadly with the public, Indigenous peoples, and marginalized groups who might benefit from it? How could such sharing and broader collaborations generate new methods of scientific knowledge production for producing better and more sustainable scientific practices so that more people could flourish? Theorizing of an open public domain fails to deliver on its challenge to inventorship and property because it reinforces models of western scientific knowledge production. More people might be able to access and share scientific information and materials, but the same narrow regimes of science are being produced. Thus, an open public domain might appear at first glance to disrupt norms of property and inventorship, but a post-colonial feminist reading reveals its limited scope. Theorizing an open public domain, without addressing norms of western science and the structural inequalities preventing access to scientific knowledge, produces a narrow analytic that only benefits those who already have the power to access public domain information. One must turn to a protective or egalitarian public domain for attention to inequalities. First though, attention is due to the notion of a hybridized public domain, where the public domain is imagined as a hybrid space where conceptual binary categories come undone and new visions for modernity are imagined.

B. Hybridized Public Domain

Theorizing of the public domain is related to scholarship focused on critiques of the "products of nature" doctrine in patent law.[59] This legal doctrine states that patent rights are not granted to products of nature, they only apply to man-made

[59] *See generally* ROBERT P. MERGES & JOHN FITZGERALD DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS (2007).

cultural objects.[60] To obtain patent rights, an inventor must "isolate and purify" a product from nature.[61] This means turning a plant or animal organism into a man-made cultural invention such as genetically modified bacteria. Patent rights only extend to the isolated and purified element of the plant, and not the plant itself. Scholarship in this section suggests that the products of nature doctrine implies a separation between nature and culture under the law. As will be discussed, such scholarship critiques this practice of isolation and purification by re-classifying it. Counter to patent law's characterization of nature and culture as separate dichotomous categories, these are shown to be socially and historically constructed categories that are co-constituting. The products of nature doctrine is thus re-figured through critique as a hybrid form where nature is actually mixed with culture. Challenging patent law in this manner disrupts its power to maintain nature and culture as separate categories. This section will address these specific critiques in more detail after a brief introduction of the main points and tensions within this scholarship regarding patent law.

By deconstructing patent law as a hybrid form, scholarship in this area opens up a broader conception of the public domain.

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[60] Patent Act, 35 U.S.C. § 101 (2010) (stating "whoever invents or discovers any new or useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title"). The common law doctrine around the products of nature doctrine was initially set forth in *Parke-Davis & Co. v. H.K. Mulford & Co.*, 189 F. 95 (S.D.N.Y. 1911). The court found that a purified form of adrenaline, a naturally occurring hormone, was patentable subject matter. The doctrine was then affirmed in *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) ("[h]e who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law of nature to a new and useful end."). The Court also asserted the doctrine in *Diamond v. Chakrabarty*, 447 U.S. 303, 313 (1980) (Section 101 patentability is based upon the distinction "between products of nature, whether living or not, and human-made inventions"). The reason for excluding products of nature from patentability is because "too much patent protection can impede rather than 'promote the Progress of Science and Useful Arts,' the constitutional objective of patent and copyright protection." Lab Corp. of Am. Holdings v. Metabolite Labs., Inc., 548 U.S. 124, 126–27 (2006).

[61] *See* USPTO, *Utility Examination Guidelines*, 66 Fed. Reg. 1092, 1093 (Jan. 5, 2001), *available at* www.uspto.gov/web/offices/com/sol/notices/utilexmguide.pdf; see also *Chakrabarty*,447 U.S. 303.

In one way it questions the incompatibility of patent law with notions of scientific authorship and creativity within a nonpropertied public domain.[62] It also asks how patent law constructs notions of nature and culture in different ways, while linking patent law to larger questions of modernity and Euro-American epistemologies. In the previous section regarding an open public domain, theorizing of public domain was based on assumptions of a culture of science where values of openness and sharing were emphasized. Nature in the previous scholarship is assumed to be freely accessible as public domain material, whereas the private domain of property involves only man-made cultural artifacts purified from nature. Scholarship theorizing a *hybridized public domain*, however, does not assume a scientific culture devoid of social relations. Rather, science is historically and socially contingent and co-constituted with society.[63] A different concept of scientific knowledge production within a nonpropertied public domain thus emerges, one that assumes scientific practice to be historically changing and categories of nature/culture and social/biological to be hybrid, co-constituted categories, rather than separate and dichotomous. What materializes is a relationship between the public domain and patent law where a more robust science is possible precisely because it takes the social, political, and economic into account. Nature is recognized not as the opposite of culture; rather, nature (and culture) is socially constructed itself.

The relationship between the public domain and patent law, therefore, comes into view as a network where nature and culture merge in new ways. Likewise, the dichotomy between the public domain and patent law also becomes more fluid. The public domain appears less as the opposite of property and more as deeply connected to property. The discrete categories of the

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[62] *See* Mario Biagioli & Peter Louis Galison, SCIENTIFIC AUTHORSHIP: CREDIT AND INTELLECTUAL PROPERTY IN SCIENCE (Routledge 2003); Mario Biagioli, *The Instability of Authorship: Credit and Responsibility in Contemporary Biomedicine*, 12 FASEB J. 3, 4 (1998).

[63] *See generally* SHEILA JASANOFF, STATES OF KNOWLEDGE: THE CO-PRODUCTION OF SCIENCE AND SOCIAL ORDER (Routledge 2004) (edited volume demonstrating how scientific knowledge constructs and is constructed by institutions, identities, and discourses); JENNY REARDON, RACE TO THE FINISH: IDENTITY AND GOVERNANCE IN AN AGE OF GENOMICS (2005) (discussing the Human Diversity Project within the framework of co-production).

public domain and private property are better understood as a hybridized public/private domain. Embracing a public/private domain where hybrid categories of nature/culture (and their kin of female/male and self/other) opens up new possibilities for recognizing epistemological and ontological ways of knowing and being not based upon Euro-American dichotomous ways of thinking. Yet, limitations in this scholarship do surface.

Within its critique of the products of nature doctrine's mechanisms of "isolate and purify," this scholarship fails to clarify what could be considered multiple layers of purification. Several questions can be posed that get at these multiple layers. How do notions of the public domain and patent law reveal internalized assumptions of the purity of science(i.e. science as devoid of hierarchal social relations)? How does the product of nature doctrine construct and reinforce the "pure" or dichotomous separation of the categories of nature and culture? And how does the requirement to "isolate and purify" nature reinforce the purity of scientific practice by scientists in the lab (i.e. practices of science devoid of race or gender discrimination or masculinized discourses)? In other words, the law assumes a purification of scientific culture itself, of the categories nature/culture that science depends upon, and of scientific experimental method where nature is purified in the lab. Scholarship in this area provides valuable insights into how patent law is a hybrid form, yet it could benefit from addressing how multiple functions of purification exist within patent law as a hybrid network. Re-figuring patent law as a hybrid form is valuable, but attention to how law sustains modern binary categories and an ahistorical scientific culture must persist. Scholarship desiring a hybridized public domain also tends to lean more toward the theoretical. Material conditions are considered, but such analysis is limited. Several works explicitly address indigenous peoples' struggles over patent law. Yet, a more complex examination of colonial and neo-liberal histories shaping indigenous patent law struggles is not taken up. In addition, there is no analysis of gendered social relations and/or any attempt to link discussions of nature/culture to the historical construction of women as closer to nature. The contributions of this work, however, do offer new ways to think about the public domain and its relationship to patent law through valuing a hybridized relationship between the public domain and private property.

Certain works within this scholarship produce insights into how the dynamic between the public domain and patent law produces new understandings of nature and culture that challenge Euro-American modes of thinking.[64] Much of this scholarship employs the work of Bruno Latour, a professor of science studies at Universités à Sciences Po, on hybrids as a rhetorical device to critique the pure form of the patented object.[65] A brief remark on Latour's work will thus be useful for understanding scholarship in this section. According to Latour, being modern depends upon two related practices. One is a practice of "translation" where new mixtures are created between beings – "hybrids of nature and culture."[66] The other practice is one of "purification" whereby distinct zones are fashioned between beings such as human and non-human or nature and culture.[67] For example, dichotomous relationships are constructed whereby humans are placed in contention with, and hierarchically ordered as superior to, animals. Latour notes that we are modern so long as we consider these practices separately.[68] However, once we begin to consider how these practices work together, we stop becoming wholly modern and new possibilities for our futures emerge.[69] Latour's work goes on to explore the connections between these two practices. He argues that practices of purification depend upon the invisibility of hybrids, but the more hybrids are concealed the more they interbreed and proliferate.[70] These practices keep Westerners distant from other "premodern" cultures and reduce their ability

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[64] *See* Strathern, *Cutting the Network*, *supra* note 5; Strathern, *The Patent and the Malanggan*, *supra* note 5.

[65] BRUNO LATOUR, WE HAVE NEVER BEEN MODERN (1993).

[66] *Id.* at 10.

[67] *Id.*

[68] *Id.* at 11.

[69] *See id.*

[70] *Id.*

to recognize hybrid forms and to see, for example, that Boyle's air pump is no less strange than Arapesh spirit houses.[71]

Through a critique of the products of nature doctrine, scholarship in this section suggests that patented inventions are "heterogeneous hybrids."[72] The products of nature doctrine affirms that objects found in nature cannot be patented, only man-made objects that have been isolated and purified from nature can become propertied possessions.[73] Scholars assert that this legal doctrine reinforces a dichotomy between objects discovered in nature and those invented in the lab, whereby value is placed upon scientific/cultural inventions in the form of ownership rights.[74] Patent law thus depends upon a legal logic that separates nature from culture in order to award property rights. To counter this logic, scholars assert that patented objects actually involve the mixing of nature with culture.

For example, feminist anthropologist Marilyn Stathern points to the case of *Moore v. Regents of the University of California.*[75] John Moore brought a legal claim arguing that physicians at UCLA hospital unlawfully obtained an ownership interest in his cells, without his permission, when they removed them from his body after surgery. The court found against Moore, stating he did not have rights to his bodily tissue because of the logic behind the products of nature doctrine.[76] The doctrine treated his tissue sample ("nature") separately from the invention of the unique cell lines in the lab by UCLA scientists ("culture") in order to award rights to the scientists. Countering

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[71] *See id.* at 115.

[72] Strathern, *Cutting the Network, supra* note 5.

[73] Strathern, *The Patent and the Malanggan*, *supra* note 5, at 8–10.

[74] Strathern, *Cutting the Network*, *supra* note 5, at 525.

[75] *Id.*; John Moore v. The Regents of the Univ. of Cal., 51 Cal. 3d. 120 (1990).

[76] The court ruled against Moore stating that he did not have a conversion claim that his cells were unlawfully taken from his body because the patent for the cell line was proof that the cells were an invention and not the same as the cells in his body. *See id.*

this legal logic, scholars point out that the invention of the cell lines actually involved mixing the "raw material" of Moore's tissue sample with the scientific practices of the scientists. The "invented" cell lines could not have been developed without the raw material of Moore's tissue sample. Thus, the patented cell line was not an "isolated and purified" object from nature, but rather a heterogeneous hybrid involving the mixing of both nature and culture.[77]

By bringing attention to patented objects as heterogeneous hybrids, this scholarship counters the legal logic of the products of nature doctrine, where nature is considered to be the opposite of culture. By extension it also disrupts the logic of the public domain as "outside" of property law. Privatization of Moore's cell lines by the scientists was possible because his bodily tissue was considered to be within the public domain. This dichotomy between nature in the public domain and the cultural inventions of private property law ensures the availability of raw material for scientific experiment. Understanding patented objects as hybrids breaks down this distinction, and enables critique of the separation between nature/culture and public/private under the law. This scholarship thus implies a desire for a hybridized relationship between the public domain and private property law, where value is placed upon ways of knowing and being that embrace hybrid forms, rather than dichotomous categories. This mode of thinking thus encourages theorizing of the public domain and private patent law as fused together, not separate.

Scholarship in this area also examines political struggles over patent law and articulates how such political movements end up reinforcing dichotomies between nature and culture. As noted, patent law codifies the Euro-American distinction between nature and culture, imparting this dichotomy with normative power.[78] Political resistance against biotechnology patents emerges at the nexus of discursive negotiations over nature and culture.[79] For instance, critics of bio-colonialism argue against biotechnology patents as commodification of "life

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[77] *Moore*, 51 Cal. 3d, at 120.

[78] *See* Pottage, *supra* note 5, at 743.

[79] *See generally, id.*

itself."[80] Patents are considered to be a threat to understandings of personhood as separate from property.[81] For instance, modern conceptions of slavery as morally wrong are grounded upon a clear delineation between persons and things.[82] Critics therefore perceive biotechnology patents as blurring the boundaries between persons and things (i.e. nature and culture) and upsetting the moral foundations against slavery.[83] Thus, they are uneasy about the conjoining of nature and culture, preferring to keep them separate. Policy responses to such critiques similarly operate within a discursive logic that reinforces a dichotomy between nature and culture. For example, scientists and lawmakers attempt to clear up "misunderstandings" made by critics by re-asserting the products of nature doctrine and its legal rule that patent law does not apply to the patenting of nature or life.[84] This policy response, however, unrealistically assumes that making the legal distinction between nature and culture firmer will dampen critics' fears.[85] Thus, both critics of biocolonialism and patent law policy-makers subscribe to a clear boundary between nature and culture.[86] Conceptions of nature and culture are thus maintained as static categories and their historical and contingent construction is obscured.[87] Political struggles regarding patent law fail to recognize patent law as a hybrid entity based upon historically and socially constructed forms of nature/culture. But how does his work inform conceptions of the public domain?

This scholarship demonstrates how distinctions between nature/culture and public domain/private domain are vital to

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[80] *Id.*

[81] *Id.* at 745.

[82] *See id.*

[83] *See id.* at 744.

[84] Pottage, *supra* note 5, at 749–51.

[85] *Id.* at 749.

[86] *Id.* at 753.

[87] *See id.*

Euro-American modes of rationality within modernity. As constructed under the law, public domain materials are delineated from privatized cultural inventions. This dichotomy ensures the availability of raw material for scientific investigation and patenting. Negotiations over patent law, and its demarcation between public and private as well as nature and culture, however, signal something more is going on. At stake are fissures within Euro-American epistemologies undergirding modernity, which depend upon clear separations between public and private as well as nature and culture. This scholarship reminds us that even modes of resistance, such as discourses of bio-colonialism, are implicated within the project of modernity when they reassert the nature and culture binary. Rather, value should be placed on embracing hybrid notions of nature/culture and public/private. Yet, one could argue that this scholarship fails to afford agency to critics of biocolonialism. Indigenous peoples who criticize patent law under discourses of biocolonialism or biopiracy are re-fashioning the nature/culture binary in new ways, rather than reifying the binary.[88] Even with these limitations, this scholarship contributes insights that inform conceptions of the public domain and its relationship with patent law. This work implies a hybridized relationship between the public domain and private property where Euro-American dichotomous epistemologies become unstable and more hybrid forms emerge as new sources for scientific and cultural production.

These insights are further supported through the work of similar scholarship concerned with patent law narratives. Tracing legal narratives reveals why some narratives are held out

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[88] *See* Beth A Conklin, *Shamans versus Pirates in the Amazonian Treasure Chest*, 104 AM. ANTHROPOLOGIST 1050 (2002) (discussing how shamans have become political representatives in Brazil and their role in speaking out against biopiracy); Shane Greene, *Indigenous People Incorporated? Culture as Politics, Culture as Property in Pharmaceutical Bioprospecting*, 45 CURRENT ANTHROPOLOGY 211 (2004) (discussing strategies of the Aguaruna people of the Peruvian Amazon to claim agency over their own economic aspirations while representing their own interests and negotiating for a benefit sharing agreement with ICBB and Serle with Monsanto, while arguing that discussions around biopiracy need to include a more subtle understanding of the dynamics involved between the social actors).

as more plausible than others.[89] Legal narratives are given power through their processes of codification. The act of codification freezes a text into a socially acceptable form and, in turn, gives its particular social acceptability further legitimacy.[90] The codification process thus fixes meanings of acceptable social practice, while also reflecting those practices back.[91] It is argued that the dominant narrative or epistemology in patent law is one of law and economics.[92] This involves understandings of scientific knowledge as devoid of social relations, which works to maintain the myth of pure, objective science.[93] Through this ahistorical notion of science, the law is able to hang on to the illusion of a "true" science where nature is discovered and systematized through scientific rationality.[94] This narrative persists despite science and technology scholarship asserting science as historically and socially constructed. To disrupt this dominant narrative, scholarship in this area suggests patent law as a hybrid network involving dynamic movement from the social to the natural to the social.[95] Scientific knowledge related to biotechnologies is *socially* constructed knowledge; it is not free from social relations. This socially constructed knowledge then enters the patent network and it becomes *natural* because the knowledge produced is considered a part of nature and bodies. Then as natural information is patented, it becomes *social*/cultural artifact and is publically disclosed. This important point may be further emphasized through a return to the example of John Moore.

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[89] *See* Kang, *supra* note 5.

[90] *Id.* at 243.

[91] *See id.* at 244.

[92] This does not mean alternative narratives are foreclosed entirely. Rather, as Kang notes, the codification processes allows other moral, social or cultural forms of rationality to dissent so long they stay within the acceptable parameters drawn by the legal liberalism that undergirds law and economics. Kang, *supra* note 5, at 245.

[93] *Id.* at 246.

[94] *Id.* at 248.

[95] *Id.* at 250.

Patented cells lines are not separate from the social relations of John Moore as a patient, or from UCLA as a medical center in the business of research. Thus, scientific knowledge related to the cell lines is socially constructed prior to entering the patent network. As these cell lines enter the patent network from the public domain they are constructed under the law as "natural" raw material taken from John Moore's body. The law then fashions these cell lines into a patented invention. A new social/cultural artifact is constructed as the raw material of cell lines is mixed with the labor of scientists to produce a propertied object. Nature and culture emerge, therefore, in relation to each other, not as discrete categories. Rather, as this scholarship points out, patent law depends upon the construction of a continually shifting nature/culture. In recognizing/disrupting patent law as a hybrid network, this scholarship stresses that patent law must admit its uncertainty.[96] This means acknowledging the multiple layers of interests and entities that go into scientific knowledge production and presenting a self-reflective justification of why one narrative is more valuable than another.[97] Acknowledging multiple layers and interests means recognizing a hybridized relationship between the public domain and private patent law. It means admitting to the presence of epistemologies that are different from Euro-American ones.

Finally, there is scholarship in this area that actually addresses these multiple layers. In her critical work on the patented OncoMouse for cancer research, Donna Haraway reads patent law as a hybrid network.[98] Her work differs from others in this section, as she more explicitly interrogates relations of power. She asserts that patent law reconfigures an organism into a human invention by mixing nature and culture.[99] So long as

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[96] *Id.* at 264.

[97] *See id.*

[98] *See* HARAWAY, MODEST WITNESS , *supra* note 5. The OncoMouse was invented by scientists at Harvard University. The genetically modified mouse carries a specific gene making it more susceptible to cancer, thus a valuable laboratory mouse. DuPont owns the trademark and patent rights to the invention.

[99] *See id.* at 83.

nature is mixed with human labor, it becomes a cultural artifact worthy of patent status.[100] Haraway thus situates OncoMouse as a *hybridized object.* She understands the patented object as an instance where nature merges into the artificial or cultural, yet she also finds problems in how patent ownership blocks nonproprietary and nontechnical meanings while foreclosing broader visions of scientific practice and the public interest. According to Haraway, patents are technoscientific objects and should be analyzed by considering "all the meanings, identities, materialities, and accountabilities of the subjects and objects in play."[101] Her study of OncoMouse goes on to examine the relevant multiple subjects ranging from Dupont (the owner), to the Harvard inventors, and then finally to the breast cancer patients awaiting a cure.[102] In doing so, she tacks back and forth, generating a hybrid kinship between private patent law and its supposed other - the public domain - by working through fluid notions of authorship and nature. Through a study of OncoMouse one begins to understand that "the author of life is a writer of patentable (or copyrightable) code."[103] Authors are *not just scientists*, but are also the objects they study. The genome itself can be considered the master designer/author of organisms. Authorship is also about "status" because biotechnology patents "establish who gets to count as nature's author."[104] In Haraway's work, authorship moves away from Enlightenment notions of an individual inventor to become a hybridized form of authorship where dichotomies of individual/collective and human/non-human, which signal authorial rights, begin to merge. Furthermore, multiple notions of nature are also employed within her analysis. Haraway critiques nature as a source of raw material for human innovation.[105] She also criticizes nature as a

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[100] *See id.* at 82.

[101] *Id.*

[102] *Id.* at 97–108.

[103] *Id.* at 97.

[104] HARAWAY, MODEST WITNESS, *supra* note 5, at 100.

[105] *Id.* at 102.

moralizing discourse for appropriate social norms and actions.[106] For example, such discourses are used to "naturalize" science as certain, legitimate, and objective.[107] They are also employed to question those that behave "unnaturally."[108] Finally as market logic, such naturalizing" discourses support "free enterprise as natural acts" and discourses of choice.[109] Haraway's complex examination of "nature" thus places importance on values of hybridity that disrupt naturalizing discourses. She also offers new ways of analyzing the relationship between the public domain and patent law. One can begin to understand how the divide between the public domain and patent law, with its emphasis on separating nature and culture, connects to discourses of naturalization that are used to subordinate marginalized groups.

In sum, as patent law strains scientific practice, the scholarship in this section examines how interactions between modes of scientific/cultural production within the public domain and the regulatory techniques of patent law produce new notions of nature and culture. More is at stake than just threats to the circulation of raw scientific material. Relationships between the public domain and patent law challenge Euro-American epistemologies and ideologies of neo-liberalism, which depend upon separating nature/culture to define who is or is not considered fully human within liberal democracy and to allocate resources accordingly. The hybridized relationship between the public domain and patent law is unlike the open public domain mentioned above. Borders become more fluid, and there is oscillation between the public domain and patent law. Scholarship in this area recognizes legal borders fencing off nature from culture by disallowing patents on products of nature. But it critiques those borders by re-characterizing patents as hybrid forms. Biotechnology patents involve inventions where nature is mixed with culture. The scholarship thus turns the gaze back upon Euro-American practices of purification within legal

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[106] *Id.*

[107] *See id.* at 103.

[108] *Id.* at 102.

[109] *Id.* at 105.

codification processes by re-characterizing patented objects as hybrids. This essentially disrupts the dichotomy between patent ownership rights and the public domain.

By showing that the dichotomy between nature/culture within the patenting process is actually hybrid, it also goes farther to contest the distinction of the public domain as property law's "opposite." Patent law rights are defined in relation to the public domain. Creativity in the public domain is that which is not patentable. Patent law privileges patented inventions by devaluing forms of creativity in the public domain not eligible for patenting. Scholarship in this section contests this distinction by showing patented objects themselves as hybrid forms. Creativity that is patented is privileged because it is supposedly pure and isolated from nature. But this scholarship shows that patented objects are not "pure," rather they are hybrids of social-nature-social, which are not divorced from nature or other social relations. Such critiques disrupt the privileging of patented knowledge over knowledge in the public domain. Those who desire a hybridized public domain therefore value a public domain that is not distinct from private property at all. A hybridized public domain is one in which the public domain oscillates with private property so that one is not valued over the other. It is a public domain no longer defined as private property's Other where the extraction of resources takes place. Limitations though are present within this scholarship.

Some attention is paid to indigenous peoples, but a more nuanced analysis is needed. How does recognizing patented objects as hybrid forms make us think differently about epistemologies of indigenous knowledge where amalgamations proliferate as cultural artifacts are linked to lands and resources? Analysis of gendered social relations is also left undone. The exception is Donna Haraway's work, which provides an insightful feminist critique of patent law, but its object of inquiry around OncoMouse limits its discussion to certain gendered social relations. Thus important questions regarding gender are left unexamined. For example, does patent law's conceptions of nature/culture as hybrid offer a site of liberation, ambivalence, or further subordination for women whose bodies and labor have been subordinated by being considered closer to nature and biology? The hybridized public domain offers broader

conceptions of the public domain, but questions of inequality and power remain, for the most part, unanswered. Such inquiries are taken up, however, by scholarship focusing on a protective public domain that addresses histories and relations of imperialism and colonialism.

C. Protective Public Domain

Existing scholarship also examines the public domain as embedded within ethno-racialized histories of colonialism and imperialism against local and indigenous peoples. In acknowledging these histories, the public domain is recognized as a concept of violence against indigenous peoples, but is also re-figured as a space of possible protection and recognition. It is re-imagined as space of security and empowerment, while being flexible enough to account for the different geo-political locations and interests of indigenous peoples. Such scholarship provides insights into how and why traditional knowledge is considered to be in the public domain. Particular attention is paid to practices of bioprospecting. For instance, when researchers intentionally collect plants from public markets and roadsides, they take advantage of an open public domain where raw materials are deemed unattached from authorship rights and freely accessible to all.[110] Benefit-sharing agreements are also debated. Such agreements, theoretically, encourage researchers to provide "benefits" to indigenous peoples in exchange for their knowledge and resources. In doing so, they attempt to protect the public domain and indigenous peoples. Scholars disagree, however, as to whether or not benefit sharing provides protection for indigenous peoples or simply ensures continued access to indigenous knowledge located in the public domain.[111] Concepts of the public domain in this section revolve around an *ethic of protection*. How can the public domain be structured to protect indigenous peoples? How can benefit sharing be used to protect a vibrant public domain, while also safeguarding indigenous

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[110] *See* CORI HAYDEN, WHEN NATURE GOES PUBLIC: THE MAKING AND UNMAKING OF BIOPROSPECTING IN MEXICO 137 (2003).

[111] *See generally,* Greene, *supra* note 88. *But see* MICHAEL F. BROWN, WHO OWNS NATIVE CULTURE? (2003) (discussing indigenous peoples efforts to protect their cultural heritage from control through intellectual property rights and arguing against their strategies to claim ownership rights over their heritage).

peoples? These questions shape many of discussions within this scholarship. Unfortunately, the level of protection this public domain might offer is limited because it fails to consider complex gendered social relations. A protective public domain for indigenous peoples is likely to fall short if individual and structural relations of gender subordination within indigenous communities are not recognized. This point will be expanded upon after a brief discussion of some of the scholarship focused on a protective public domain.

According to some scholars the public domain should be open to a broader understanding of authorship and be formulated through frameworks of human rights and social justice.[112] This conception of the public domain differs from a "cultural public domain" as envisioned by North American legal scholarship, which desires open access to materials and "creative commons" models.[113] A cultural (or what I call *open*) public domain often conflicts with indigenous peoples' interests as it facilitates appropriation of indigenous knowledge. To create a public domain that better protects indigenous peoples, this scholarship argues for more robust notions of authorship.

The concept of authorship should be considered not only as a status for claiming patent law rights, but also as a set of responsibilities.[114] Authorship is a political accomplishment peoples struggle to achieve, and a status promising recognition for the traditionally excluded.[115] This vision of authorship offers an alternative to Enlightenment understandings of an individual author who makes unique contributions to human progress.[116] Such normative notions of authorship deny authorial status to indigenous peoples, thus ensuring their knowledge, resources,

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[112] *See* Coombe, *Fear, Hope, and Longing*, *supra* note 6.

[113] *Id.* at 1181.

[114] *Id.* at 1171.

[115] *Id.* at 1172.

[116] *Id.*

and heritage remain in the public domain. A broader notion of authorship enables a more robust conception of the public domain, allowing for indigenous peoples to protect their cultural heritage. Scholarship in this area focuses on expanding the public domain by limiting IP rights and requiring compulsory licensing.[117] However, it insists on exceptions for those that have been traditionally excluded from asserting authorial rights.[118] The public domain should not be expanded at the expense of indigenous peoples. Attention should also be paid to histories of colonialism and imperialism that contribute to conceptions of the public domain and its capture of traditional knowledge.[119] By stretching notions of authorship and taking into account histories of colonialism and imperialism, a robust public domain emerges for protecting indigenous peoples' cultural heritage.

A protective public domain would also address inequalities. The public domain is often dangerously romanticized within United States legal scholarship as a space of freely circulating ideas and materials for all to use.[120] Such romantic tropes are typically taken up by theories of law and economics as well as critical IP scholarship advocating creative commons models.[121] The romanticizing of the public domain is criticized for failing to consider distributional consequences and inequalities.[122] As Chander and Sunder assert, "differing circumstances-including knowledge, wealth, power, and ability-render some better able

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[117] *Id.* at 1184.

[118] *See* Coombe, *Fear, Hope, and Longing, supra* note 6.

[119] *See id.*

[120] *See* Chander & Sunder, *supra* note 6.

[121] *Id.* at 1334–36.

[122] *Id.* at 1354. Chander and Sunder call for attention to distributional consequences because, in actuality, cultural production in the public domain is not free moving and open for all to participate in. *See id.* at 1355. For example, they point out even though the United States based GenBank offers freely accessible DNA sequence information through an Internet database, only one percent of downloads are attributed to persons in Africa. *See id.* at 1341–43.

than others to exploit a commons."[123] Thus, individual and structural social relations shape whether or not information in the public domain is truly open and accessible. There are also contradictions of this romantic notion of the public domain.[124] On the one hand, it supports marginalized groups in the global South through its emphasis on opening access to medicines and information by re-characterizing them as public domain material. On the other hand, it obscures poor peoples' knowledge as raw material, rather than as its own form of intellectual property that is a "modern, dynamic, *scientific, and cultural invention*."[125] Scholars are therefore encouraged to theorize a public domain that recognizes the *inventiveness* of traditional knowledge.[126] A strong public domain is desired, but one that flexibly takes into account inequalities and protects the dynamic cultural heritage of marginalized groups. Furthermore, scholarship calls for a discussion of the public domain and intellectual property that "may enhance the *capacity* for participating in the *processes* of knowledge creation."[127] Thus, the public domain should not only be a space for protection, but one of recognition and empowerment.

The protective public domain is also characterized as a flexible concept. This scholarship argues for a more elastic notion of the public domain to protect traditional knowledge.[128] When the notion of the public domain is applied to different locations, the concept can lose its meaning.[129] Thus, notions of the public domain must be pliant because, for example,

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[123] *Id.* at 1341.

[124] Madhavi Sunder, *The Invention of Traditional Knowledge*, 70 LAW & CONTEMP. PROBS. 97, 100 (2007).

[125] *Id.* at 100.

[126] *Id.* at 110–12.

[127] *Id.* at 123.

[128] *See* Long, *supra* note 6.

[129] *Id.* at 320.

protecting folk art differs from safeguarding folk medicines.[130] Each form of traditional knowledge and expression might require a different conception of the public domain to ensure a proper balance between protection and access.[131] A more flexible notion offers an alternative to understandings of the public domain that are often based on the mistaken belief that traditional knowledge is in the past and never changes.[132] On the contrary, traditional knowledge is a dynamic living concept that changes in response to culture and environment.[133] Thus, a more elastic concept of the public domain can provide more nuanced protection of traditional knowledge as a dynamic invention.

This scholarship also provides insights into how and why traditional knowledge is constructed as public domain material. Such studies help to explain why indigenous traditional knowledge is unintelligible to the law, and thus relegated to the public domain. Such scholarship critically engages with how to protect indigenous traditional knowledge in the public domain through such strategies as benefit sharing. Research in this area is expansive, so only a limited discussion is taken up here. What becomes clear, however, is that this scholarship provides critical insights informing a protective public domain for indigenous peoples.

Such scholarship points to how and why traditional knowledge is relegated to the public domain. One reason is because traditional knowledge conflicts with Western forms of

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[130] *Id.*

[131] *See id.*

[132] *Id.* at 321.

[133] *Id.*

intellectual property law and inventorship.[134] Indigenous peoples generally hold knowledge and resources in common as a collective.[135] Individual inventors or their corporate assignees, in contrast, hold resources as individual entities in the private domain of patent law.[136] Another reason is practices of bioprospecting actively shape and are being shaped by discourses of the public domain. In her book, *When Nature Goes Public,* Cori Hayden, a professor of Anthropology at University of California, Berkeley, produces an ethnographic study of a bioprospecting agreement between the United States and Mexico.[137] Hayden finds that researchers search for ethnobotanical information by speaking with sellers in public markets or by collecting plants along the side of the road.[138] By gathering plants and information in this manner, Hayden claims that these scientists are able to deliberately avoid developing partnerships with indigenous communities through bioprospecting and benefit-sharing contracts.[139] She also notes the symbolic link between these practices and the colonial voyages of "wild" lands.[140] The importance of Hayden's research is to show one way in which the public domain is historically and socially constructed in practice. Scientists

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[134] *See generally,* Greene *supra* note 88; Brown, *supra* note 111; ROSEMARY J. COOMBE, THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES: AUTHORSHIP, APPROPRIATION, AND THE LAW (1998) [hereinafter COOMBE, THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES]; Darrell Posey, *Intellectual Property Rights: And Just Compensation for Indigenous Knowledge*, 6 ANTHROPOLOGY TODAY 13 (1990); Stephen B. Brush, *Indigenous Knowledge of Biological Resources and Intellectual Property Rights: The Role of Anthropology*, 95 AM. ANTHROPOLOGIST 653 (1993).

[135] *See* Greene, *supra* note 88, at 213–14.

[136] *Id.*

[137] HAYDEN, *supra* note 110. The agreement at the center of Hayden's book is between University of Arizona and Mexico's National Autonomous University under the larger project of the United States government's International Cooperative Biodiversity Groups program (ICBG).

[138] *Id.* at 125–90.

[139] *Id.* at 145.

[140] *Id.* at 162–74.

collect raw material from the public domain (i.e. public markets and roadsides) because it is free of private property ownership, thus openly accessible. Yet, as Hayden notes, it is also free from political interests and inventor's rights.[141] Taking advantage of the public domain, researchers remain detached from engaging with indigenous peoples. An absence of claims to inventorship also allows researchers to maintain control over who is or is not a potential beneficiary for future benefit-sharing agreements. Hayden's work thus shows how the public domain is drawn and re-drawn through specific scientific practices. Scholarship in this area is also interested in questions of benefit sharing as a way to alleviate the violence justified through an open public domain.

Scholars debate the merits of benefit-sharing agreements for indigenous peoples. Although such agreements are lauded as a form of protection for indigenous peoples, their primary goal is ensuring access to biological and genetic materials derived from indigenous people's knowledge and resources. In other words, benefit-sharing agreements work to maintain a vibrant public domain where information remains open and accessible. Scholars, however, are at odds as to whether or not such agreements truly benefit indigenous communities. Some express concern over the capitalist goals of benefit sharing agreements.[142] Brush states that benefit sharing agreements are intended to give indigenous peoples control over genetic resources only in so far as that control comports with free trade capitalism.[143] Scholars also argue that such agreements force indigenous peoples to legally define who is and who is not indigenous, which results in reifying indigenous peoples as a fixed, static, and homogenous group.[144] Proponents of benefit sharing disagree.

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[141] *Id.* at 44–47.

[142] *See generally* BROWN, *supra* note 111; Stephen B. Brush, *Bioprospecting the Public Domain*, 22 CULTURAL ANTHROPOLOGY 244 (1999) [hereinafter Brush, *Bioprospecting the Public Domain*].

[143] Brush, *Bioprospecting the Public Domain*, *supra* note 142.

[144] *See generally* BROWN, *supra* note 111; Brush, *Bioprospecting the Public Domain*, *supra* note 142.

Despite the limitations of benefit sharing agreements, other scholars argue that such contractual arrangements are a way for indigenous peoples to strategically represent their interests. Indigenous peoples are engaged in an "emergent global politics of representation," which compels them to continually redefine their identities to themselves and others in order to claim rights.[145] Benefit sharing should be interpreted not as a dangerous process of reification, but as the simultaneous adoption and transformation of "the logic of their Western counterparts."[146] Similarly, scholars argue that such strategies enable indigenous peoples to engage in a "doubled voiced rhetoric" whereby they "employ the tropes of a dominant language, simultaneously engaging and subverting these metaphors."[147] They also point out that activist and academic critiques of the reification of indigenous peoples actually become complicit in maintaining indigenous peoples' roles as the traditional "ecologically Noble Savage."[148] In sum, benefit-sharing sharing is interpreted not as a process of reification, but as a strategy for indigenous peoples to negotiate and re-negotiate their identities in ways that disrupt constructions of themselves as "traditional", thereby destabilizing dichotomies of modern versus traditional that undergird modernity. To promote these understandings, scholars offer suggestions for further research. Coombe calls for an "ethics of contingency" that recognizes the contradictory terrain indigenous peoples must walk along when dealing with intellectual property law structures, which compels them to simultaneously employ and refigure legal categories.[149] Others insist upon the production of more research focusing on specific indigenous communities and realistic understandings of

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[145] Greene, *supra* note 88, at 222.

[146] *Id.* at 223.

[147] COOMBE, THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES, *supra* note 134, at 243.

[148] Beth A. Conklin & Laura R. Graham, *The Shifting Middle Ground: Amazonian Indians and Eco-Politics*, 97 AM. ANTHROPOLOGIST 695, 697 (1995).

[149] COOMBE, THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES, *supra* note 134, at 297–99.

indigenous identities.[150]

This scholarship contributes insights into concepts of a protective public domain, while also demonstrating the tensions between all three of these notions of the public domain. A more open public domain, securing access to genetic and biological materials derived from indigenous peoples, implicitly encourages researchers to collect within public spaces and to avoid partnerships or agreements with indigenous communities. An alternative is a protective public domain. Yet, this option, where benefit sharing is encouraged, might reify indigenous cultures and redefine them within capitalist logics. On the other hand, a more protective public domain may engender fissures within modernity as indigenous peoples find new ways to define their identities and role within neo-liberal capitalism through benefit sharing agreements. In this case, a protective public domain that also embraces elements of a hybridized public domain where indigenous peoples are recognized for exploding categories of modernity/tradition might be even more productive.

In sum, all the scholarship discussed up to this point reveals the importance of each concept of the public domain for marginalized groups. An open public domain might benefit vulnerable groups by supporting their access to medicines deliberately reclassified as public domain material. A protective public domain might enable them to safeguard their cultural heritage, while gaining recognition for their scientific and cultural achievements previously excluded as traditional. And a hybridized public domain can encourage new possibilities for re-defining modernity by dismantling binary categories of nature/culture and modernity/tradition. Bringing these elements together enables a much richer conceptualization of the public domain. However, a larger void remains.

All three public domains fail to account for complex gendered social relations. Considerations of individual and structural systems of gender subordination bring into focus the limitations of these public domains. How will an open public

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[150] Greene, *supra* note 88, at 214; Conklin & Graham, *supra* note 134, at 701.

domain bring medicines to women and girls who have less access to health care because of histories of gender subordination? How will a hybridized public domain encourage possibilities for re-imagining binary categories in ways that liberate women from being subordinated as closer to nature and/or stuck in tradition? How will a protective public domain bring recognition to indigenous women who might have fewer opportunities due to the encroachment of patriarchal models of family and governance into their communities from histories of colonialism and new demands of neo-liberal globalization?

One might argue that a protective public domain is sufficient for protecting the rights of indigenous women because it is meant to empower indigenous communities as a whole. I agree that the theorizing of a protective public domain has gone far in offering a conceptual and political framework for protecting and recognizing the needs of indigenous peoples. In particular, Rosemary Coombe's suggestion for an "ethics of contingency" opens the door for a more robust theorizing of the protective public domain because it recognizes that "protection" might mean different things to different groups.[151] Yet, scholarship in this area has not explicitly addressed gendered social relations, thus theorizing of the protective public domain remains inadequate. It remains unclear how a protective public domain would go about safeguarding different women differently.

Some might argue that such gendered theorizing has not occurred because indigenous communities embrace non-hierarchal gender relations. They might also claim that incorporating a gender analysis would mean imposing western feminist hegemonies upon indigenous communities. Others may argue that addressing the links between women and indigenous knowledge may expose indigenous women as potential targets for bioprospecting practices aimed at accessing their knowledge. Theorizing of a protective public domain, therefore, remains gender neutral out of consideration for the beliefs of indigenous communities themselves. I respectfully recognize such concerns. Western feminist hegemonies have been used in destructive

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[151] COOMBE, THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES, *supra* note 134, at 297–99.

ways to reinforce indigenous peoples as Other.[152] Scholars note that Native American women activists do not consider themselves feminists because feminism has been closely aligned with the colonizing process.[153] Native American feminist scholar, Andrea Smith, points out though that debate over whether or not Native women claim feminism ends up simplifying Native women's activism aimed at addressing sexism and indigenous sovereignty at the same time.[154] She reminds us that colonization and loss of land were enacted through complex processes of patriarchy and sexism.[155] Therefore, decolonization will not automatically result in the elimination of sexism, but must be directly addressed.[156]

Likewise, I would argue that theorizing of the public domain must explicitly address gendered social relations, sexism, and patriarchy. A protective public domain functions as a tool within anti-colonial and decolonization struggles. It assists indigenous communities with re-claiming rights to land, culture, and resources. However, as it is being currently theorized, conceptions of the protective public domain remain inadequate. Work related to the protective public domain offers the most potentially liberating space right now for indigenous peoples, but more work is yet to be done. One must begin to consider how values of protectiveness can coincide with conflicting desires for gender egalitarianism in order to ensure the needs and concerns of indigenous women are also being addressed within struggles

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[152] AILEEN MORETON-ROBINSON, TALKIN' UP TO THE WHITE WOMAN: INDIGENOUS WOMEN AND WHITE FEMINISM (2000); GRACE JOSEPHINE MILDRED WUTTUNEE OUELLETTE, THE FOURTH WORLD: AN INDIGENOUS PERSPECTIVE ON FEMINISM AND ABORIGINAL WOMEN'S ACTIVISM (2002); JOYCE GREEN, MAKING SPACE FOR INDIGENOUS FEMINISM (2007).

[153] M. Annette Jaimes & Theresa Halsey, *American Indian Women: At the Center of Indigenous Resistance in Contemporary North America*, *in* DANGEROUS LIAISONS: GENDER, NATION, AND POSTCOLONIAL PERSPECTIVES 298 (1997).

[154] Andrea Smith, *Native American Feminism, Sovereignty and Social Change*, *in* MAKING SPACE FOR INDIGENOUS FEMINISM 95 (2007).

[155] *Id.* at 98.

[156] *Id.* at 97.

over patent law. Caution must be taken with such an analysis as the risk of co-optation may occur. It is important to remain continually aware and vigilant of how the language of a feminist analysis may be used to target indigenous women in unjust ways for access to their knowledge.

To facilitate a more robust theorizing of the public domain, the following section introduces emerging scholarship devoted to a gendered analysis of intellectual property law. This next section implies desire for a notion of egalitarian public domains in order to protect women from patterns of discrimination within the public domain and from encroaching private intellectual property laws. Values of protection are addressed, but with a focus on how egalitarianism might benefit different individual and groups of women.

D. Egalitarian Public Domains

Emerging scholarship contributing to the field of women's studies examines the relationship between intellectual property and gender. Scholars from a range of disciplines ask how intellectual property law relates to gendered social relations. Historians analyze nineteenth century patent activity in the United States to show how female patent ownership increased when laws of coverture were abolished.[157] Sociologists provide empirical evidence that female life scientists hold fewer United States patents than their male colleagues and are less likely to disclose inventions to their university technology transfer office.[158] In addition, legal scholars question the epistemological foundations of intellectual property law grounded in Enlightenment notions of an individual inventor creating and molding through faculties of disembodied reasoning and

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[157] *See* Khan, *Married Women's*,, *supra* note 7; Merritt, *supra* note 7.

[158] *See* Kjersten Bunker Whittington & Laurel Smith-Doerr, *Gender and Commercial Women's Patenting in the Life Sciences*, 30 J. TECH. TRANSFER 355, 358 (2005); Jerry G. Thursby & Marie C. Thursby, *Gender Patterns of Research and Licensing Activity of Science and Engineering Faculty*, 30 J. TECH. TRANSFER 343, 344 (2005).

objectivity associated with conceptions of masculinity.[159] Legal scholars also warn that patent law can threaten women's health care, for example, in the case of breast cancer gene patents.[160] This is exciting and important work. Intellectual property has become a site for feminist inquiry. An aim of this section is to discuss and analyze this emerging scholarship further in order to bring it firmly into critical intellectual property scholarship.

A key feature of women's studies scholarship around patent law is how it informs notions of the public domain. Writings in this section can be coalesced around a central desire for an egalitarian public domain. However, this does not mean there is one vision of an egalitarian public domain that emerges. Just as feminists vary widely in their theoretical and political approaches, so too does their desire for an egalitarian public domain. Such desires therefore should be read as a struggle and contestation over different visions of egalitarianism. Thus there is no universalizing egalitarian public domain, hence why the heading of this section refers to "public domains" in the plural. Scholarship in this section should be understood as a partial theorizing of the public domain where multiple visions of an egalitarian public domain are allowed to emerge and conflict.

Egalitarianism for female life scientists in the United States might mean ensuring equal access to public domain materials useful for scientific research in order to facilitate claims to patent ownership, while egalitarianism for certain indigenous

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[159] *See* Debora J. Halbert, *Feminist Interpretations of Intellectual Property*, 14 AM. U. J. GENDER & SOC. POL'Y & L. 431, 449 (2006); Dan Burk, *Feminism and Dualism in Intellectual Property*, 15 AM. U. J. GENDER & SOC. POL'Y & L. 183, 191 (2007).

[160] *See* Eileen Kane, *Molecules and Conflict: Cancer, Patents, and Women's Health*, 15 AM. U. J. GENDER & SOC. POL'Y & L. 305, 328–33 (2007); *see also*, Ass'n for Molecular Pathology, et. al. v. USPTO, et. al., 702 F.Supp. 2d 181 (S.D.N.Y., 2010). The District Court of the Southern District of New York issued a recent opinion overturning patents on the isolated BRCA1 and BRCA2 genes. The court ruled that the patented genes were not "markedly different" than the native DNA found in the body, thus the invention was not patentable subject matter under Section 101. See id., at 227–232. The patent owners, Myriad Genetics, are currently appealing the decision. Therefore, there is still uncertainty as to how the patenting of BRCA1 and BRCA2 genes will impact genetic testing for breast cancer susceptibility.

women might entail the abolition of patent rights all together. The scholarship to be discussed below around ownership and inventorship tends to imply an egalitarian public domain where patterns of discrimination are addressed in order to facilitate women's access to patent law ownership. In contrast, the scholarship related to indigenous women's social movements and feminist science studies implies an egalitarian public domain where patterns of discrimination are recognized, but the desire is generally to limit or abolish patent rights. Becoming patent owners may not be the desired route for some indigenous women. Substantive equality for certain indigenous women might require an expansion of the public domain and limitation of property rights. This too is contested though as some indigenous women do desire to obtain intellectual property rights to their creative works. Before discussing how different desires for egalitarianism are expressed within this scholarship, there are some key points on how to reconcile notions of the public domain as related to IP rights, with the extensive feminist critique of the public and private dichotomy.

Feminist scholars have shown that women's caretaking work has historically been relegated to the domestic/private sphere in order to ensure the exploitation of their labor within the public sphere of the marketplace.[161] This public/private divide means that women overwhelmingly perform the invisible labor of cooking, cleaning, and childrearing in the home, which enables men to more fully participate in public life. Women's uncompensated caretaking work performs a crucial service not only to the individuals they care for, but to the entire society.[162] So long as women perform the familial "love" of caretaking, the welfare state is further absolved from providing governmental support and subsidies to women and their families.[163] The devaluation of women's work within the domestic sphere also

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[161] JEAN BETHKE ELSHTAIN, PUBLIC MAN, PRIVATE WOMAN: WOMEN IN SOCIAL AND POLITICAL THOUGHT 12 (1993); SUSAN MOLLER OKIN, *Gender, The Public and the Private*, *in* FEMINISM AND POLITICS 118 (Anne Phillips ed., 1998).

[162] Martha Fineman, *Cracking the Foundational Myths: Independence, Autonomy, and Self-Sufficiency*, 8 AM. U. J. GENDER & SOC. POL'Y & L. 13, 19 (2000).

[163] *Id.* at 23.

contributes to the "feminization" of labor in the public sphere. Caretaking work is devalued as unskilled labor associated with the body, in contrast to the more "skilled" labor of the mind. Thus, unskilled manual labor performed within the public sphere is likewise undervalued and exploited. A key feature of globalization is the flexible and strategic employment of large pools of female labor willing to work for low wages at monotonous tasks.[164] Scholars argue that globalization entails a global feminization of labor that shifts all labor to conditions of dependent labor as jobs become increasingly insecure and poorly paid.[165] Thus men and women alike join the forces of low-wage workers with little job security.[166] This public/private divide and feminization of labor is important to a discussion of patent law.

In the context of examining gender and intellectual property, the conceptual analytic of the public/private divide is employed in a slightly different way. Discourses of feminization shape what counts as valuable knowledge worthy of promoting and protecting through private property ownership, versus knowledge that should be relegated to the public domain as raw material open to exploitation by others. The public domain connotes forms of creativity and innovation that are excluded from the protection of the private domain of intellectual property rights. To illustrate this point more broadly and its connection to the theorizing of the public/private divide, it is useful to consider examples from both copyright and patent law. For instance, gendered forms of labor and creativity in the form of fashion apparel and recipes are considered to be in the public domain

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[164] Aihwa Ong, SPIRITS OF RESISTANCE AND CAPITALIST DISCIPLINE: FACTORY WOMEN IN MALAYSIA (1987).

[165] Drucilla K. Barker, *Beyond Women and Economics: Rereading "Women's Work"*, 30 SIGNS: J. WOMEN IN CULTURE & SOC'Y 2189, 2202 (2005).

[166] *Id.*

and traditionally excluded from copyright protection.[167] One reason is because clothing and cooking have historically been considered a craft and function of homemaking.[168] Design patents for clothing are also unlikely to be granted. Proving novelty or nonobviousness in regards to a clothing invention is difficult because it is considered more functional rather than innovative.[169] Patents on recipes are also theoretically possible, but hard to obtain and defend because the innovation can often be anticipated by an ordinary person skilled in the art.[170] Furthermore, patent protection is, in practice, more difficult to obtain than copyright protection.[171] It is expensive, takes a long time to apply for with the U.S. Patent and Trademark Office, and inventions (particularly on clothing and cooking) are not always easy to enforce.[172] Such difficulties mean that knowledge related to cooking and clothing most often remains available for use by others as public domain material. Similarly the collectively

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[167] A "mere listing of ingredients or contents" is considered to be material not subject to copyright protection. 37 C.F.R. 202.1 (a) (2010); *see also,* Doris Estelle Long, *Dissonant Harmonization: Limitations on Cash n' Carry Creativity*, 70 ALB. L. REV. 1163, 1200 (2007) (arguing that a harmonization of copyright laws requires further study into what types of authorial right encourage aesthetic creativity). In regards to fashion apparel, copyright protection would apply to a design sketch but not to the garment produced from that sketch because the garment is a "useful article." Designs found on clothing are only copyrightable if they are separable from the utilitarian function of the clothing. *See* Galiano v. Harrah's Operating Co., 416 F.3d 411, 422 (5th Cir. 2005) (ruling that casino uniforms were unprotected from copyright law because there was "no showing that its designs are marketable independently of their utilitarian function as casino uniforms").

[168] Susanna Monseau, *European Design Rights: A Model for the Protection of All Designers from Piracy*, 48 AM. BUS. L.J. 27, 32 (2011).

[169] *Id.* at 47.

[170] Procter & Gamble Co. v. Nabisco Brands, Inc., 711 F.Supp. 759 (D. Del. 1989) (granting summary judgment on issue of invalidity of product patent claims regarding a cookie recipe, and denying summary judgment on issue of invalidity of process patent regarding a cookie recipe).

[171] Ann Bartow, *Fair Use and the Fairer Sex: Gender, Feminism, and Copyright Law*, 14 AM. U. J. GENDER SOC. POL'Y & L 551, 572 (2006) (identifying gendered aspects of copyright law and arguing for low protectionism within intellectual property regimes).

[172] *Id.*

managed works of indigenous peoples are also generally relegated to the public domain and not protected through property rights.[173] Indigenous knowledge is often collectively held by a group of individuals and determination of individual named inventors is hard to do given the intergenerational transmission of knowledge.[174] Additionally, their form of knowledge, for example, of medicinal plant material would not be considered patentable subject matter because it is not in a "purified" form that is "markedly different" from what is found in nature.[175] Thus, gendered and indigenous forms of creativity are generally relegated to the public domain, which ensures their continual exploitation as "raw material."

Intellectual property rights are meant to encourage and stimulate creativity and innovation.[176] Yet, not all forms of creativity are considered valuable enough to be worth promoting. Creativity that is considered new, novel, and industrial is what is prized. More "traditional" forms of gendered and indigenous labor such as cooking, making clothing, and producing indigenous plant medicines do not count as new, novel, and industrial. Thus, these forms of creativity are deemed less valuable and remain in the public domain. Mechanisms of globalization in fact depend upon the location of gendered and indigenous forms of creativity within the public domain. It ensures that access to indigenous knowledge and resources remains open for appropriation and possible commercialization by others. It also ensures that gendered forms of creativity related to homemaking also remain devalued, thus reinforcing discourses of feminization that contribute to keeping labor costs low.

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[173] Long, *supra* note 167, at 1200.

[174] Stephen B. Brush, *Indigenous Knowledge of Biological Resources and Intellectual Property Rights: The Role of Anthropology*, 95 AM. ANTHROPOLOGIST 653, 663 (1993) (identifying three approaches to finding intellectual property protection for indigenous knowledge).

[175] Diamond v. Chakrabarty, 447 U.S. 303, 313 (1980).

[176] U.S. CONST. art. I, § 8, cl. 8

Scholars in this section envision egalitarian public domains where gendered social relations are taken into account. Women's relationship to patent law is problematized through recognizing the individual and structural systems of subordination that shape their lives. Critique is leveled against patent law as resulting in unfair practices against women. What emerges are egalitarian public domains where patterns of discrimination are taken into account. This is where the public sphere meets the public domain. Feminist theorizing of the public sphere and its exclusion of female labor becomes a useful tool for examining conceptions of the public domain. Better understandings of the public domain come into view and what emerges is a sense of how certain forms of creativity are included in the public domain (and hence unprotected) in inequitable, discriminatory ways that bring fewer benefits to marginalized groups. A desire for egalitarian public domains therefore emerges, and relations of power are considered. The public domain and its inclusion of certain forms of creativity over others are critically taken into account. Different values of egalitarianism, however, emerge. Equality for some women might mean a reduction of the public domain and expansion of patent law to include more women's scientific work. Yet, equality for others might entail an expansion of the public domain and limitation of patent law to protect the creative work of women who do not desire to become IP owners. Visions of egalitarian public domains therefore differ from the other conceptions of the public domain discussed thus far.

Theorizing around an open public domain suggests that stronger intellectual property rights protections are not necessary to stimulate innovation. The public domain should be expanded and creativity should be encouraged to flourish through other incentives besides intellectual property rights. A protective public domain also argues that intellectual property rights are too expansive, but that the public domain should be constructed to protect indigenous knowledge from being privatized. Such protection is advanced by calls for a growing regulatory environment related to genetic and biological material in the form of prior informed consent agreements, access and benefit sharing contracts, bioprospecting permits and the like. In contrast, as will be discussed, scholars in this section embrace egalitarian public domains with similar values of openness and

protectiveness. However, they structure such values differently by considering gendered social relations. An egalitarian public domain might embrace values of openness and seek alternative "commons" arrangements to facilitate creativity, but acknowledge that such arrangements may need to be configured differently. Patterns of discrimination must be taken into account in order to encourage the production of historically devalued forms of creativity. Another version of the egalitarian public domain may look to regulatory regimes such as benefit sharing agreements to protect indigenous communities by giving them legal tools to demand compensation when their cultural resources are privatized. Benefit sharing agreements must also address the needs and concerns of indigenous women explicitly. Although this emerging scholarship makes important contributions, it also has its limitations. In what could be called a liberal feminist approach, this scholarship often highlights gendered social relations without considering their dynamic interaction with other social relations such as race, ethnicity, indigeneity, and class. Can feminist intellectual property law scholarship truly benefit women if it fails to address gendered social relations in a more complex manner? This section will briefly introduce some of this emerging scholarship and demonstrate how it informs concepts of the public domain and its relationship with patent law.

1. Patent Ownership and Gendered Social Relations

Historical studies of female patent owners shed light upon obstacles and inequalities to creativity within the public sphere. Economic historian Zorian B. Khan, investigating nineteenth century laws and United States patent records, concludes that laws of coverture, preventing married women from owning property, hindered their commercial activity as inventors.[177] Once the laws were abolished, however, there was an increase in the number of United States patents issued to female inventors.[178] Nineteenth-century United States women though

[177] Khan, *Married Women's, supra* note 7.

[178] *See id.* at 359.

were still issued far fewer patents than men.[179] Their inventions were also more domestic in nature and were aimed at reducing their responsibilities within the private/domestic sphere of the home.[180] This caused tension within the suffragist movement. For example, suffragist leaders at World's Columbian Exposition of 1893 expressed concerns that promoting certain female inventions might unjustly reinforce women's role in the domestic sphere.[181] Khan's work on historical legal structures sheds light on why women held fewer patents than men. Resources in the public sphere were not available to married women who were prohibited from owning property under laws of coverture.[182] An inability to own property meant that women did not have the capital necessary to secure financing or investment in their projects.[183] Despite these obstacles, many women invented a wide range of patented objects.[184]

Legal historian, Deborah J. Merritt, examines female patent activity from 1865 to 1900 to show that women contributed a range of patented inventions across a variety of fields including transportation, manufacturing, mining, construction, and electronics.[185] Middle-class white women, however, represent the majority of female inventors of patented inventions.[186] Merritt notes that at least four Black women patented inventions during 1865 and 1900.[187] Their inventions included a piece of furniture by Miriam E. Benjamin, a writing desk by Sarah E.

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[179] B. Zorina Khan, *"Not for Ornament:" Patenting Activity by Nineteenth-Century Women Inventors*, J. INTERDISCIPLINARY HIST. 159, 164 (2000).

[180] *See id.* at 176.

[181] *See id.* at 162.

[182] *See* Khan, *Married Women's*, *supra* note 7, at 357.

[183] *See id.*

[184] *See* Merritt, *supra* note 7, at 245–87.

[185] *See Id.* at 237.

[186] *See id.* at 304.

[187] *Id.*

Goode, and an ironing board by Sarah Boone.[188] A fourth invention in 1891 was a new clothes wringer patented by an anonymous Black woman who assigned her rights instead of marketing the invention herself.[189] In a published interview with the anonymous inventor, she explained "if it were known that a negro woman patented the invention, white ladies would not buy the wringer."[190]

Merritt similarly points to married women's property laws as being obstacles to female patent activity. She also claims that additional barriers included Victorian ideals of domesticity, bias in the patent office, and Reconstruction era laws that prevented men and women of color from changing jobs, owning property, and pursuing certain occupations.[191] Victorian ideals of domesticity supported cultural attitudes against women's participation in commercial activities and patenting.[192] There is also evidence of unconscious bias in the United States Patent Office against women's patent applications.[193] Merritt points to the example of a female inventor who applied for a patent on a sanitary napkin belt who was then ridiculed and denied patent ownership.[194] During the same period, however, male inventors were awarded monopoly protection over highly praised inventions such as male suspenders and undergarments.[195] Both Khan and Merritt show that non-propertied materials in the public domain and resources in the public sphere were not freely open and accessible to all. Legal regulations, cultures of domesticity, and gender bias partially explain why women, particularly Black women, were disproportionately denied

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[188] *See id.* at 272 & 277.

[189] *See id.* at 305.

[190] Merritt, *supra* note 7, at 305.

[191] *Id.* at 295–305.

[192] *See id.* at 295–98.

[193] *See id.* at 300.

[194] *Id.*

[195] *See id.* at 301.

access to the resources necessary for creating and patenting inventions. The agency of women as patent owners, however, is strongly asserted in this scholarship. Women, despite these obstacles, invented a wide range of objects and obtained patent ownership.[196] Overcoming such barriers demonstrates the importance of an egalitarian public sphere where women are individually and institutionally supported to become patent holders. A more egalitarian public sphere, where gendered hierarchies are addressed, facilitates a more robust conception of the public domain. It enables a similar theorizing of egalitarian public domains, which can bring attention to relations of power and inequitable access to (or protection of) public domain materials. Unfortunately, women today continue to patent fewer inventions than men.[197]

Economics professors, Jerry Thursby and Marie Thursby, published an empirical study in 2005 of over 4500 science and engineering faculty at eleven major research universities.[198] They concluded that women were less likely to disclose inventions to their university technology transfer office than their male colleagues from a period of 1983 to 1999.[199] Disclosure indicates that the faculty member is working on an invention that might have commercial potential for the university and should be considered for potential patenting and licensing.[200] The gap between male and female disclosure rates was diminishing, however, in the 1990s especially among younger female faculty members.[201] In addition, Kjersten Whittington and Laurel Smith-Doerr, sociologists, published a related study in 1995 concluding that female scientists hold fewer patents than male scientists in both the academic and

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[196] Merritt, *supra* note 7, at 245–87.

[197] Whittington & Smith-Doerr, *supra* note 158, at 355.

[198] Thursby & Thursby, *supra* note 158.

[199] *Id.* at 343.

[200] *See id.* at 344.

[201] *See id.* at 348.

commercial sectors.[202] The study tracks the patent activity of 2820 individuals with PhDs in the sciences through United States Patent Office records from 1975 to 1999.[203] It finds that 30% of males patented their work as opposed to 14% of female scientists and that this disparity held true over time.[204] Their study, however, shows that the quality and impact of patented inventions by female scientists is similar to or substantially better than male scientists who patented their research.[205]

Each of these studies demonstrates that men have historically been and currently remain the predominant inventors and owners of patented inventions. In other words, materials and resources in the public sphere are not open to women in the same way as men. These studies indicate the continued presence of individual and institutional structures of gender subordination within the sciences. What is also implied though is a desire for a more egalitarian public domain where female scientists are supported equally in their efforts to patent their inventions. Feminist legal scholarship further informs these historical and empirical studies by highlighting how notions of authorship under the law impact women.

2. Authorship, Inventorship and Gendered Knowledge Production

Feminist legal scholarship examines Enlightenment notions of an individual author/inventor within intellectual property law and how they work to obscure and exclude gendered forms of labor and knowledge production. The legal regimes of copyright and patent law are technically distinct, yet assumptions undergirding authorship and inventorship have been historically tied to one another.[206] Both are historically and discursively

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[202] Whittington & Smith-Doerr, *supra* note 158, at 355.

[203] *See id.* at 357.

[204] *See id.* at 358.

[205] *Id.* at 366.

[206] Clare Pettitt, PATENT INVENTIONS: INTELLECTUAL PROPERTY AND THE VICTORIAN NOVEL 5 (2004)

constructed through Enlightenment ideals of an individual, author/inventor endowed with heroic genius.[207] Casting the individual author/inventor as heroic genius, particularly in the early to mid-1800s, was an attempt to acknowledge and resist emerging technological changes threatening to displace the worker.[208]

Clare Pettitt, a Professor of Nineteenth-Century Literature at King's College London, points out that debate over intellectual property reform in England constructed patent law as analogous to copyright.[209] A Lockean approach was taken up that centered on the poor, struggling working class inventor who deserved patent law rights over the fruits of his labor. A natural rights discourse was also used to justify patent law rights for inventors.[210] Invention was characterized as a more "sacred" and "higher" intellectual labor than that of mere "bodily labor" of the lower classes, thus the inventor had a natural right to a patent monopoly.[211] Both these approaches produced a discursive rhetoric that worked to construct a double split between the working classes and the industrialists, and the proletariat who were engaged in bodily labor versus intellectual labor. Pettitt notes that this rhetoric of "higher" intellectual labor is classed.[212] Yet, it is also raced and gendered as it obscures the fact that many of those engaged in "bodily labor" at the time were slaves who were recently emancipated, and women involved in primarily domestic work. Debates in the U.S. also emphasized patent law as a way to "democratize invention" by rewarding working class inventors.[213] In contrast, B. Zorina Khan, a professor of Economics at Bowdoin College, argues that the

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[207] *See id.* at 114.

[208] *See id.* at 5.

[209] *See id.* at 127.

[210] *See id.* at 128–29

[211] *Id.* at 129.

[212] Pettitt, *supra* note 206, at 129.

[213] B. Zorina Khan. THE DEMOCRATIZATION OF INVENTION: PATENTS AND COPYRIGHTS IN AMERICAN ECONOMIC DEVELOPMENT, 1790-1920 2 (2005)

rhetoric of hero-inventor was less visible in the U.S. and that "innovators of all classes were universally celebrated."[214] Khan however does not address the particular intersections of class with racialized and gendered forms of labor production. Discursive constructions of patent law therefore were centered on a working class subject in various ways. Furthermore, feminist scholars note that such discursive framings were also gendered.

Feminist scholars bring our attention to the use of masculine metaphors within the historical debates over intellectual property protection. Debora Halbert, a U.S. feminist political scientist, analyzes how notions of authorship within copyright law privilege the mind and the "rational and abstract" author.[215] She traces this to historical metaphors within copyright law debates to protect male creativity. Such metaphors exhibited patriarchal values where male creativity was described as "birthing original ideas."[216] Similarly, Malla Pollack, a U.S. feminist legal scholar, claims that these metaphors of men giving birth to wisdom and knowledge elevated masculine knowledge production, in contrast to the mere bodily capacity of women's reproductive power.[217] Such metaphors reveal that notions of authorship within copyright law were initially constructed through explicit gendered discourses privileging the mind as associated with men, over the body as linked to women. Pettit also notes that historical debates over patent law similarly framed invention as masculine.[218] Historical, discursive constructions of both authorship and inventorship worked to reinforce a masculinized, racialized, and classed dichotomy

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[214] *Id.*

[215] Debora J. Halbert, *supra* note 159, at 431.

[216] *Id.* at 449. Daniel Defoe, who linked piracy to the stealing of a child, first articulated the paternity metaphor in 1710. *See* MARILYN STRATHERN, *Emergent Relations*, *in* SCIENTIFIC AUTHORSHIP: CREDIT AND INTELLECTUAL PROPERTY IN SCIENCE 165 (Mario Biagioli & Peter Louis Galison eds., 2003).

[217] Malla Pollack, *Towards a Feminist Theory of the Public Domain, or Rejecting the Gendered Scope of United States Copyrightable and Patentable Subject Matter*, 12 WM & MARY J. WOMEN & L. 603, 606–07 (2006).

[218] *See* Pettitt, *supra* note 206, at 28.

between intellectual and bodily labor.[219] This mind/body split remains embedded within contemporary patent law doctrine.

Feminist legal scholar Dan Burk similarly addresses the mind/body split, but shifts the focus away from metaphors to legal doctrine.[220] Burk argues that there is an implied mind/body dualism within intellectual property law itself because of the intangible/tangible dichotomy that constructs IP as different from property law.[221] A key concept of intellectual property is that it protects intangible/incorporeal property (e.g. ideas), in contrast to property law, which governs tangible/corporeal property (e.g. land).[222] Burk explains that this distinction means IP is fundamentally about protecting the original idea of the author and inventor.[223] This dualism is also expressed within patent law doctrine more specifically. For instance, Burk explains, "a patent right is defined by the 'conception' of an invention in the mind of the inventor, rather than by the physical construction of 'reduction to practice' of the invention."[224] What counts is not the building of the invention ("reduction to practice"), but the mental effort involved.[225] The emphasis on mental effort, rather than physical effort is what reinforces this

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[219] Discursive justification around patent law, however, began to shift in the 1850s when the focus moved away from the individual inventor and on to collective interest. *See* Pettitt, *supra* note 206, at 133. Moral claims for rewarding individual authors were replaced with arguments for patents as economic inventive to promote invention. *See* id. at 136. Such claims were used to challenge opponents of patent law who argued that patent monopolies would get in the way of the distributive justice of the invisible hand in the free market economy. *See* id. at 135. Yet, I would similarly claim that the shift away from the individual inventor, and towards an economic justification equally obscures racialized, classed, and gendered conditions of labor, forms of knowledge, and access to public domain materials. Notions of a mind/body split

[220] Burk, *supra* note 159.

[221] *Id.* at 186.

[222] *See id.*

[223] *Id.* at 190.

[224] *Id.* at 186.

[225] *See id.*

dualism of mind/boy. The language of "conception" also acts as a similar birthing metaphor. Patent law therefore reinforces a hierarchy of reason and rationality, over the body (and its emotions and passions). Burk notes that such hierarchies have historically been used to subordinate the labor of women as invisible.[226] He concludes that hierarchies of mind/body are occurring in both new and old ways through intellectual property law, thereby excluding and constructing the knowledge of women and marginalized groups as invisible.[227] The importance of Burk's work is that it begins to shift the discussion of authorship/inventorship towards a valuable critique of legal doctrine itself in terms of the split between tangible and intangible property.

Scholarship in this area informs an egalitarian public domain by demonstrating how intellectual property law has been historically constructed to obscure and exclude gendered and indigenous forms of knowledge production, and how such discursive framings are embedded within patent law doctrine. This implies a desire for a more equitable intellectual property law that values different forms of knowledge production. The relationship between the public domain and patent law can be structured in a way that honors multiple forms of knowledge production. This would include epistemological modes where reason is not separate from emotion, and tangible objects are not divorced from the intangible. Conceptions of an egalitarian public domain thus become more radical as informed by this scholarship. A more egalitarian public domain would involve a disruption of normative Euro-American modes of thinking, which have historically subordinated women and women's labor. The mind/body split within patent law serves to relegate practices of "bodily labor" to the public domain. Indigenous peoples' practices related to medicinal plant knowledge, for example, become positioned within the public domain and are thus made available for privatization by others who can satisfy the requirements of novelty, nonobviousness, and utility. How could the public domain be re-imagined in order to disrupt this dualism? Would a broader understanding of "inventorship" be a

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[226] Burk, *supra* note 159, at 192–93.

[227] *Id.* at 193.

place to start?

Some insights may be gleaned from discussions over authorship in copyright law. Responding to the Enlightenment notions of individual authorship, some legal scholars concerned about gendered social relations suggest more robust notions of authorship. In her examination of slash fan fiction, Sonia Katyal, a U.S. legal scholar, argues for recognizing creative works as dynamic authorial performances where normative narratives within a text are coded and re-coded.[228] This would open up possibilities for female authorship to offer alternative readings of a text by interrogating normative gender categories.[229] Additionally, Carys Craig, a Canadian legal scholar, re-imagines the author as participant and citizen, rather than origin or source of a creative work.[230] She argues for notions of authorship emphasizing formation of identity as connected to both self and community.[231] According to Craig, copyright law should embrace a notion of authorship that encourages creativity, exchange, and relations with others.[232] These more fluid notions of authorship are also appealing for rethinking inventorship and crafting a broader notion of the public domain. Moving away from inventorship as the original moment of conception would help justify demands for more fluid exchange of ideas in the public domain and less restrictive IP policies to enable such cultural borrowings. Broader conceptions of inventorship also open up possibilities for recognizing multiple forms of knowledge production. When inventorship is valued as dynamic, collaborative, and linked to community, it generates space for new forms of knowledge production to be recognized and

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[228] Sonia K. Katyal, *Performance, Property, and the Slashing of Gender in Fan Fiction*, 14 AM. U. J. GENDER & SOC. POL'Y & L. 461, 468 (2006).

[229] *See id.* at 479.

[230] Carys Craig, *Reconstructing the Author-Self: Some Feminist Lessons for Copyright Law*, 13 AM. U. J. GENDER & SOC. POL'Y & L. 207, 234 (2007).

[231] *Id.*

[232] *Id.*

valued. This would entail going beyond naming indigenous peoples as "joint inventors." [233]

One might argue that patent law already values dynamic and collaborative knowledge production because it requires all inventors who contributed to the conception of the invention to be listed.[234] This includes joint inventors and collaborators who even contributed to some, but not all, of the patented claims.[235] Couldn't scientist inventors just include indigenous peoples as "joint inventors?"[236] This would give indigenous peoples recognition for contributing to the conception of the invention. Although in theory this is possible, in application the scope of collaboration is not generally extended to indigenous peoples who contribute their knowledge to the making of invention. Patent law struggles over indigenous knowledge exposes the limitations of what is considered "collaboration" under patent law and raises numerous questions. One could list a specific member of an indigenous community to be named as a joint inventor, but given the intergenerational dissemination of indigenous knowledge, what person would you name? Even if a member of the indigenous community could be named, would listing them as joint inventor disrupt the mind/body split? What if the patent was assigned to a non-profit organization or legal trust in order to represent the interests of the indigenous community? Would such assignment bring recognition to the knowledge and labor of indigenous peoples and challenge the mind/body split? Naming and recognizing indigenous peoples as joint inventors would not change the fact that legal notions of the public domain structured indigenous peoples' knowledge and labor as open for use by scientists to purify and patent in the first place. Control also would remain with the scientists to decide

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[233] 35 U.S.C. §116 (2010).

[234] *See* Sewall v. Walters, 21 F.3d 411, 415 (Fed Cir. 1994) (explaining that "[d]etermining 'inventorship' is nothing more than determining who conceived the subject matter at issue" and that conception has occurred when "a definite and permanent idea of an operative invention, including every feature of the subject matter sought to be patented, is known").

[235] 35 U.S.C. §116(3) (2010).

[236] *See id.*

whether or not to name some members of the indigenous community as joint inventors. Scholarship in this section elicits these types of questions and implies the need for a re-imagining of inventorship, its relationship to the public domain, and how to address the mind/body split reinforced by patent law.

In sum, scholarship regarding histories of female patent owners and notions of authorship/inventorship provide valuable insights on intellectual property policy and gendered social relations. It brings attention to historical and contemporary modes of individual and structural gender subordination relevant to IP policy discussions. It also demonstrates how conceptual notions of authorship/inventorship within IP law limit possibilities for recognizing multiple modes of knowledge production generated by indigenous peoples and women. Through these insights a more egalitarian public domain emerges. A concept of the public domain that opens up possibilities for patent law policy to ensure women's equal access to resources, opportunities for patent ownership, and recognition of multiple epistemologies. Scholarship in this area though does have its limitations. Although it provides an important examination of gendered social relations, its attention to other social relations is inadequate. The majority of scholarship is this area unwittingly falls into the trap of gender essentialism or an "add gender and stir" approach. Intellectual property law and related practices of bioprospecting have also been historically unrecognized as a site of feminist inquiry.[237] Women's studies departments and feminist activist organizations, with the exception of indigenous women's social movements, have yet to significantly address issues of intellectual property.[238] Yet, as intellectual property law grows in importance in regulating flows of knowledge and resources within a growing information society, feminist scholars must develop studies of intellectual property law that examine gender in relation to race, class, ethnicity, and indigeneity as well as histories of colonialism and current effects of neo-liberalism within globalization.

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[237] *See* Victoria Tauli-Corpuz, *Is Biopiracy an Issue for Feminists in the Phillippines?*, 32 SIGNS: J. WOMEN & CULTURE IN SOC'Y 332, 334–35 (2007).

[238] *See id.*

Considering gender in a more complex manner prompts the need for theorizing of multiple egalitarian public domains. Patent law policy, based on concepts of an egalitarian public domain, might promote greater opportunities for patent ownership for some women, but not all women. Racial and class barriers may continue to inhibit many women from owning their inventions. Opening up new avenues for patent ownership might also promote greater harms to some indigenous women who may desire a more protective public domain, which would enable them to control their community resources and knowledge. There are notable exceptions, however, among legal scholars. These scholars examine relations between women, cultural production, and intellectual property as a matter of intersecting social relations of race, class, ethnicity, and indigeneity.[239] Yet, much more work needs to be done. Moving towards more robust egalitarian public domains requires examining gendered social relations in a more complex, intersectional manner. In furtherance of such an approach, the next section briefly introduces women's studies scholarship regarding patent law as developed through indigenous women's social movements and feminist science studies literature. These critical IP projects signal a different conception of the egalitarian public domain. Patterns of gender discrimination within the public domain as related to patent law are similarly addressed, but the emphasis is not placed on enabling women to become patent owners. In contrast, value is generally placed on increasing the public domain and restricting patent law rights, so as to protect indigenous women from having their resources and knowledges appropriated through IP rights.

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[239] *See* COOMBE, THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES, *supra* note 134; Boatema Boateng, *Walking the Tradition-Modernity Tightrope: Gender Contradiction in Textile Production and Intellectual Property Law in Ghana*, 15 AM. U. J. GENDER & SOC. POL'Y & L. 341, 345 (2007) (arguing that the relationship between gender, cultural production, and IP law must also consider class relations); Victoria Phillips, *Commodification, Intellectual Property and the Quilters of Gee's Bend*, 15 AM. U. J. GENDER & SOC. POL'Y & L. 359, 360–63 (2007) (arguing for a more nuanced approach to understanding intellectual property law by discussing the quilters of Gee's Bend); Madhavi Sunder, *Intellectual Property and Identity Politics: Playing with Fire*, 4 J. GENDER RACE & JUST. 69, 89 (2000) (arguing against intellectual property rights in culture).

3. Indigenous Women's Social Movements

Indigenous women's social movements present a valuable introduction into indigenous peoples' struggles over patent law. They assert strong critiques of patent law, arguing that patent ownership devalues indigenous forms of knowledge production and threatens community resources and heritage, in particular, knowledge produced and protected by women.[240] Their work reveals complex notions of how patent law interacts with gender in relation to race, class, ethnicity, and indigeneity as well as histories of colonialism and emerging practices of neoliberal globalization. For example, the 1995 Beijing Declaration of Indigenous Women ("Beijing Declaration") criticizes intellectual property law as an instrument of the "New World Order" used to appropriate and privatize indigenous peoples' biological, cultural, and intellectual resources.[241] It condemns patent law as facilitating and legitimizing practices of bioprospecting pirating indigenous peoples' knowledge and recolonizing their lands and natural resources.[242] The Beijing Declaration demands that western concepts of patent law not be applied to indigenous peoples' knowledge and resources, while calling for an end to the patenting and commodification of life forms.[243] The 2004 Manukan Declaration of the Indigenous Women's Biodiversity Network articulates similar criticisms against intellectual property rights.[244] Indigenous women's social movements, through these declarations, assert patent law as an important political concern for indigenous women's rights.

This is not to say that indigenous women do not have other concerns associated with the law. Each of these declarations also criticizes law's failure to protect indigenous women against sexual violence, militarization, environmental destruction, health disparities, and the taking of their lands. Intellectual property

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[240] *See* SHIVA, BIOPIRACY *supra* note 19; Barwa & Rai, *supra* note 7.

[241] *See* Beijing Declaration, *supra* note 1.

[242] *See id.* at 8.

[243] *Id.* at 39 & 40.

[244] *See* Manukan Declaration, *supra* note 1.

rights are just one of the many concerns of indigenous women, but nevertheless can be a source of harm, and thus an important political issue. Through these declarations indigenous women claim authority to speak against intellectual property law not just as members of indigenous communities, but also as indigenous women. They make ethical and moral claims based on symbolic gendered discourses articulating their close connection to nature as the "daughters of Mother Earth" who are the "manifestation of Mother Earth in human form."[245] They also claim authority as individual gendered subjects by declaring themselves as historical "holders of indigenous knowledge" who have "primary responsibility to protect and perpetuate this knowledge" and to "ensure the health of [their] Peoples and environments."[246] These indigenous women make similar critiques against intellectual property law as others within anti-globalization movements, but their ethical claims flow specifically from their experiences with "multiple oppressions: as indigenous peoples, as citizens of colonized and neo-colonial countries, as women, and as members of the poorer classes of society."[247] Thus, indigenous women's social movements, as evidenced by these declarations, work towards rights of self-determination for their respective indigenous communities, but their actions and claims uniquely flow from their complex lives as indigenous women.

Given problematic histories between western feminism and indigenous communities, one must be cautious against characterizing these movements as feminist. In fact, such characterization may not be necessary or even worthwhile. Rather a more critical question is, how do the claims of indigenous women's social movements begin to illuminate the inadequacy and limitations of the public domain and its relationship to patent law? Writing by members of indigenous women's social movements is important to theorizing the public domain because it produces robust socio-legal critiques of patent law addressing both its structural mechanisms of power and its

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[245] Beijing Declaration, *supra* note 1, at 1.

[246] Manukan Declaration, *supra* note 1, at preamble.

[247] Beijing Declaration, *supra* note 1, at 5.

impact "below" on marginalized communities. These writings offer sophisticated understandings of how to examine patent law through a social justice perspective. This work underscores the need for limits on patent rights as well as calls for the strengthening of the public domain such that indigenous women's knowledge is protected. Enabling indigenous women to patent their own knowledge, in this case, would not further equality. Thus, competing visions of an egalitarian domain and its relationship to patent law begin to emerge within this scholarship.

4. Feminist Science Studies

Scholar/activists writing in what could loosely be characterized as feminist development studies and/or science studies are also producing some exciting work. They highlight women's contributions to indigenous knowledge production and warn against patent law policy. Flowing from their own activist participation within indigenous women's social movements, their work makes powerful contributions. A central point within this scholarship is that indigenous women play a large role in cultivating and disseminating indigenous knowledge regarding genetic and biological materials.[248] Thus, issues regarding patent law become central concerns for indigenous women. For example, Suman Sahai, a feminist scholar and geneticist working with Gene Campaign in India, argues that patent law restricts women's access to their own seeds, which is necessary for them to ensure the health and nutrition of their families.[249] Writings in this section also shift understandings of an egalitarian public domain to consider how patent law policy impacts indigenous women. What results is a deeper recognition of how values of openness, protectiveness, hybridity, and egalitarianism are all important within conceptions of the public

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[248] *See generally* HELEN APPLETON, et al., *Claiming and Using Indigenous Knowledge*, *in* MISSING LINKS (United Nations Commission Science Technology Development Gender Working Group ed., 1995); HELEN ZWEIFEL, *The Gendered Nature of Biodiversity Conservation*, *in* THE GENDER AND SCIENCE READER (Muriel Lederman & Ingrid Bartsch eds., 2001); Susan Hawthorne, *Land, Bodies, and Knowledge: Biocolonialism of Plants, Indigenous Peoples, Women, and People with Disabilities*, 32 SIGNS: J. WOMEN IN CULTURE & SOC'Y (2007).

[249] Suman Sahai, *TRIPS and Biodiversity: A Gender Perspective*, 12 GENDER & DEV. 58, 260 (2004).

domain. Scholarship in this area suggests the need for a more robust concept of situated public domains that would embrace each of these values as necessary for understanding particular patent law struggles. The section, however, is limited to a discussion of three key concerns within the literature. These include patent law's risks to women's health, threats to the cultural diversities that sustain them, and the marginalization of women in patent law governance.

Feminist political scientists, Sharmishta Barwa and Shirin M. Rai and Indian physicist and eco-feminist activist Vandana Shiva argue that patent law has the effect of blocking women's right to medical treatment.[250] They claim that patent law facilitates a shift in research priorities towards more profitable medical treatments aimed at developed countries, and away from medical care benefiting larger populations and women in developing countries.[251] Shiva notes that patent law encourages research for profit and not for social need, while reinforcing reductionist forms of science historically used to dominate women and non-Western peoples.[252] Barwa and Rai also assert that patent law supports scientific research that is "typically skewed towards the needs of Northern trade and commerce rather than towards the needs of the poor of the south, and towards sustainability of life."[253] Eileen Kane, a feminist legal scholar, calls attention to how patent law hinders genetic testing for breast cancer susceptibility. Kane notes that the patenting of the BRCA 1 and BRCA 2 genes by Myriad Corporation restricts breast cancer research and affordable access to breast cancer screening for women.[254] Identification of BRCA1 and BRCA 2 genes indicates susceptibility for breast or ovarian cancer. By patenting the genes, Myriad effectively controls genetic screening tests for breast cancer. Their control, however, was

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[250] SHIVA, BIOPIRACY *supra* note 19; Barwa & Rai, *supra* note 7.

[251] SHIVA, BIOPIRACY *supra* note 19, at 24–26; Barwa & Rai, *supra* note 7, at 100.

[252] SHIVA, BIOPIRACY *supra* note 19, at 24–26.

[253] Barwa & Rai, *supra* note 7, at 100.

[254] Kane, *supra* note 160.

recently limited by a district court decision ruling their patents to be invalid.[255] The effect of Myriad's patents on women's health is now in flux as Myriad appeals the decision.[256] This scholarship takes issue with cultures of openness and sharing within science and asks who benefits. Patent law policy based on an open public domain would benefit indigenous women and women of color in some ways by providing easier access to patented medications, such as the case of HIV/AIDS medications in South Africa.[257] Yet, it would not fully address how patent law reinforces modes of scientific research that only benefit elites.

Another concern is that patent law, in threatening biodiversity, also erodes cultural diversity. In a United Nations Environment Programme ("UNEP") report, Leonor Zalabata Torres of the Arhuaco people of Sierra Nevada de Santa Maria, Colombia, states: "To the extent that we are losing our cultural values, we lose indigenous women's values. To recover our cultural values is to recover women's values."[258] Consuelo Quiroz, National Coordinator for the Centre for Tropical Alternative Agriculture and Sustainable Development at the University of The Andes, along with Vandana Shiva, argues that cultural diversity and biological diversity mutually shape each other.[259] Victoria Tauli-Corpuz, a Philippine, indigenous activist with the Indigenous Peoples' International Centre for Policy and Research and Education, further notes that indigenous peoples do not separate biological diversity from cultural diversity and that indigenous peoples are "a part of nature."[260] Each of these

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[255] *See* Ass'n for Molecular Pathology, et. al. v. USPTO, et. al., 702 F.Supp. 2d 181 (S.D.N.Y., 2010)

[256] Andrew Pollack, *Patent Protection, Breached*, N.Y. TIMES, Nov. 2, 2010, at B1.

[257] *See* PREGS GOVENDER, LOVE AND COURAGE: A STORY OF INSUBORDINATION (2007).

[258] UNEP, *Women and Biodiversity: The Core of Existence*, *in* WOMEN AND THE ENVIRONMENT 17 (2004).

[259] *See* Quiroz, *supra* note 7; Shiva, *Bioprospecting*, *supra* note 7.

[260] Tauli-Corpuz, *supra* note 246, at 336.

authors raises important links between biological and cultural diversity. Feminist scholars, however, have argued that by aligning women as closer to nature it assumes that women and the environment are biologically, rather than socially constructed.[261] Yet, as Braidotti et. al. point out, women from the global South believe their connection to nature to be an important basis for their struggles because their reproductive and productive power has been their source of empowerment within their community.[262] This differs from Northern feminist movements which often consider women's reproductive and productive power to be a reason for women's subordination.[263] Thus, these connections between biological and cultural diversity become an important basis for critiques of patent law made by women in the global South. This scholarship also informs conceptions of a hybridized public domain. Counter to Euro-American epistemologies that separate nature and culture, indigenous peoples embrace hybrid forms of knowledge production where nature merges with culture. A hybridized public domain then becomes valuable for its potential in recognizing indigenous knowledge systems, in particular indigenous women's knowledge.

Feminist science studies scholarship also takes up a decidedly liberal feminist strategy in calling for women's increased role within intellectual property policy making. It differs, though, as its trajectory flows out of concerns regarding the individual and institutional barriers faced by indigenous women and women of color. Quiroz claims that women's marginalized status means that their interests are not fully represented at local, regional, and national institutions of governance where decisions regarding intellectual property rights are made.[264] She argues that women should be given the "opportunity and the means to develop their capacities and

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[261] R. BRAIDOTTI, ET AL., *Women, the Environment and Sustainable Development*, *in* THE WOMEN, GENDER, AND DEVELOPMENT READER 60 (Nalini Visvanathan, et al. eds., 1997).

[262] *Id.*

[263] *See id.*

[264] Quiroz, *supra* note 7, at 13.

obtain control (empowerment) of the decisions regarding their knowledge, innovations and practice. . . . "[265] Scholarship in this area also critiques the Convention for Biological Diversity ("CBD"). The CBD affirmed the need for the "full participation of women at all levels of policy-making and implementation for biological diversity conservation."[266] However, scholars argue that this recognition has not materialized.[267] For example, Fatima Alvarez-Castillo, Professor of Social Sciences, University of Philippines, and Dafna Feinholz, Executive Director, National Commission of Bioethics, Mexico assert that the CBD offers no guidance on how to bring about women's increased participation in policy making.[268] Expanding the role of women in IP policy may increase the likelihood that the concerns of indigenous women and women of color are more fully addressed. This scholarship also informs discussions of an egalitarian public domain. It acknowledges the individual and institutional barriers in the public sphere that indigenous women and women of color face in representing their concerns within local, national, and global governance structures. A more robust theorizing of an egalitarian public domain would address these constrains wthin the public sphere and could facilitate representation of indigenous women and women of color within governance structures. This might provide greater opportunities for patent law policy reforms that benefit diverse groups of women.

In conclusion, scholarship in this section as a whole demonstrates how the current dichotomy between the public domain and private intellectual property rights can subordinate certain groups of women. Much of the scholarship herein discusses patent law and gendered social relations. *Historical*

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[265] *Id.*

[266] Convention on Biological Diversity, preamble, June 5, 1992, 1760 U.N.T.S. 79.

[267] *See* Quiroz, *supra* note 7; Paola Deda & Renata Rubian, *Women and Biodiversity: The Long Journey from Users to Policy-makers*, 28 NATURAL RESOURCES FORUM 201, 201 (2004).

[268] Fatima Alvarez-Castillo & Dafna Feinholz, *Women in Developing Countries and Benefit-Sharing*, 6 DEVELOPING WORLD BIOETHICS 113, 114 (2006).

studies of patent law ownership show how the presence of gendered inequalities in the public sphere means that women's creative work is considered public domain material, thus excluding women from obtaining patent law ownership. *Sociological studies* demonstrate that female life scientists' inventive work also remains relegated to the public domain as they are less likely to patent their inventions than their male colleagues. Theoretically female scientists can transform their work from being in the public domain to being a privatized patented object. Yet patterns of discrimination within the public sphere of the workplace hinder them from being able to patent their inventions to a similar degree.

In raising this critique, this scholarship implies egalitarian public domains where patterns of discrimination are exposed in order to facilitate women's access to patent rights. This scholarship also focuses on how conceptions of authorship/ inventorship within intellectual property law work to obscure and exclude collaborative forms of gendered and/or indigenous knowledge production and to reinforce a mind/body split. In part, what is needed is a more complex understanding of inventorship which effectively recognizes historically excluded forms of creativity by way of awarding patent rights. A more robust notion of inventorship therefore would enable more egalitarian public domains where formerly excluded creative works become recognized as valuable, potential private property rights rather than raw material. Therefore this scholarship theorizes an egalitarian public domain that is not defined as the opposite of or as less valuable than private intellectual property rights. Rather, the egalitarian public domain is where patterns of discrimination are addressed and formerly excluded male and female inventors are encouraged to obtain patent rights. A degree of protection is therefore desired. An egalitarian public domain would protect inventors by considering differential access to resources caused by discrimination and would open up avenues towards securing patent rights for historically marginalized groups. Thus critique is leveled against patent law as having discriminatory modes, but the implied goal is more patent rights for more people. There is no criticism of how expansive patent law can also restrict creativity in the public domain and harm others.

This differs, in contrast, with the work of certain indigenous women's social movements and scholarship within feminist science studies. This literature claims that patent law subordinates indigenous women because it commodifies nature and exploits indigenous women's knowledge. Thus, their critique suggests an egalitarian public domain where patterns of discrimination are addressed not to encourage women to obtain patent rights, but to abolish the patenting of genetic and biological material derived from indigenous peoples all together. This implies an expansion of the public domain and a reduction of private property rights. The goal would be to strengthen the public domain by limiting patent rights. This is a very different value of egalitarianism. Equality for indigenous women more likely means freedom from encroaching patent laws that commodify their culture. Yet, this too is contested. Some Ghanaian women, for example, desire intellectual property rights for themselves.[269]

This scholarship, therefore, stretches concepts of the public domain to consider individual and structural relations of gender. Patent ownership has eluded women due to systems of gender subordination. Legal regulations, cultures of domesticity, and bias in the science professions make it more difficult for them to obtain patent ownership. Notions of individual inventorship obscure collaborative knowledge production and sustain a dichotomous mind/body split, which continues to justify the subordination of women and indigenous peoples as closer to nature and less rational. This scholarship provides valuable insights, but is limited in its approach to gendered social relations. Indigenous women's social movements and feminist science studies scholarship provide more complex accounts of gender as shaped by race, indigeneity, class, and neo-liberalism. According to this work, patent law threatens women's access to biodiverse resources and health care, while at the same time eroding cultural diversity. It also notes that policy-making around patent law excludes women from representing their interests. However, this scholarship also has its limitations. For example, it fails to afford indigenous women and women of color agency in claiming their own rights to patent ownership. Patent rights may actually benefit some women who seek

[269] *See* Boateng, *supra* note 248.

recognition for their inventions or bargaining power in negotiating benefit-sharing agreements.[270]

Despite these limitations, scholarship in this area signals the need for a more complex approach to the public domain. It indicates that, unless carefully constructed, an egalitarian public domain might not fully serve the interests of indigenous women or women of color. Thus, multiple visions of an egalitarian public domain emerge. For instance, campaigns to increase women's patent ownership will likely only benefit women who already have resources to invent patentable objects, and may result in harm to indigenous women and women of color, particularly in the global South, by threatening their resources and knowledges. Thus values of protection and hybridity might also need to be incorporated within considerations of an egalitarian public domain. Thus, a more nuanced and complex account of the public domain is needed to ensure more socially just patent law.

II. Situated Public Domains

This Article has examined several visions of the public domain formulated by various critical IP projects. Each one offers important values for shaping patent law policy. Desires for openness, protectiveness, hybridity, and egalitarianism are productive in formulating conceptions of the public domain. Each one has usefulness in guiding patent law policy. Their productive power though differs depending upon the particular patent law struggle. For example, values of openness support scientists' arguments against DNA sequence patents and desires for the free and open exchange of scientific materials and ideas. Openness also undergirds claims by certain women in South Africa yearning for increased access to patented medicines such as HIV/AIDS drugs. Yet, an open public domain in which resources are freely open and available might harm indigenous peoples and people of color whose resources and cultures are being threatened. In that case, a more protective public domain might be needed to safeguard their resources. A hybridized public domain might also be useful in recognizing the valuable input of indigenous knowledge systems, which maintain

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[270] *Id.*

insightful notions of nature/culture and environment. An egalitarian public domain with an intersectional approach to gender can also bring recognition to indigenous women who may be disproportionately impacted by patent law or even desire patent rights for themselves. Each of these values is important. Acknowledging how they converge, compete, and oscillate, in relation to a particular patent law struggle, enables a more productive understanding of how knowledge production is structured by private property.

Thus, I suggest an analytic for understanding the public domain as situated public domains. My suggestion flows directly from Donna Haraway's work on "situated knowledges."[271] Haraway developed the concept of situated knowledges within the context of feminist debates over objectivity, which contested assumptions of value neutrality and objectivity within scientific method.[272] Key points within these debates were also taken up by feminist legal scholars to challenge values of objectivity embedded in the law.[273] According to Haraway, understanding knowledge and knowledge production as situated provides an alternative to the rational, neutral and universalizing vision of masculine objectivity within the sciences, which fails to account for social relations and histories.[274] In contrast, situated knowledge is an epistemology that produces complex, contradictory, heterogeneous, partial, and socially located ways

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[271] Donna Haraway, *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective*, 14 FEMINIST STUD. 575 (1988) [hereinafter Haraway, *Situated Knowledges*].

[272] For feminist debates around objectivity *see* DONNA J. HARAWAY, SIMIANS, CYBORGS, AND WOMEN: THE REINVENTION OF NATURE (1991); SANDRA G. HARDING, THE SCIENCE QUESTION IN FEMINISM (1986); EVELYN FOX KELLER, REFLECTIONS ON GENDER AND SCIENCE (1985). For a discussion of how feminist debates over objectivity relate to standpoint theory and critiques of standpoint methodology, *see* SANDRA G. HARDING, THE FEMINIST STANDPOINT THEORY READER: INTELLECTUAL AND POLITICAL CONTROVERSIES (Routledge 2004).

[273] *See* Catharine A. MacKinnon, *Feminism, Marxism, Method and the State: Toward Feminist Jurisprudence*, 8 SIGNS: J. WOMEN IN CULTURE & SOC'Y 635, 636 (1983).

[274] Haraway, *Situated Knowledges*, *supra* note 281, at 578.

of knowing.[275] It is a "view from a body," versus a disembodied, masculine gaze from above.[276] Thus, it produces knowledge "from below" to bring attention to subjugated ontologies and epistemologies.[277] It is, however, not relativist.[278] Situated knowledge is therefore both a way of understanding knowledge production and a methodology for producing knowledge. Science (and law) should proceed based upon an assumption that all knowledge is already situated, rather than thinking that knowledge is value neutral and objective. According to Harding, situated knowledge is produced through a stronger notion of objectivity that is socially situated and partial.[279] Situated knowledge is rational knowledge that conducts an ongoing critique through processes of coding and decoding, while paying attention to systems of power.[280] Its aim is not a "Truth" or a final closing narrative, but continual contestation over meanings

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[275] *See Id.* at 589.

[276] *Id.*

[277] *See* SANDRA G. HARDING, SCIENCES FROM BELOW: FEMINISMS, POSTCOLONIALITIES, AND MODERNITIES (2008).

[278] Haraway is clear that the position of situated knowledges and a view from below does not promote relativism. Haraway, *Situated Knowledeges*, *supra* note 281. "Such preferred positioning is as hostile to various forms of relativism as to the most explicitly totalizing versions of claims to scientific authority. But the alternative to relativism is not totalization and single vision, which is always finally the unmarked category whose power depends on systematic narrowing and obscuring. The alternative to relativism is partial, locatable, critical knowledges sustaining the possibility of webs of connections called solidarity in politics and shared conversations in epistemology. Relativism is a way of being nowhere while claiming to be everywhere equally. The 'equality' of positioning is a denial of responsibility and critical inquiry. Relativism is the perfect mirror twin of totalization in the ideologies of objectivity; both deny the stakes in location, embodiment, and partial perspective; both make it impossible to see well. Relativism and totalization are both 'god tricks' promising vision from everywhere and nowhere equally and fully, common myths in rhetorics surrounding Science. But it is precisely in the politics and epistemology of partial perspectives that the possibility of sustained, rational, objective inquiry rests." *Id.* at 584.

[279] HARDING, WHOSE SCIENCE? WHOSE KNOWLEDGE?, *supra* note 57.

[280] Haraway, *Situated Knowledges, supra* note 281.

and futures.[281] Thus, the situatedness of knowledge and knowledge production is dynamic and continually changing. I suggest applying this way of understanding and producing knowledge to the public domain.

An understanding of public domains as situated enables scholars to consider how various conceptions of the public domain are at work within particular patent law struggles and critical IP projects. Thus it enables values of openness, protectiveness, hybridity, and egalitarianism to be taken seriously simultaneously and in various forms. A notion of situated public domains facilitates a vision of the public domain that is an alternative to the neutral and objective judicial interpretations of the public domain as outside or opposite of intellectual property law. It takes into account social relations and histories that include complex notions of gender, race, indigeneity and neoliberalism as they are embedded within the scientific/cultural knowledge production. It also enables scholars to consider how values of openness, protectiveness, hybridity and egalitarianism can shape patent law policy in different ways for different groups. An analytic of situated public domains also opens up sites of contradiction as a source for producing better knowledge claims. For instance, an egalitarian public domain evokes contradictions between groups of women, thus values of protection and hybridity become necessary to consider. The main point is that situated public domains allow for multiple heterogeneous constructions of the public domain that are contingent and partial. Opening up space to recognize and promote partial theorizing of the public domain is critical for developing better understandings of patent law and policy. As socio-political conditions change and new assemblages of actors emerge, new conceptions of the public domain will be necessary. A situated public domain recognizes relations of power and addresses the interests of socially located marginalized groups, including women.

One may argue that a situated public domain would create uncertainty under patent law because the legitimacy of patent law requires a more stable notion of the public domain. On the contrary, a notion of situated public domains can promote greater

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[281] *See id.* at 584–85.

certainty under the law. It can engender a more flexible legal environment where all the facts of a particular patent law struggle can be considered. It can also help build a more robust patent law system where other legal frameworks such as human rights law can be incorporated in interpreting the effects of patent law.[282] Thus, the notion of situated public domains provides scholars with a more robust analytic for considering how the relationship between the public domain and patent law impacts society and cultural/scientific knowledge production.

The notion of situated public domains also opens up space to examine and recognize indigenous women's knowledge production within the public domain and its relationship to patent law. It enables one to understand how knowledge production is situated and how values of the public domain must be applied appropriately in order to take this into account. To better illustrate this point, a brief discussion of a particular patent law struggle is useful. For example, take the case of the patenting of Indigenous San knowledge regarding the Hoodia plant.[283] What certain ‡Khomani San women know about the Hoodia plant is informed by structural histories of migration, genocide, colonialism, apartheid, and neocolonialism that are shaped by their experiences as indigenous women marked as racially and ethnically "other" within South Africa.[284] Their knowledge is highly complex and based on generations of dissemination, and it is also heterogeneous and even contradictory as they may know different things about the same

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[282] *See* Laurence R. Helfer, *Toward a Human Rights Framework for Intellectual Property*, 40 U.C. DAVIS L. REV. 971, 1020 (2007) (arguing that international human rights law is increasingly intertwined with and relevant to intellectual property law and policy); Peter K. Yu, *Reconceptualizing Intellectual Property Interests in a Human Rights Framework*, 40 U.C. DAVIS L. REV. 1039, 1045 (2007) (arguing that the protection of non-human rights aspects of intellectual property policy should be subordinated to human rights obligations as specified under the principle of human rights primacy).

[283] *See supra* note 8 and accompanying text.

[284] *See generally* Heike Becker, *The Least Sexist Society? Perspectives on Gender, Change and Violence among southern African San*, 29 J. OF S. AFR. STUD. 5 (2003) [hereinafter Becker, *The Least Sexist Society?*]; HEIKE BECKER, TOWARDS A SASI GENDER STRATEGY: ANALYSIS AND RECOMMENDATIONS (2001).

plant given their various levels of education, employment, age, and status in the community.[285] ǂKhomani San women's knowledge may even be partial. Important pieces of information may have been lost due to histories of dislocation, and they generally lack the capital equipment to investigate the properties of Hoodia further.[286] Their knowledge about Hoodia is also different from the men in their communities, as it flows from their reproductive capacities or gendered social roles in caring for their families, educating children, and/or politically representing their communities.[287] For example, ǂKhomani San women learned over time that the plant could be used to ease breastfeeding and to reduce gassiness in babies.[288] However, their knowledge about the plant is also similar in some respects to that of ǂKhomani San men.[289] For example, they both articulate using Hoodia to suppress appetite or quench thirst.[290] Considering additional layers, ǂKhomani San women's knowledge likely differs from the knowledge about Hoodia held by other San women in Namibia, Botswana, and South Africa and local farmers, scientists, and scholars.[291] Thus, how these women are "situated" shapes what knowledge they know and produce.

This understanding enables scholars to produce accounts of ǂKhomani San knowledge regarding Hoodia that recognize ǂKhomani San women's knowledge in relation to the men in their communities without reinforcing gendered hierarchies or creating new ones. It can facilitate accounts of cultural knowledge production that are complex, contradictory,

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[285] Interviews with ǂKhomani San women and men, in Andriesville and Upington, S. Afr. (March 3–11, 2009) [hereinafter ǂKhomani San Interviews].

[286] *See generally* LE ROUX & WHITE, *supra* note 8.

[287] ǂKhomani San Interviews, *supra* note 295.

[288] *Id.*

[289] ǂKhomani San Interviews, *supra* note 295; *See generally* Becker, *The Least Sexist Society?*, *supra* note 294.

[290] ǂKhomani San Interviews, *supra* note 295.

[291] *See generally* Vermeylen, *supra* note 8.

heterogeneous, partial, and socially located. This includes recognizing the bodies of ǂKhomani San women and how their knowledge flows from their material realities as women in the community in different or similar ways to the men in their communities. It also entails remaining open to changing meanings as ǂKhomani San women and their communities continually contest the patenting of their Indigenous knowledge and heritage through various different strategies overtime. A conceptual analytic of situated public domains thus involves examining and producing accounts of cultural knowledge production as situated. As knowledge itself is situated, values related to the public domain can and must be understood accordingly.

Values of, and desires for, openness, protectiveness, hybridity, and egalitarianism will likely benefit different ǂKhomani San differently. Therefore, such desires and their corresponding policy arguments will yield varying strategies. By taking this into account, a more just relationship between the public domain and private patent ownership is more likely to emerge. For instance, an open public domain can help support arguments against the patenting of ǂKhomani San knowledge. Drawing upon the Beijing and Manukan Declarations and their positions as "daughters of Mother Earth," ǂKhomani San women could argue against the patenting of biological and genetic materials derived from indigenous peoples.[292] In fact, in interviews with some ǂKhomani San women, they articulated that biological and genetic materials such as Hoodia should not be owned or controlled through patent law.[293] Such a "no patenting on life" argument, however, may leave the ǂKhomani San open for exploitation. Companies have become increasingly engaged in bioprospecting to meet the demands of a global, neoliberal marketplace. Researchers are collecting indigenous plant knowledge in the hopes that it may lead to the next big pharmaceutical drug. Therefore, a protective public domain might benefit ǂKhomani San women more.

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[292] *See* discussion *infra* Part I.D.3.

[293] ǂKhomani San Interviews, *supra* note 295.

Protecting ǂKhomani San knowledge and resources would likely help ǂKhomani San women continue to use their knowledge to care for their families and children. Rather than leave their knowledge freely open and accessible in the public domain, some protection is needed. Yet, what degree of protection is necessary? Would such means of protection benefit ǂKhomani San men and women in the same way? Recognition of gendered social relations would help strengthen protocols of prior informed consent and negotiations for benefit sharing. ǂKhomani San women may also benefit from stressing values of hybridity. This may facilitate recognition of indigenous knowledge as containing hybrid notions of nature/culture, notions which indigenous women claim they embody given their positions as closer to nature.[294] On the other hand, ǂKhomani San women may want to promote an egalitarian public domain that embraces an intersectional approach to gender, thus allowing for different strategies against the patenting of their knowledge. For example, some ǂKhomani San women might want to claim patent rights to Hoodia for themselves in order to recognize their historical role as gatherers of plant knowledge within their communities. Others might want to design strategies for equality that aim at prohibiting the patenting of indigenous knowledge all together. Furthermore, some ǂKhomani San women might want to focus on increasing their role in community governance to more fully participate in negotiations regarding benefit sharing.

The point is that different ǂKhomani San women will likely embrace multiple values of the public domain and likewise design variegated strategies against patent law. The values they embrace may also overlap and contradict each other. Values of openness, hybridity, protectiveness, and egalitarianism should not be understood as discrete desires. Their interplay, as demonstrated, is often messy. Scientists can embrace values of openness to justify arguments against the patenting of DNA sequences to promote a continual open exchange of scientific information and culture of sharing.[295] Indigenous peoples can also point to values of openness and the "common heritage of

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[294] *See id.*

[295] *See generally* Rai & Eisenberg, *supra* note 4.

mankind" to argue for prohibiting the biological and genetic materials derived from indigenous peoples.[296] Furthermore, legal scholars can point to values of openness and free exchange of information within the public domain in arguing for a commons approach that essentially *protects* creators and producers of knowledge.[297] This level of protection, however, would not benefit indigenous peoples who are producers of knowledge. Thus, indigenous peoples must argue for a different scope and value of protection of the public domain. What becomes clear is that even the desire for an open public domain and how "openness" is perceived and constructed as a value is situated and will likely change overtime. Thus, ǂKhomani San women are likely to embrace similar values, but to a different degree or scope. They also might express different visions of the public domain that at times contradict one another. Whatever values they express or strategies they design against the patenting of their knowledge, they would share a common focus. They would share a similar desire to construct a relationship between the public domain and patent law that benefits both ǂKhomani San men and women by furthering their rights to self-determination.

A conceptual analytic of situated public domains therefore takes into account how values of the public domain may function differently within a particular community and produce multiple, often conflicting benefits. It enables us to see how individuals and groups are theorizing the public domain as partial and contradictory. Such theorizing differs from the universal theorizing that undergirds other notions of the public domain. Scholars articulating an open public domain, for example, suggest a vision of the public domain that is universally open in order to promote creativity. This universalizing assumption, however, works to promote only certain forms of creativity. A vision of an open public domain that does not address inequalities and complex gendered relations only serves to promote forms of creativity that are already privileged within the public domain. Even a protective public domain at times can fall into the trap of a universalizing logic. Strategies driven by desires for a protective public domain

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[296] *See* SHIVA, BIOPIRACY, *supra* note 19.

[297] *See* BOYLE, THE PUBLIC DOMAIN, *supra* note 4.

entail limiting intellectual property rights, but at the same time increasing other regulatory legal regimes in order to mitigate the power of intellectual property rights. Attention is placed on such legal technologies as access and benefit-sharing agreements and prior informed consent documents. These technologies themselves can promote their own forms of universalizing logic, forcing indigenous communities to conform to western legal models of contract and consent. Indigenous communities often desire different levels of protection and even members within indigenous groups, particularly indigenous women, may want to pursue radically diverging strategies. Thus, a protective public domain must be flexible and attentive in order to avoid the traps of universalism under the law. Not all scholar/activists working through such protective public domain models fall into this trap, however. Some, for example, are striving to provide more flexible benefit sharing and informed consent models based upon a vision of a traditional knowledge commons.[298] Those working through values for a protective public domain, however, would still benefit from a notion of situated public domains and find it helpful in their efforts to further stretch its possibilities for benefiting indigenous communities.

Situated public domains engage in partial theorizing, which can avoid the traps of universalizing logics.[299] Such an understanding is extremely important for structuring policy related to patent law and indigenous knowledge. Technologies of benefit-sharing and prior informed consent, developed through an understanding of situated public domains, can become better. Such legal technologies can be designed in a more flexible and contingent manner in order to protect and advance substantive equality for indigenous communities, including indigenous women. By this I do not mean to suggest that policy should be based on the individual wants and desires of those whose knowledge may be open to exploitation. Attention to group

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[298] Elan Abrell, Kabir S. Bavikatte, Gino Cocchiaro & Johanna von Braun, *Imagining a Traditional Knowledge Commons: A Community Approach to Ensuring the Local Integrity of Environmental Law and Policy* (Mar., 2010) (unpublished manuscript) (on file with the author).

[299] Haraway claims that "only partial perspective promises objectivity" as opposed to theorizing that makes conclusions based upon universals and "Truth." *See* Haraway, *Situated Knowledges, supra* note 281, at 583.

rights and collective rights should remain a central concern within such policymaking. What I am suggesting though is a process in which individual indigenous communities are left to decide for themselves what benefit sharing and prior informed consent should look like. This process should be one in which the sovereignty of indigenous communities is respected and they are allowed to negotiate among themselves and in consultation with indigenous networks and trusted non-governmental organizations as to how to protect their knowledge in a way that furthers substantive equality. The fact that this process of policymaking involves consultation is important. Indigenous communities are not static; they participate, albeit to different degrees, within global networks of policy organizations and other indigenous communities. A context-specific consideration of gendered social relations and gender equality, therefore, can emerge within policymaking through these negotiations, consultations, and networks.

I also suggest that the direction of policy-making be shifted. For example, benefit-sharing agreements are often designed to encourage education and training for indigenous communities. A laudable project, but it is flawed. Such models of education and training continue to reinforce modes of modernity where it is the indigenous communities who are perceived as in need of educating and civilizing. A better model of benefit sharing might also demand training for the scientists and companies engaged in the bioprospecting and patenting of indigenous knowledge. What would benefit sharing look like if it prescribed training for scientists on the historical harms of colonial science and anthropology? What would prior informed consent look like if it demanded that scientists, researchers, and IRB officials take training and agree to the ethical frameworks of indigenous communities themselves? A conceptual understanding and theorizing of situated public domains engenders these more socially just ways of policymaking. Thus, a conceptual analytic of situated public domains supports a social justice approach to patent law policy by enabling scholars to produce examinations of the public domain that are nuanced and that take into account complex gendered social relations, while enabling more flexible and responsive patent law policy.

CONCLUSION

This Article promotes a conceptual analytic for examining the public domain. If we are to take seriously the need expressed by James Boyle for a "legal realism of the public domain," then it is crucial to set forth a foundational ethic for studying public domains as situated.[300] Cultural/scientific knowledge production in the public domain can be contradictory and varied. Values of openness, protectiveness, hybridity, and egalitarianism are all important values to consider. Political and legal strategies against encroaching intellectual property laws must flow from an understanding of how these values emerge, converge, and conflict in any given geo-political context. My suggestion for a situated public domain is not meant therefore to replace other conceptions of the public domain; rather, it is offered as a way of producing better theorizing and policy around these desires. It is meant to push scholarship around the open domain to acknowledge inequalities within the public domain and to recognize that gendered and indigenous forms of creativity do not fully benefit from current theorizing around the public domain. It is meant to enhance notions of a hybridized public domain and protective public domain to explicitly account for complex gendered social relations. In so doing, this Article does not propose explicit policy solutions at this time. This is because robust policy solutions can only come from a more nuanced understanding of cultural/scientific knowledge production within the public domain and its relationship to patent law. This includes an examination of the public domain that takes into account complex, intersectional gender relations. Situated public domains are one possible starting point: they form a conceptual framework for building socio-legal studies of the public domain that can inform more just policy decisions. A socio-legal study of the public domain and its relationship to patent law would require new strategies for research design and techniques for gathering and analyzing data. It would also engender a different type of legal realism of the public domain from what Boyle likely envisions. Such studies, however, would enable the production of complex accounts of how patent law impacts society, in particular indigenous women and their families, which are essential for crafting legal reforms.

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[300] Boyle, *Foreword: The Opposite of Propety?*, *supra* note 4, at 30–31.